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BENGT THORDEMAN

ARMOUR
FROM THE BATTLE OF
WISBY
1361



VOL. I

TEXT

KUNGL. VITTERHETS HISTORIE
OCH ANTIKVITETS AKADEMIEN
STOCKHOLM

ARMOUR
FROM THE BATTLE OF
WISBY
1361

By

BENGT THORDEMAN, PH. D.

IN COLLABORATION WITH

POUL NÖRLUND, PH. D., AND BO E. INGELMARK, M. B.

VOL. I. TEXT

KUNGL. VITTERHETS HISTORIE OCH ANTIKVITETS AKADEMIEN

STOCKHOLM

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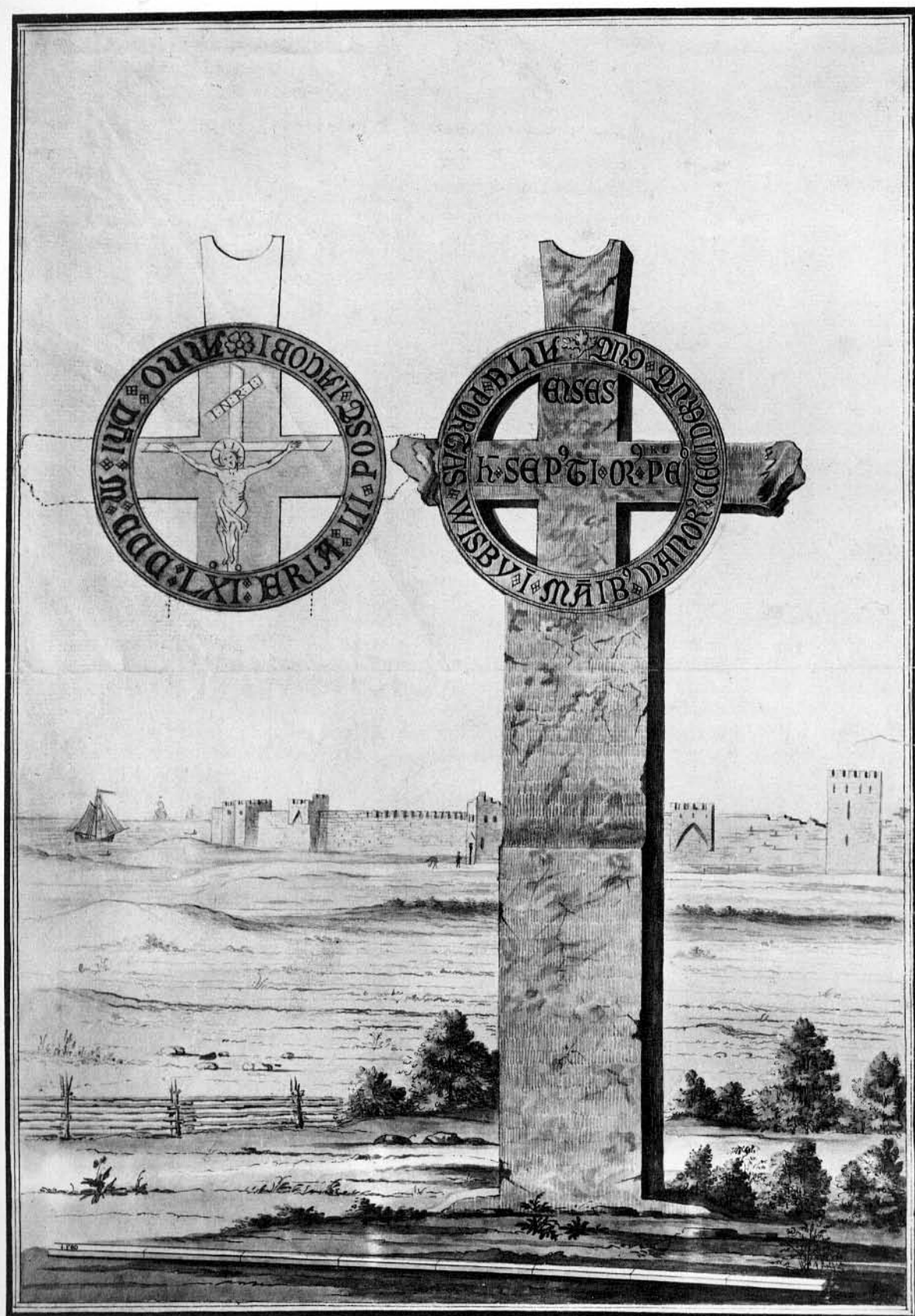
TO
LUDVIG STAVENOW

OCTOBER 12th 1939

B. Th.

Fig 1.
Memorial Cross to commemorate the Battle of Wisby
on July 27th, 1361.

Water-colour by Sören Abildgaard, 1735.
In the National Museum at Copenhagen.



Dette Sten - Kors af Marmor, opreist til et Minde af Kong Waldemar og de dannede Bror over
 Gotlandrene 1361. staar endnu i Slots - Gærdningen uden for Nisby Stads fjender Port. Aftaget
 1753. af J. J. Sørensen.

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PREFACE

The first scientific excavations of the warrior graves at Wisby were carried out in 1905 and 1912 by the late Doctor O. V. Wennersten. It was in August, 1924, that I came in contact with the finds from these excavations, when I was commissioned by the Director of the Swedish National Museum of Antiquities, Doctor Sigurd Curman, to unpack and arrange them and supervise their preservation. This commission was subsequently extended to include the great excavation carried out in 1928–1930 and the scientific treatment of the vast and valuable find material brought to light. Thus the work on these finds and the problems connected with them has covered a period of fifteen years, though mostly side by side with my ordinary duties at the Museum, and often interrupted, sometimes for considerable periods, by other scientific tasks and work connected with various exhibitions. Consequently, as I am fully aware, the present report shows unfortunate traces that it is not the result of continuous effort. View-points have changed and been rectified, fresh finds or observations have been interpolated, and this has perhaps not always promoted the homogeneity of the work. Of course I am aware that the comparative representation might in many points have been more explicit and complete, and that continued researches might bring to light further monuments and finds of importance for my subject. However, I have been obliged in some measure to limit the scope of the book, for which reason I have also considered it necessary to restrict my account of such finds from the graves as are distinct from armour to a description and brief orientation. As regards comparative material for the finds of armour, I ought to point out that earlier detailed investigations of 14th-century armour can hardly be said to have existed—apart from valuable researches as regards certain questions of detail, of which I have taken grateful advantage—and that was just because it was only the Wisby armours that shed light on other scattered finds and on contemporary pictures, and thus led to an understanding of the construction and development of the armour of the 14th century. I have therefore, to a certain degree, been obliged to search out comparative material and sources myself, for which task both my time and possibilities have been limited. For my journeys in connection therewith I have on several occasions received grants from the *K. Vitterhets Historie och Antikvitets Akademien* (R. Academy of Literature, History and Antiquities in Stockholm) as well as from the *Humanistiska Fonden* and the *Långmanska Kulturfonden*.

It ought also to be made clear from the very start that I have introduced reference to literary source-material dealing with the history of armour only to a limited extent. To do so would have further delayed the appearance of the work, possibly without affording results

of any great importance. It must be left to later workers in this field further to investigate to what extent the finds shed light on earlier literature and vice versa. I have therefore tried to employ for the different types of armour a neutral and readily comprehensible terminology, which does not too rigidly attach contemporary medieval designations to the constructions here analyzed, with possibly resultant confusion.

Now, on the conclusion of this many years' task, I feel I owe a great debt of gratitude to many collaborators, colleagues and friends, who have aided and seconded me in various ways. In the first place I would mention my fellow-workers in the excavations at Wisby in 1928–1930, workmen, students and specialists. Foremost among these is Dr. Poul Nörlund, now Director of the Danish National Museum in Copenhagen, who joined me in supervising the work in 1928 and 1929. I have taken the liberty of placing his name on the title page of this book, not merely for this reason, nor because Chapter VI is largely based upon his work, but also because he has constantly followed my work with unselfish interest, and has always been ready with assistance and encouragement. He has therefore a great share in this book. The personal friendship between us that has resulted on our collaboration is a source of very special satisfaction to me. The names of my other collaborators are to be found in the account of the excavations on pp. 60–66. I remember them all with feelings of sincere gratitude. They performed their tasks with enthusiasm, care and unvarying good-will. I am convinced that the others will appreciate that I feel impelled to mention especially Dr. Elias Dahr, Dr. Harald Olsson and the photographer, Mr. Nils Åzélius. The last-mentioned not only performed his particular duties in a manner which, in my opinion, could not have been improved upon, as several pictures in the following pages prove, but he also contributed good ideas and hints of a technical nature in many difficulties. Dr. Olsson has the credit of having made some of the very best measured drawings of the excavations, among others that of Armour No. 24, and he has subsequently gone through, listed, and ordered the whole find material, arranged and often himself drawn up the measured drawings reproduced in the plate volume. I also wish to mention particularly Mr. Ture Carlsson, of Wisby, who assisted me skilfully and in a dependable manner with innumerable practical matters.

I also recall the memory of the man who conducted the excavations of the warrior graves in the years 1905 and 1912, the late Dr. Oscar Vilhelm Wennersten. He was a man such as is rarely met with, a man who pursued his way intrepidly, an enthusiast, original, quick to attack, easy of reconciliation. He became a real friend and helper, and I recollect with pleasure many touching evidences of his endeavours to aid me in every possible way.

In the course of my work at Wisby I was received with the utmost kindness by all quarters, something which greatly facilitated and furthered the accomplishment of my task. The excavations involved a good deal of trouble and inconvenience to the owner of the garden beneath which common grave 2 was partly located, Major Gösta Silvén. He and his wife accepted all this with the greatest amiability and understanding, and furthermore, he gave us all the help in his power by allowing us the use of premises for the storage of finds, tools, etc. Valuable aid was also given by the then Lord Lieutenant of the Island of

Gotland, Allan Rodhe, the then Keeper of the Museum at Wisby, Mrs. Ella Hellgren, and the manager of the Gotland Steamship Company, Consul C. E. Ekman, the last-named repeatedly securing financial aid for the excavations, and for the subsequent scientific work, in precarious situations. The authorities of the city of Wisby also promoted the excavations, both financially and in other ways.

That part of the find material which I was not competent to deal with, viz. the skeletons, long caused me serious difficulties. The finds are, in fact, so immense in quantity that it is quite understandable that experts hesitated to undertake the task of examining them. Thanks to the keen interest in the matter shown by the Principal of the Anatomical Institution at Uppsala University, Professor David Holmdahl, the study of the skeletons was ultimately placed in the very best hands, and in a relatively brief space of time Dr. Bo E. Ingelmark had made himself familiar with the vast amount of material. Professor Holmdahl was generous enough to place premises and staff at our disposal. I considered it appropriate to confine the work to questions which should contribute to a correct historical and archaeological estimation of the find. Undoubtedly this unique material would be worthy of study also from other, more purely anthropological, anatomical and pathological points of view, e.g. matters concerning the cranial indices, dental diseases etc., but I have deemed it better not to encumber the present work with investigations which lie beyond the scope of the subject proper. However, I should welcome any further attempts to deal with the skeletal material from such angles too, and I need not add that it will be at the disposal of any scholar who wishes to examine it. For the study of battle-wounds the well-known fencer, Major Nils Hellsten, placed his practical and historical knowledge at our disposal.

In dealing with the archaeological find material from the warrior graves, I have constantly been given valuable help by my colleagues at the National Museum of Antiquities and at the Office of the National Antiquities in Stockholm. I think there is hardly a single one among them who has not in some way or other assisted me, although they may not always be mentioned in the text. I can assure them all of my profound and sincere gratitude. Owing to lack of space I am unable to mention them all individually here, but I feel I cannot omit a special word of thanks to my chief and friend, Doctor Sigurd Curman, the State Antiquary of Sweden, who first entrusted me with this important task, and who has subsequently ever been prepared to secure financial and other support to the full extent that I considered necessary for carrying on the work. My friend since our university days, the Museum librarian, Dr. Adolf Schück, has not only furnished me with literature but has travelled far beyond the strict scope of his duties in advancing helpful suggestions as to important monuments and publications. Much meticulous and tiresome work was performed by the Museum draughtsman, Mr. H. Faith-Ell, and his assistant, Mr. N. Svensson, and by Mr. A. Nyström, who with never-flagging interest mounted all the armours from Wisby on lay figures of cork, made by himself.

Also the keepers and other officials at kindred institutions in Stockholm have always been generous in placing their collections and their erudition at my disposal, and likewise

my inquiries and requests for photographs have always been met with kindly understanding by various museums at home and abroad and by private scholars.

When I undertook the task of dealing with the Wisby finds, I was not especially initiated into research work as regards history of armour. My earliest guidance in respect to literature and material I received from Baron Rudolf Cederström, Director of the Royal Armoury in Stockholm. He also introduced me to some foreign experts, who subsequently showed keen interest in dealing with my questions and generously shared with me their knowledge and observations. Two of them, unfortunately, my expression of gratitude can no longer reach, namely the late Professor Hans Stöcklein, Director of the Army Museum at Munich, and Professor Wsewolod Arendt, Leningrad. With the latter I exchanged profitable correspondence for many years, and I also had the pleasure of making his personal acquaintance during a visit to Russia in 1935, but at the beginning of 1938 my letters to him were returned bearing the mournful imprint "Parti". I am further indebted to the prominent experts in medieval armour, Dr. E. A. Gessler, of the Schweizerisches Landesmuseum, Zurich, and Professor Paul Post, Zeughaus, Berlin, who both followed my work with the keenest interest from the very beginning. My very greatest obligation, however, is to Mr. James G. Mann, Keeper of the Wallace Collection, London, who not only devoted time and interest to discussing with me divers of the questions here dealt with, but who also did me the great service—at a time when he was otherwise very fully occupied—of reading the whole work in manuscript, making many valuable suggestions.

During a journey in the Near East in 1934, His Royal Highness the Crown Prince of Sweden took some excellent detail photographs of the monument to Chosroes II at Taq-i-Bostan, which is of such importance for my researches, and these photographs he has graciously placed at my disposal. One of them is reproduced below as fig. 255.

Furthermore, I have received pictures or suggestions from, among others, Dr. Nils Åberg, Dr. Greta Arwidsson, Dr. Folke Bergman, Professor Sigurd Erixon, Lieutenant-Colonel Dr. Th. Jakobsson, Professor Bernhard Karlgren, Dr. Gösta Montell, Dr. Ernst Nygren, Dr. A. Westholm, Mr. H. Widén, B. A., all of Stockholm; Mr. C. A. Jensen, Copenhagen; Professor A. M. Tallgren and Dr. C. A. Nordman, of Helsingfors; Professor W. J. Raudonikas, Leningrad; Dr. M. Heydrich, Dresden; Professor C. Habicht, Hanover; Professor K. Sitzmann, Bayreuth; Dr. Hans Wentzel, Stuttgart; Professor R. Forrer, Strasbourg; M. G. Pauilhac, Paris; Mr. Sidney Smith, London; Professor Ellis H. Minns, Cambridge; Mr. Stephen V. Grancsay, New York; Mr. R. F. S. Starr, Harvard University; and Mr. Frank E. Brown, Yale University.

The Swedish manuscript was translated into English by Mr. W. Savage. The translation was very competently revised by Miss Helen Mary Petter, of the Courtauld Institute of Art, London. The index of the finds was drawn up by Miss I. Beskow, and the other indexes by Miss K. Carlson. The binding was designed by Professor Hugo Steiner-Prag. I wish to express my thanks to the manager of the Almqvist & Wiksell Printing Co., Uppsala, Mr. Carl Z. Hæggström, and his collaborators for the interest they have taken and the skilful work they have performed in the presentation of these volumes.

Finally, I wish to thank my wife for her careful and experienced proof-reading, and for her invaluable assistance during the course of my work on this book and the research that preceded it.

This book about a war constitutes the result of peaceful collaboration chiefly between men from the two countries, Sweden and Denmark, which in the year 1361 and on repeated subsequent occasions, fought each other with bitter obstinacy, but are now unable to imagine a situation in which they would be once again compelled by fate to oppose each other, sword in hand. At the time when this book is sent out into the world, war seems once more to have frustrated international collaboration, without which my work could not have been produced. I humbly trust that some time, perhaps sooner than we now venture to hope, it will become one of the many bricks in the building up of that international co-operation which is the essential pre-condition for research.

Stockholm, the 22nd of September, 1939.

B. Th.

TERMINOLOGY AND EXPLANATIONS.

- Coat of plates = Armour whose reinforcing is riveted chiefly to the *inside* of a cloth or leather covering (German: *Spangenharnisch*).
- Plate armour = Armour whose reinforcing consists of large plates which originally were riveted to the *outside* of a foundation, but subsequently by means of rivets, hinges or other means fastened directly to each other without any foundation (French: *l'harnois blanc*).
- Lamellar armour = Armour whose reinforcing consists of small lamellae joined together with the aid of thongs or cords drawn through holes in the lamellae according to a certain system; no covering or foundation of cloth or leather (German: *Lamellenharnisch*).
- Scale armour = Armour whose reinforcing is fastened in the form of scales on the *outside* of a cloth or leather foundation (German: *Schuppenpanzer*).
- Rod armour = Armour consisting of staves or rods placed vertically, having round section and visible on the *outside* (German: *Stäbchenpanzer*).

In dealing with the armour in the descriptive part it is always assumed that the plates were fastened to the *inside* of a covering, i.e. that the rivet-heads were on the outside, unless otherwise expressly stated.

Front, back; outside, inside; right, left; upwards, downwards;	}	as seen by the wearer in the case of a whole armour.
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Right, left—as seen by the spectator in the case of a separate plate or a minor group of plates.

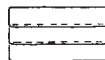
Plates etc. overlap from left to right:



» » » » right to left:



» » » » the top downwards:



» » » » the bottom upwards:



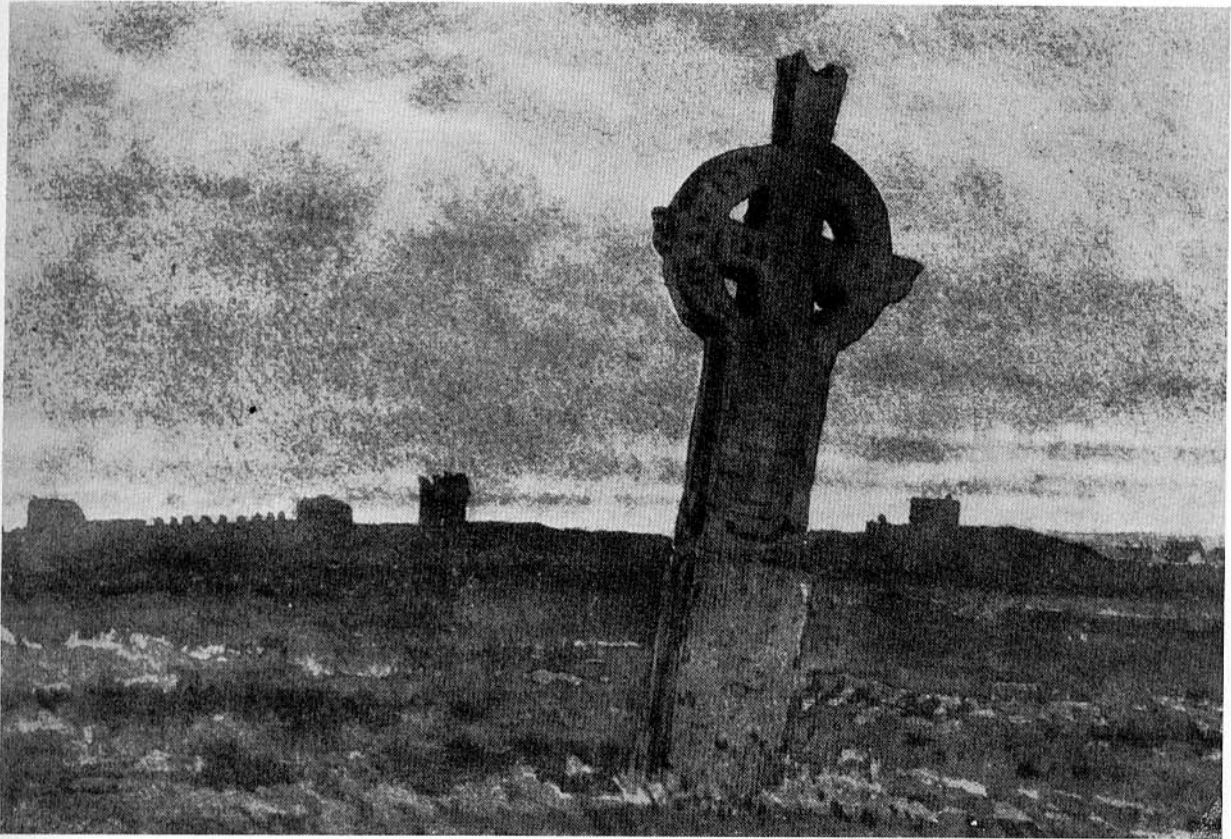


Fig. 2. Korsbetningen in 1876.

Water-colour drawing by Johan Kahl. In the possession of
Lt. Col. O. R. Sylvan, Borensberg.

CHAPTER I.

THE BATTLE.

“ANNO DOMINI MCCCLXI FERIA III POST JACOBI ANTE PORTAS WISBY IN MANIBUS DANORUM CECIDERUNT GUTENSES HIC SEPULTI. ORATE PRO EIS.”

These words, together with a crucifix, are cut into a simple limestone cross about 400 metres beyond the southern gate of the Wisby city wall. The place has been named “Korsbetningen” after the cross (literally “the grazing ground round the cross”).¹ *Hic sepulti*,—here lie buried those who fell for their country and whose graves and remains form the theme of this work. The inscription relates the essential facts: the battle was fought outside the gates of Wisby, between Danes and Gotlanders, in the year 1361, on the 27th July, and the victory went to the attacking foreign army. *In manibus danorum ceciderunt gutenses. Orate pro eis.*

This pathetic event is still the most real and alive of all the occurrences in Scandinavian medieval history. It interfered in a decisive manner with the distribution of power around the Baltic; it caused an enormous sensation at the time; it gave rise to a multitude of legends and poems; and it has given inspiration for artistic creation right up to the present day.²

GOTLAND IN PREHISTORIC TIMES.

The Island of Gotland, which through this battle was lost to the Swedish Crown for nearly three hundred years, occupies a position of its own amongst the Swedish provinces,



Fig. 3. Korsbetningen in 1938.

from an historical, linguistic, and general cultural point of view. This exceptional position is even reflected in antiquities from prehistoric times. The scantiness of finds, which in the North characterizes the centuries from the end of the Bronze Age down to the latter part of the La-Tène Period, and which has been explained as being probably due to a rapid deterioration in the climate, is less conspicuous and of shorter variation in Gotland than on the Swedish mainland. The finds from the early Iron Age are incomparably more numerous than those from other Swedish provinces, and also display such pronounced forms that one is entitled to assume the existence of a flourishing native industrial art, which is a direct continuation of the high standard of the Nordic Bronze Age culture.³ During this period, when the neighbouring countries were sunk in barbarism, Gotland preserved her cultural inheritance and laid, perhaps, the foundation of her future greatness which, after a period of one and a half centuries with scarcely any finds, begins about 150 B.C. From this time, and right up to the Danish conquest in the year 1361, Gotlandic

culture displays uninterrupted development, which has hardly a counterpart in the north of Europe. But this does not mean that Gotland was spared warlike visitations or other crises during these 1,500 years. That such occurred, can partly be gathered from archaeological material and is partly known from historical sources.

Such a crisis obviously occurred at the end of the 5th century, or about the year 500. Whereas the number of graves investigated on the island during the period of about a



Fig. 4. Memorial Cross at Korsbetningen.
Front inlaid with colour by H. Faith-Ell 1938.

hundred years immediately prior to this period is one hundred and thirty-nine, the corresponding number for the ensuing period is only fifty-six⁴; other circumstances, such as a growing number of discoveries of treasure trove, and a large number of deserted dwelling places, corroborate the surmise that something had occurred. B. Nerman has suggested as an explanation of this that emigration to the eastern coast of the Baltic took place, after which Gotland would have been exposed to enemy attacks. In the middle, or during the latter part of the 6th century, Nerman considers it possible to distinguish a distinct new orientation in the Gotlandic find material. While previously, alongside the existing domestic

forms, imported goods had mainly pointed to commercial relations with the south, now central and north Swedish, as well as western Finnish importations dominate. From this he has drawn the conclusion that the island from this time, through warlike or peaceful subjection, had come into the possession of the Swedish king.

Treasure trove not only enables one to a certain extent to distinguish the periods of disturbance in prehistoric times, but it also supplies certain—even if limited—possibilities



Figs. 5, 6. Memorial Cross at Korsbetningen. Both sides before colour inlay in 1938. Fig. 5 photographed by sunlight, fig. 6 by combined day- and flash-light.

of gaining a relative conception of economic conditions. For where there is no wealth, there is nothing to hide away from an approaching enemy. Looked at from this point of view, it cannot be denied that the Gotlandic finds of coins from prehistoric times give an imposing impression of the wealth which had previously been amassed on the island during the early Iron Age. Of the 6,855 Roman denarii found in Scandinavia, 5,097 come from Gotland⁵, and of 613 Roman gold solidi, 219 have been collected from Gotland's soil⁶. In the same way the Gotlandic finds predominate amongst the vast amount of treasure trove from the Viking Period, from the middle of the 9th to the end of the 11th century.

It is instructive to learn that most of the Anglo-Saxon coins from the 11th century are not found in Denmark—as one would have expected in view of the Danish conquest of England—but on Gotland.⁷

These remarks can only hint at the wealth of the Gotlandic finds. What is of greater importance is that the objects show not only an independent stamp in relation to the surrounding countries but also a high artistic standard. It is obvious that a peculiar and fine

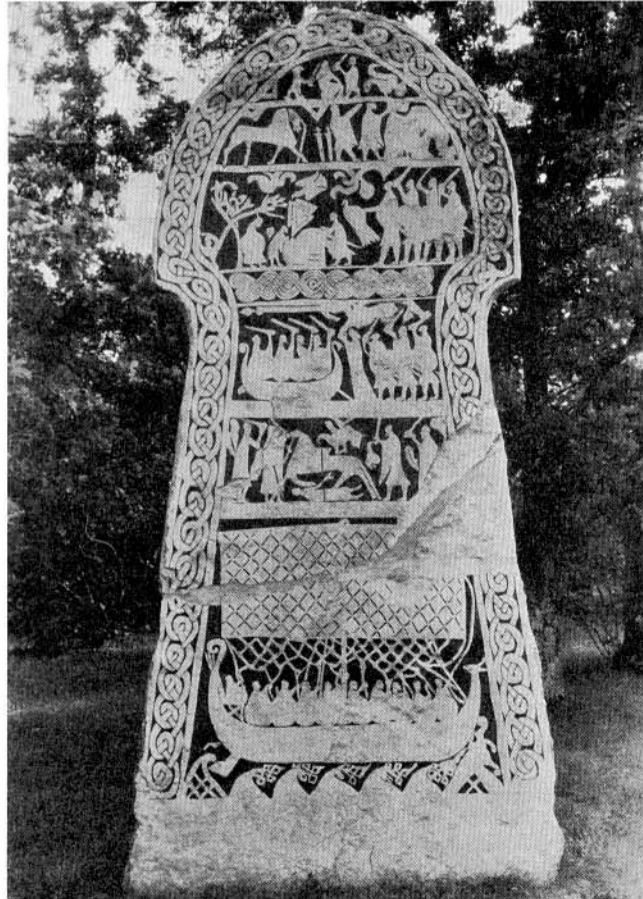


Fig. 7. "Figured Stone" from St. Hammars, in Lärbro parish.
In the Bunge Open Air Museum, Gotland.

culture developed and flourished on this island under the protection of solid financial well-being. We cannot illustrate this in more detail by examples from archaeological material; we shall merely point to a group of monuments peculiar to Gotland, which shows Gotlandic prehistoric art in its grandest form, the so-called "figured stones" (fig. 7). Something like two hundred and fifty of these are known, dating from the 5th to the 11th centuries.⁸ The rounded shape of the top is characteristic, although the form of the remaining part varied during different periods. On the foremost of these stones a figure art is developed in low relief of such peculiarity and such quality, that it has its place amongst the great creations

of international art. In intense, skilfully composed scenes events from the mythology and saga of ancient Sweden are delineated, quite worthy counterparts in visual art to the famous Icelandic literature.

The explanation of the leading economic and cultural position of Gotland is easy to give; it lies in the growing long-distance international trade. Gotland's position in the centre of the Baltic made the island an important place of transit for the commerce of Northern Europe, and by-and-by, there came into being a Gotlandic commercial fleet which, under the protection of the ever-expanding Nordic peoples to the east and west during the Viking Period, operated throughout the sailing seasons.⁹ From a political point of view, Gotland probably did not play any very essential part. The condition of the Swedish colony Seeburg (Grobin), near Libau, in Latvia, is characteristic¹⁰; here the Swedes from their fortress ruled an urban community, surrounded by three burial grounds. Two of these were Swedish and contained chiefly male graves from the middle of the 7th century to about the year 800; the third, on the other hand, comprised at least one thousand graves, and was essentially Gotlandic of the same period as the Swedish ones, but continued to be in use for another half century. These finds have been interpreted by Nerman to show that the Swedes had established the colony and kept a small garrison there until about the year 800, when they were expelled from the country by its native inhabitants. Under the protection of their military power there was an immigration of Gotlandic merchants, who remained quite a long time after the Swedish power had been broken. In the same way the Gotlanders probably followed the Swedes in the development of the great Swedish colonial empire in Russia during the Viking Period. In Novgorod the Swedes had a trading station at any rate from the beginning of the 11th century, which was later taken over altogether by the Gotlanders, and in the Middle Ages bore the name of "Curia Gothensium" or "Gotenhof". They also had their own church there, dedicated to St. Olov, as in the Swedish colony of Aldeigjuborg, near Lake Ladoga.¹¹

According to a theory advanced by Lindqvist¹² in opposition to Nerman, it would have been the commercial benefits which were developed by the Gotlanders through the Swedish expansion eastwards, which brought Gotland under the Swedish power by means of a taxation treaty with the Swedish king in the 9th century. This opinion is confirmed by Arbman's observation¹³ that, during the most flourishing period of the Swedish commercial capital Birka, in the 9th century and the first half of the 10th, Gotland played a comparatively subordinate part. Amongst the enormously rich finds from Gotland dating from the Viking Period, there cannot, with a few exceptions, be distinguished a single object imported from western Europe during this period. This seems to suggest that it was during the 10th century that the fruits of an alliance with the Swedes began to be reaped by the Gotlanders. If this assumption is correct, Gotland would have attained its position as a leading commercial power in the Baltic as the heir to Birka, whose situation far inside Lake Maelar could not compete with Gotland when it came to transit-trade between the west and the newly opened trade routes in the interior of Russia. A weakening in Swedish foreign political activity may also have contributed towards this state of affairs.

Trade was concentrated in Gotland at this period not in any one definite place, but was in the hands of the people all over the island, and voyages started from different points, due to there being plenty of harbours along the coasts of the island. This is *inter alia* gathered from a phrase which has been pointed out by A. Schück¹⁴, and which occurs in certain ancient documents. In a treaty of the period 1189–1199 between the Prince of Novgorod and Gotland, this is termed “Gotlandic coast”, and the same expression is used in a treaty of the



Fig. 8. “Kruttornet” (“Powder Tower”), Wisby.

year 1229 between the Prince of Smolensk and the merchants of Riga and Gotland. The term “Gotlandic coast” cannot very well refer to Wisby, but to all the harbours in Gotland, which, since the days of old, had been the starting points for Gotland’s trade and commerce, of which Wisby was one, though originally, perhaps, not even the most important.

ORIGIN OF WISBY.

That the place where Wisby now stands was populated during the Viking Period, and even before that, is shown by the burial places that have been found there. One of these

is quite close to the memorial cross over the fallen warriors in the battle of 1361¹⁵, and two others nearer the shore to the north and south of the city. Also within the city walls some graves from the Viking Period have come to light.¹⁶ These finds are not distinguished by any striking wealth, and hardly entitle one to assume that there had existed anything but an ordinary rural settlement around a good harbour, which can hardly have had any great importance for the population of the island as a whole, since the country around was then, as now, amongst the bleakest and most thinly populated areas in Gotland. However, the harbour attracted seafaring strangers who made use of it as a depot, perhaps chiefly because of its situation, which was so distant from the settled area, that the risks of conflicts with domestic shipping were reduced. As at Falsterbo, in Scania, separate areas were perhaps leased to different commercial organisations, and these gradually grew into trading stations of the same kind as the Swedes and the Germans had at Novgorod.¹⁷ Permanent urban settlements of immigrant Gotlanders and strangers ultimately took place, and very likely we can still see in the present town plan traces of this, the ancient Wisby, in a semicircular stretch of street which forms the border of the inner city opposite the old harbour. Whether this oldest nucleus was surrounded by a wall, like the Viking towns of Birka and Hedeby, is uncertain and not probable. A tradition that Christianity first gained firm ground in Wisby, and that Gotland's first church is said to have been erected there, indicates that the place was of some importance, at any rate at the beginning of the 11th century. Towards the end of that century, or the beginning of the next, a remarkable tower of defence, which is still standing (fig. 8), the so-called "Kruttornet" (Powder Tower), was erected as a protection for the important harbour. From this period dates the erection of the first stone-built churches on the spot.

GOTLAND'S POLITICAL POSITION.

The political position of Gotland as a state during the Viking Period is illustrated by a statement of the Anglo-Saxon, Wulfstan, who at the end of the 9th century made a voyage in the Baltic, and whose report was recorded on the initiative of King Alfred.¹⁸ He says that Gotland at that time belonged to Sweden. As mentioned previously, the archaeological conditions also indicate that Gotland was united with the Swedish kingdom before that time, perhaps even in the middle of the 6th century but more probably in the 9th century. In the Gotlandic chronicles, which are believed to have been compiled in the beginning of the 13th century, it is reported that many kings had fought against Gotland while it was still heathen, but that the Gotlanders won the victory and maintained their independence. Finally, a treaty was made with the Swedish king that the Gotlanders should pay him annually 60 marks silver, of which 40 were to go to the king and the remaining 20 marks to the Earl of Sweden. By way of compensation the Gotlanders were assured the right to sail in all the waters that belonged to the Swedish king. Since in Sweden during the 12th century and the first half of the 13th the Earl occupied the position of the highest officer of the realm, Schück assumes—perhaps on somewhat weak grounds—that this treaty must be dated to

that period, and that Gotland in the meantime once more seceded from Sweden. The stipulations as to the amount of the tribute and the manner of its payment may, of course, have been changed in the course of time, and were stated by the chronicler as those which were in force in his day. It can hardly have been to the interests of the Gotlanders, who were altogether dependent upon their commerce, to offend the great power in the Baltic which Sweden was in the Viking Period.

At any rate, it may be taken for granted that Gotland belonged to Sweden in the 12th century, but this does not say that the island formed a part of the Swedish realm. Many



Fig. 9. Seal of the guild of "Theutonici Gotlandiam frequentes".



Fig. 10. Seal of the guild of "Theutonici in Gotlandia manentes".

circumstances indicate that such was not the case. No royal bailiffs were, as far as is known, appointed in Gotland, and, in contrast to all other Swedish provinces, Gotland did not participate in the election of the Swedish king, nor did the latter visit the island on his constitutional journey of homage through the land, known as the *Eriksgata*. Gotland had its own laws, which, as a matter of fact, made no mention of the king, and the joint provincial law promulgated in the middle of the 14th century by King Magnus Eriksson, was never introduced into Gotland. The Gotlandic contribution towards national defence was also proportionately trifling, and consisted at first of six, later of seven ships, and it was specially stipulated that they were obliged to participate in military action only against heathen countries, and not against Christian. The government of Gotland was in the hands of the *Thing*—an assembly under the leadership of the county judge and of the other judges on the island, twenty in number, and the three deans. Thus, from a constitutional point of view, Gotland might be characterized as an autonomous peasant republic under the suzerainty of the Swedish king, a suzerainty, however, which was so moderate that the Gotlanders could conclude binding and important independent treaties with foreign sovereigns.

GOTLAND AND WISBY IN THE MIDDLE AGES.

Through the establishment of the city of Wisby there was introduced into this peculiar dualistic combination a third semi-independent factor, and with this begins the triangular drama, which in 1361 reached its catastrophic climax and solution. Already from the end of the 11th century, German merchants from Westphalia and the Rhenish provinces seem to have begun visiting in increasing numbers the growing international commercial metropolis on the west coast of Gotland, and in the beginning of the 12th century German trade in Gotland had assumed such proportions that Emperor Lothar of Saxony († 1137) found it necessary to regulate it by treaty.¹⁹ It is probable that this commercial treaty, which has

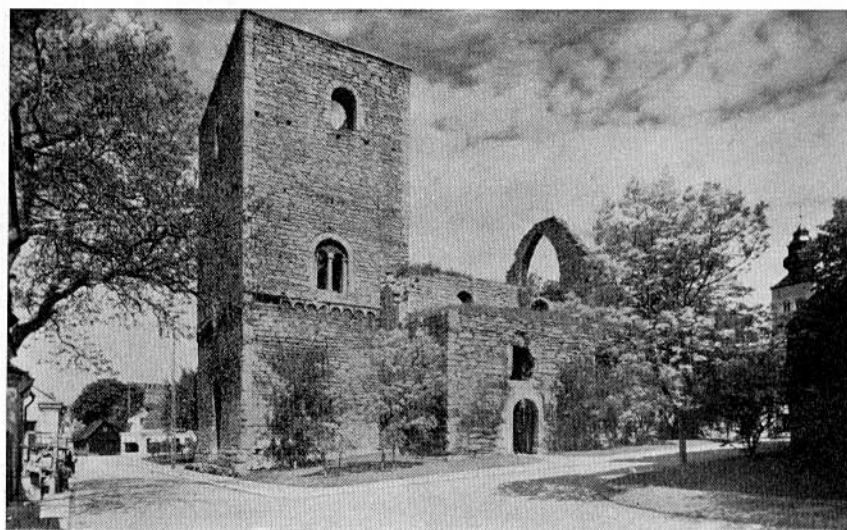


Fig. 11. Ruined church of St. Drotten, Wisby.

now been lost, contained some promises of legal protection to the German merchants in Wisby. With the foundation of the present city of Lübeck, the first German commercial city on the southern shore of the Baltic, which until then had been dominated by the Slavs, Wisby assumed a commercial and political importance of the first order. It became a vital question for the rapidly expanding and well-organized German commerce to get control of the Russian market, which had been in the hands of the Gotlanders, and a primary condition for this was to gain a firm footing in Gotland. Already in the year 1161 or 1163 Henry the Lion, Duke of Saxony, issued a charter²⁰ in which the Gotlanders were enjoined, indeed, almost commanded, to divert their trade to Lübeck. That the benefits, of which they are assured in this document, were not given for nothing, can be taken for granted, and that they applied to the conditions in Wisby, is very probable. Though the name of the city is not mentioned (it occurs the first time in Henry of Latvia's chronicles in the beginning of the 13th century) it is probably there that the dissensions occurred between Germans and Gotlanders, which even led to bloodshed and murder, and which are the ostensible cause of the promulgation of the document.

During the latter part of the 12th century a union of German merchants was established, who carried on business in Gotland under the name of "*Theutonici Gotlandiam frequentes*", generally called "The Society of Gotland Voyagers" (fig. 9).²¹ Even before the end of the century this society had erected a church in Wisby, St. Mary's, the nucleus of the cathedral, later many times enlarged and rebuilt, and in 1184 the erection of St. Peter's Church had been started in Novgorod, the centre of the German trading station which was gradually to oust the Gotlanders from the market. The society was probably originally organized as a guild, but soon became a union of chiefly Westphalian towns which had to safeguard its commercial relations with Wisby and Novgorod.²² From this organisation,

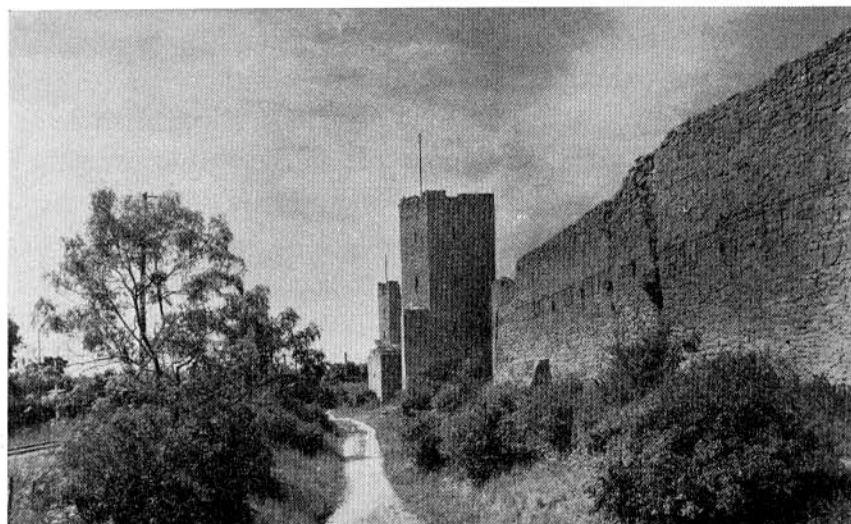


Fig. 12. View of City Wall of Wisby.

Half-way up the wall can be seen the merlons of the older, lower wall which was raised and provided with turrets probably after 1288.

which grew stronger and stronger, and in which Wisby occupied the leading position, the Hanseatic Union developed in the 14th century.

The 13th century was the zenith of Wisby's most flourishing period. One church after the other was erected, rebuilt and enlarged, and still today, apart from the Cathedral, eleven imposing ruins bear witness of the high standard of architecture which existed there (fig. 11), besides which there were four other churches which have now completely vanished. Most of these were founded or rebuilt during this period. We have already mentioned that the present Cathedral, dedicated to St. Mary, was the German church, and we know that the Russians also had their own place of worship, which is now razed to the ground. Possibly there were also separate churches for the Danes and Norwegians. Besides, there were three or four parish churches; a church of the Hospital of the Holy Ghost; another church belonging to the Leprosy Hospital, as well as two convent churches, of which a Cistercian nunnery, Solberga, stood in the immediate vicinity of the memorial cross to the fallen of the year 1361.²³ It was in the convent cemetery that they were buried. The architecture

was at first under German influence especially that of Westphalia, but very soon showed such individual characteristics that we are fully entitled to talk about a Wisby style, a style which is neither German nor Swedish. A marked oriental influence can be distinguished in the cruciform church of St. Lars, but it is by no means a slavish copy but rather a work remodelled in the spirit of the Wisby style.²⁴

Several works of secular architecture from the Middle Ages are also preserved in Wisby, partly incorporated in houses that have been altered later, but partly also standing intact and in purely medieval form, some dated as early as the 13th century. Here traces of Westphalian influence can also be seen but recast and adapted to Gotlandic conditions.²⁵

But that which first and foremost imparts to Wisby its peculiar beauty, is its city wall (fig. 12), a monument which has no counterpart in Northern Europe, and which of its kind is able to hold its own with the walls of Carcassonne and Avila. Its erection was begun about the year 1200, and it was completed to a height lower than it is at present and mainly without turrets somewhat after the middle of the 13th century.²⁶ The erection of the wall constituted, one might say, Wisby's declaration of independence. The wall was very likely meant in the first place to safeguard the town against attack from the sea, but it also surrounded the inland side against the rural population of Gotland. One can very well imagine that the peasant-merchants at first noted with pleasure and furthered the growing foreign traffic with Wisby, which increased their own chances of selling their goods and brought money into the country. The rural districts during this period also show an artistic production that can stand comparison with, and in some respects surpasses, that of the city. Church buildings on a large scale were erected in a style which is purely Gotlandic. A sculptural style, exemplified especially by baptismal fonts, found a market for its products round about the coasts of the Baltic; prominent wood-sculptors trained at the leading art centres in Europe, were called in and filled the churches with marvellous work, and the wealthy peasant-merchants lived in high stone houses with elegant colonnaded galleries, imitations on a smaller scale of the princely palaces on the continent (fig. 13). Of their wealth, tastes and extensive commercial relations, some of the treasures that were hidden from imminent pillage in the disastrous year 1361 also bear witness, and include ornaments and domestic utensils of precious metals and of the highest artistic quality.²⁷

Already in the treaty of Henry the Lion in the sixties of the 12th century we hear of conflicts between the Gotlanders and the German merchants. This treaty attempted to regulate the legal relations for those Germans who visited Gotland, and probably Wisby in particular, by a promise of corresponding benefits for Gotlandic merchants when staying in Germany. But these benefits probably applied, as Schück²⁸ has pointed out, only to the Saxon merchants during temporary visits to Gotland, and thus benefited the "Society of Gotland Voyagers". The position of the foreign merchants who had settled down permanently in Wisby was less secure. The Gotlanders who had moved into the city, were, of course, under the protection of the Gotlandic Law, and seem at an early stage to have separated into a judicial area of their own, considering themselves as a part of the Gotlandic republic. But this law ignored the foreigners in Wisby, who were character-

ized as “*ogutniscet fulc*” (“Non-Gothic People”). These now started to try to organize their own legal protection, and they very likely united at first within a guild *theutonici in Gotlandia manentes* (fig. 10), collateral with the “Society of Gotland Voyagers”.²⁹ At least from the year 1225 these had their own *jus teutonicorum commorantium in Gotlandia*. At this period there existed, therefore, two (or if the “Society of Gotland Voyagers” is included, three) groups in Wisby, with different jurisdiction and different administrative organs. The joint interests of these groups as citizens of Wisby entailed a necessary co-operation, and from a joint manifesto promulgated in the year 1280 by the Gotlandic and German Town Council we may conclude that an amalgamation of these two elements had then taken place. With this Wisby appears openly as a State within the State, protected by its recently finished city wall. The fact that this dangerous development could take place finds its explanation partly in Gotland’s peculiar political position without a central executive authority, and partly in the astonishing indifference to Gotland’s internal conditions on the part of the sovereign, the Swedish king.

This trend of events must, however, have been followed with great concern by the Gotlandic rural population. An altogether independent and semi-foreign Wisby within the borders of Gotland must have been a far from attractive prospect for them, particularly since they had more than once had to feel the consequences of the well-organized city’s competitive capacity in commerce.³⁰ One can also imagine that the city wall was not erected without any protests on the part of the rural population, and that the Gotlandic *Thing* definitely and strongly opposed the tendency of Wisby’s native group of the population to depart from the joint judicial organization. This tension between city and country found release in the year 1288 in an armed conflict, which threatened to produce international complications, in that Wisby was backed by several German cities and the rural districts by German vassals in Curland. At this moment the Swedish king, the vigorous Magnus Birgersson, recollected his suzerainty over the island. In the rescript promulgated on the 9th August of that year, the city was mulcted of heavy fines because it had, without the king’s sanction, erected the wall and attacked the rural population, while in future all disputes between the parties were to be submitted to the king. On the other hand the king now gave his consent that the city should be fortified, the result being that the wall was at once greatly strengthened by making it higher and adding twenty towers (fig. 12).

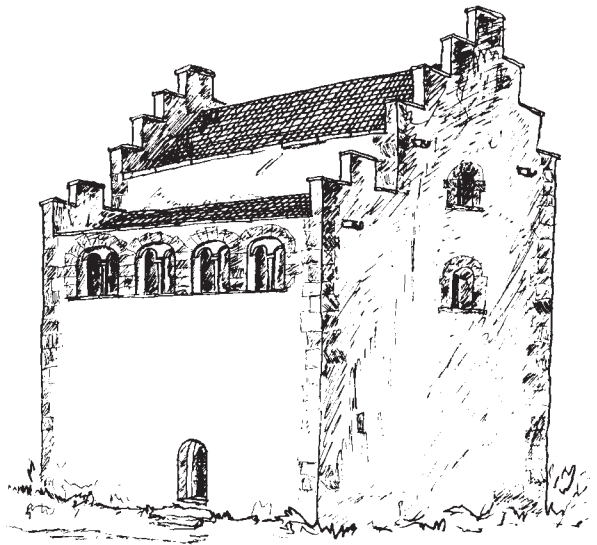


Fig. 13. Medieval merchant's house in rural Gotland.

Bringes, in Norrlanda parish. Reconstruction by E. Lundberg. Drawing by I. Anderson.

This event did not bring about any change in the political conditions in Gotland. Far more important for Gotland's fate was the rapidly growing predominance of Lübeck in the Baltic market. The navigation on the Baltic seems to have ignored Gotland, and the German commerce operated independently in Gotland's ancient trading areas. In the 14th century the Gotlandic merchants were relegated to the second place by their Hanseatic allies. But there was still no question of any actual deterioration; Gotland's wealth had become legendary, and once more, for the last time, the island was to become the centre of a great political drama.

KING WALDEMAR ATTERDAG AND SWEDEN.

For Denmark, the German expansion in the Baltic initiated a political disruption. After having held Lübeck in its power for a short period in the beginning of the 13th century under the great Waldemar II, the country sank more and more into inanition through internal strife. In the person of the astute and ruthless politician Waldemar Atterdag it had a king who was once more to lead it into a prominent position amongst the Nordic powers. When the latter, in the year 1340, was acknowledged as king of Denmark, the country's dissolution was at its height, and it seemed to be merely a matter of time before it would cease to be reckoned as an independent state. There had been no regent for eight years, and the bulk of its territory had been pledged or lost, including the rich province of Scania in 1332 to the Swedish king Magnus Eriksson. With great diplomatic ability Waldemar succeeded in recovering one province after the other. In the year 1360 came Scania's turn. Under the pressure of a Danish army which had been brought to the coast of Scania, Waldemar was able to induce King Magnus on the 15th July to consent to the appointment of a mixed tribunal which was to judge the country's future position. The well-meaning and gullible Swedish king had, as his first representative on this tribunal, appointed his brother-in-law, Duke Albrekt of Mecklenburg, one of Waldemar's secret allies, and with this, Waldemar appears to have considered the matter as good as settled. Probably before the tribunal ever came into operation, he promptly occupied the province without any appreciable resistance on the part of the Swedish troops. Only one fairly important citadel, Lindholmen, seems still to have been held by the latter in the autumn of the following year.

King Magnus had been deceived in the most ignominious manner, and was regarded in Sweden with contempt and rage. Waldemar, on his part, very likely found his success far too easily gained, and Sweden's weakness far too obvious for him to resist the temptation to further activity in this direction. With a keen eye for the political situation he selected Gotland as the objective for his next blow against Sweden.³¹

Gotland was certainly not, as we have already seen, an integral part of the Swedish realm, but the island was of considerable importance to the Swedish Crown as a profitable source of taxation. But its chief importance lay in the fact that the maritime connections of the Swedish east coast towards the south and east could be seriously threatened from there. Gotland in foreign hands meant constant uncertainty for Sweden, and in times of war,

expeditions could be organized thence to cause Sweden a vast amount of trouble, of which the ensuing history supplies many examples.

Through the possession of Gotland, Waldemar was also able to adopt quite a new attitude towards Lübeck and the Hanseatic towns. The German and Swedish expansion in the Baltic had been the main problem for Danish foreign policy. At this very time there were pending between Waldemar and the Hanseatic towns negotiations for renewed commercial charters in the newly conquered Scania, which chiefly through its herring fisheries was of great economic importance. If Denmark already controlled Wisby, Waldemar would, during these negotiations, have another trump card in his hand, and would have a chance of extracting further necessary advantages. Wisby occupied at this period, as we have seen, by no means the leading position in the Hanseatic Union, for this had now definitely been acquired by Lübeck. But its influence and wealth made it nevertheless a very desirable objective.

In the island's pecuniary wealth may have lain another motive for Waldemar's aim with this military expedition. He was certainly not unaware that he might have an opportunity to gain, not only a political success but also an immediate profit in money and precious metals, although he knew, of course, how to interpret the saying, well-known throughout Scandinavia, which very likely dates back to the 14th century, that in Gotland "the pigs eat from silver troughs and the women spin on gold distaffs" (App. 6, 10), the reality must nevertheless have been very tempting to him.

The scheme must have struck him as particularly propitious because the latent tension between Wisby and the rural areas would be able to facilitate the carrying out of warlike operations; nor was he mistaken in this. He seems from the very beginning to have been fully aware of the conditions prevailing in Gotland, and to have known how to exploit them to his advantage with diplomatic skill. This has contributed towards the origin of legends which were put into writing in the 17th century (App. 10), according to which Waldemar himself was in Gotland during the winter of 1360-1361 to spy out the lie of the land and to prepare the ground for his attack.³²

LEGENDS ABOUT KING WALDEMAR IN GOTLAND.

These legends deal with two similar groups of events. One tells us that to Wisby came a rich artisan, Nils Guldsmed (Goldsmith), who had a beautiful and proud daughter. When she rejected with contempt the advances of the Gotlandic swains, they responded by giving her nicknames and writing scurrilous verses about her. The Goldsmith then took a cruel revenge by making his way to the Danish king and persuading him to plunder Gotland (App. 10).

The other episode occurs in the country, at Unghanse Manor, near the southern point of the island. There existed here right up to the year 1866, when it was unfortunately pulled down, the ruins of a medieval stone building at least two stories high, of the kind which the wealthy farmer-merchants built in various places (figs. 14, 15). Waldemar is reputed

to have come here during his spying trip, and the most popular of all the legends relating to this event is located here. It has been related to me in the following way by the aged owner of the manor, who inherited it from his ancestors in whose possession it had been for several generations.

When King Waldemar came to Unghanse³³, who was chief of Southern Gotland, the latter was just celebrating the marriage of one of his tenants. Waldemar, who was disguised as a beggar, sat down inside the door and looked on at the dancing. At last he was unable to resist taking part himself and asked Unghanse's own daughter to dance with him, which she did. Unghanse then came up to him and reminded him that it was unfit for a beggar to be so presumptuous as to dance with the daughter of the mighty chieftain, and Waldemar could do nothing else but keep silent and withdraw. But the girl had fallen in love with the stranger, and in the evening she stole into the room that had been given to him. She then saw that beneath his beggar's garb he wore gold-embroidered clothes, and Waldemar without further ado revealed himself to her, and she helped him in his future plans. In the following summer, when the Danes had devastated Gotland, and had withdrawn, Unghanse's daughter was slain by her angry countrymen in the "Virgin's Tower" in the Wisby City Wall (fig. 16).³⁴

According to my informant, Waldemar is said to have gone from Unghanse to the Vännes Manor, lying some little distance farther south on the tiny peninsula which forms the southernmost point of Gotland. Here he was discovered by the Gotlanders, who formed a cordon right across the peninsula so that he should not escape northwards. During his flight, with the pursuers close on his heels, he came across a girl who was sitting and resting beside a ditch, and in his urgent need Waldemar begged her to hide him. He was allowed to creep down into the ditch and hide beneath the girl's skirts. When the pursuers reached the girl she denied having seen any stranger, and they went on their way southward. The cordon was now broken and Waldemar was enabled to escape northward. But before he left he told the girl who he was, and directed her to hang up a white cloth at the manor which was her home. This was done, and the manor was spared from the devastation which befell the district. But the field where the girl had hidden the Danish king was afterwards called "*Dylaren*" (medieval Swedish *dylia* = to conceal). In other versions it says that the manor had previously had another name, but was now called "*Vännes*", because its plundering had been averted (medieval Swedish *vända* = avert), or because the Danish warriors turned back (medieval Swedish *vända* = turn) and went north again. It is also stated that Waldemar had given the new name to the manor for the sake of the girl's beauty or kindness (modern Swedish *vänlighet* = kindness, whereas the medieval Swedish word *vänlighet* = beauty). Even ancient vocal games have been penned (App. 10, 13) jeering at Waldemar and his alleged hunt after young girls in Gotland.

It is quite obvious that these stories are rather late conglomerates of wandering motives from various quarters, mixed up with popular etymologies of the place names. Their core dates back, however, to popular ballads which must have originated fairly soon after the Danish invasion, since to a large extent they have influenced 15th century Swedish poetry,

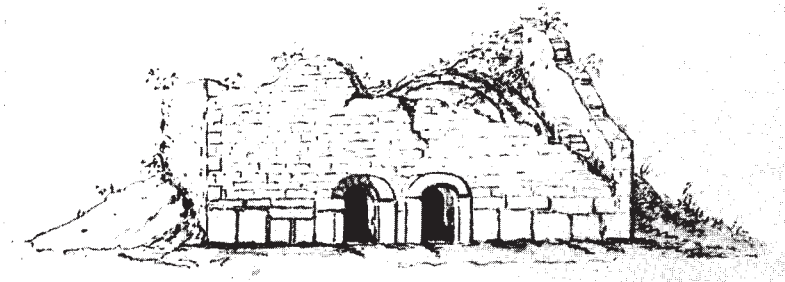


Fig. 14. The medieval house at Unghanse, in Öja parish. Drawing by C. G. G. Hilfeling, 1799. In the Royal Library, Stockholm.

smith's daughter is a virgin. He rides to the goldsmith's house, the goldsmith stands outside the door and welcomes him: "Welcome, O King, I have mixed for thee mead and wine." The king: "I care not for wine and mead, but thou shalt give me thy daughter!" But the goldsmith makes excuses: "My daughter is only a child sleeping in the arms of her foster mother." The King sees through the subterfuge and answers: "Even if she is no more than three years old thou must let me see her." The goldsmith now sees the game is lost and calls in his daughter, who puts on a skirt of gold brocade, hangs round her neck fifteen gold chains and places a wreath upon her head. She enters the room "as fair as the sun", and the king orders her to dance, but after three turns round the room she falls down and gives birth to two rosy-cheeked infants. To the king's question who is the father of the children she answers: "My father was a foolish man, he built a bower for me down by the shore. Many ships landed there, a merchant broke his way in to me and I lost my honour." The king now discloses the fact that it was he who, disguised as a merchant, had been to visit her: "Then give me now thy snow-white hand and come with me to my own country!"

The ballad of Unghanse's daughter differs fundamentally from the former (App. 12).

The Danish king rides to Unghanse's manor and asks to be allowed to speak with proud Malfred, but the father answers scornfully that she must not speak to an unmarried man. "That answer shall cost thee thy life", threatens the king, and Unghanse had to go and fetch the girl. The king asks her to sit down and throw dice with him. With the first gold dice the king loses his castle, with the second his grey charger. With the third cast of the dice the king stakes his white neck, and the girl has to stake herself. The king wins and says deliberately to his page: "Fetch in my scarlet bed!" But now Unghanse interferes and strikes the king on the cheek "so that the blood spurts on the fine scarlet". The king comes to his senses, betrothes proud Malfred with golden rings and gives her a golden crown and the name of queen.

as Professor Sverker Ek has shown who has studied and reconstructed them.³⁵ The ballad of Nils Guldsmed has the following general contents in Ek's version (App. 11).

Nils Guldsmed has a fair daughter who spins the finest flax on a golden distaff. The King of Denmark comes sailing, he inquires if the gold-

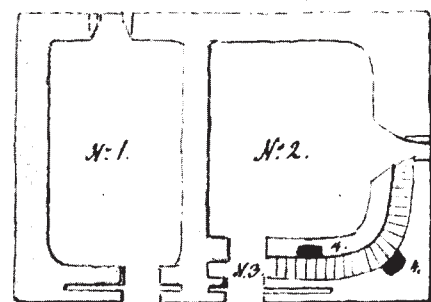


Fig. 15. Plan of the medieval house at Unghanse, fig. 14. Drawing by Hilfeling, 1799.

In his analysis of the ballads Professor Ek has made it clear that they are transparent allegories of the Danish conquest. The goldsmith's daughter personifies Wisby. She has already lost her honour and is without resistance in her fate. It is different with regard to Unghanse's daughter, the representative of the rural districts. She is a virginal and unspoiled woman whose honour is defended tooth and nail by her father. The dicing is an honest struggle for life or death. The three throws of the dice symbolize the three battles that King Waldemar had to fight before he had overcome Gotland.

Even if these ballads date back to a period which is very near the events described, it is clear that they cannot be employed as historical sources in the ordinary sense. But they



Fig. 16. The "Virgin's Tower" (on right) and N.W. corner of Wisby City Wall.

are of very great interest as expressions of the opinion which prevailed in the island after the invasion. That Waldemar had not been across to Gotland beforehand, is perfectly clear, but the recurring rumours of previous Danish investigations cannot fail to make a certain impression. It must also be admitted that even without these hints, one would hardly assume that the artful plotter Waldemar had omitted to do his very utmost to prepare beforehand an element of the population on the spot, suitable for his schemes, especially since the clash of interests between town and country actually gave an opening for doing so. In a more reliable historical source (App. 3) some words are also to be found which may be interpreted as a confirmation that this actually was the case. A letter of homage of the year 1376 to the King of Denmark, Olof, from the Wisby city council, states that the city promises conciliation with all who had aided and abetted King Waldemar in bringing the citizens of Wisby under the Danish crown.³⁶ Perhaps it was also in this way that Waldemar's plans had leaked out, for in a letter to the people of Wisby, dated the 1st May, 1361, King Magnus states that it had come to his knowledge that his enemies intended to attack

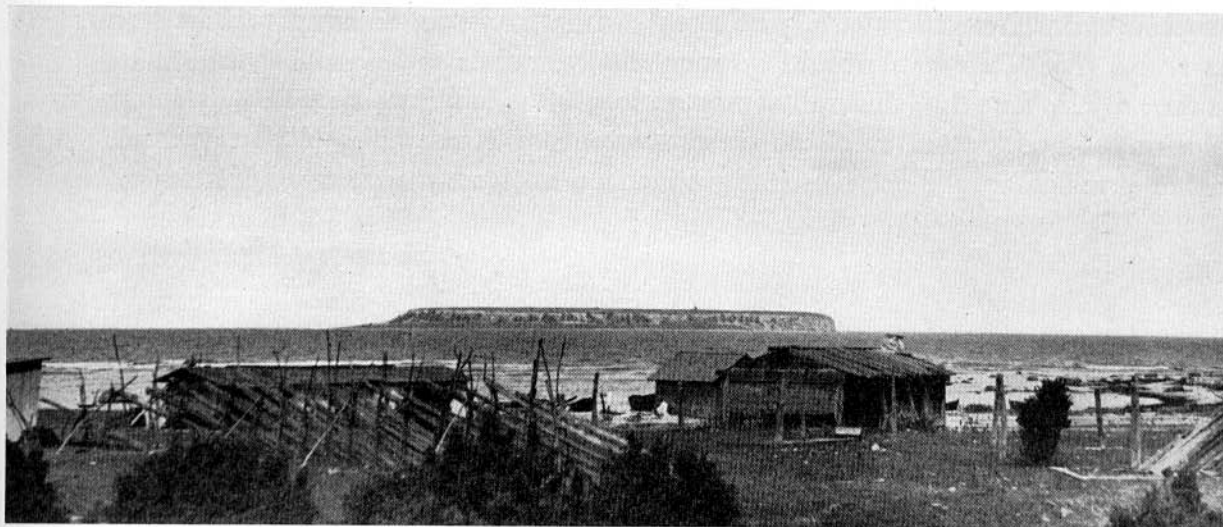


Fig. 17. Fishing village of Kronvall and Lilla Karlsö Island.

the city, and enjoins them to arm themselves and to keep the harbour and city wall prepared night and day (App. 10).

KING WALDEMAR'S CAMPAIGN IN GOTLAND IN 1361.

In spite of this the Swedish king persists in his inexplicable and weak-spirited passiveness, and gives Waldemar a chance to strike the first and stunning blow. In the middle of the summer of 1361, he is ready with his preparations, and with his fleet embarks upon his daring and fateful adventure. The weight and importance that he attributes to the enterprise is illustrated by his taking part in it in person, together with him some of his foremost magnates, his son Christopher, who died two years later (we shall have reason later to study his tombstone in Roskilde Cathedral, fig. 107), his chancellor Claus Limbek, the subsequent chancellor Henning Podebusk, Senator Waldemar Sappi and the king's faithful and loyal ally and military advisor, Duke Eric of Saxony (App. 1). The army is reputed to have contained a fairly large contingent of German mercenaries. The first goal was the Island of Öland, which was occupied, the important fortress of Borgholm being besieged and taken (App. 4, 5). After thus securing its point of communication with the home country, the armada proceeded to Gotland, where a landing was effected on the 22nd July (App. 7). In a chronicle from the middle of the 15th century (App. 8) the place of landing is mentioned as "Garna hampn", probably Västergarn on the west coast, about fifteen English miles south of Wisby, one of the best harbours in Gotland. On the other hand, a far later source, H. N. Strelow's *Gotlandic Chronicles* from the year 1633 (App. 10), states that the landing is said to have been effected near the fishing village of Kronvall, a bleak spot about twelve miles farther south, without any harbour protection whatsoever (fig. 17).³⁷ Among the thirty-five military landing operations in Gotland, whose positions are known, only one

took place near Kronvall (in the year 1524), while five were directed to Västergarn.³⁸ It thus seems that Västergarn would be more likely, unless one should attribute some importance to the fact that the military operations after landing—though only known from late sources—are located at places on the way from Kronvall to Wisby, but which the army of invasion would not reasonably touch on a direct march from Västergarn to the

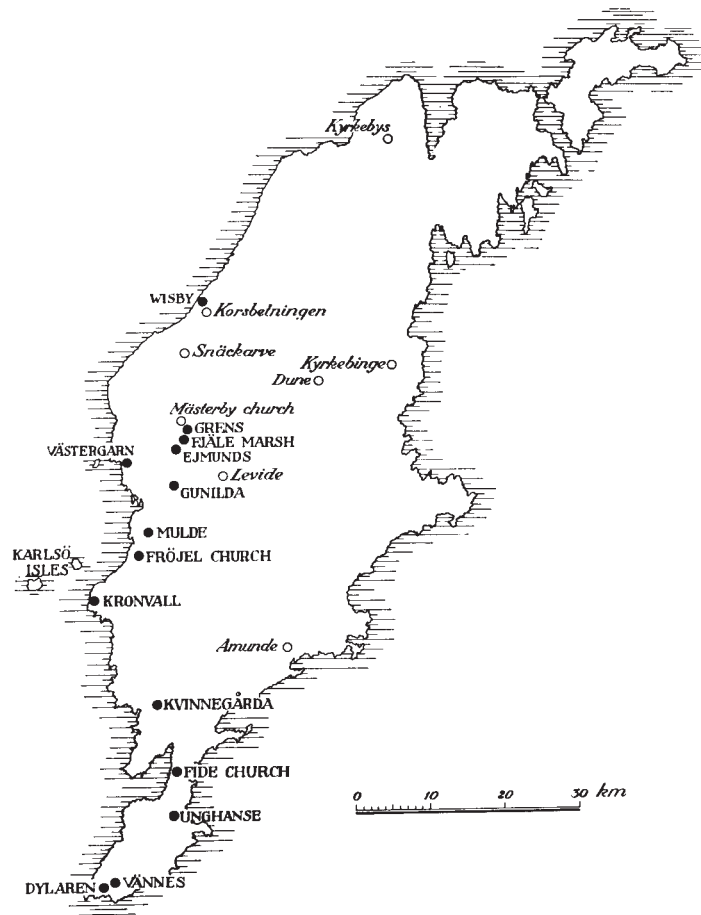


Fig. 18. Map of Gotland.

- WISBY Places mentioned in legends in connexion with events in 1361.
- *Dune* Places with finds connected with events in 1361.

city (fig. 18). From contemporary statements (App. 4, 5) we only learn that the peasant levies offered a stout resistance and that three battles were fought. This produced another prolific crop of legends from which, however, hardly anything of historical value can be gathered. Its only interest—apart from illustrating the development of tradition—is the localization of the legends which can be noted amongst them. All the legends recorded in Gotland which relate to Waldemar Atterdag's military expedition, are in fact confined, with a single exception³⁹, to three areas; first, to the city of Wisby, secondly to Southern Gotland—these refer to the period prior to the attack and have already been dealt with—

and thirdly to the district of Kronvall, including the Karlsö Isles off this place, and towards Mästerby Church, about twelve miles due south of Wisby.

If we follow these legends from Kronvall northwards, we encounter the first near Fröjel Church, where a defensive tower, now a ruin, is said to have been destroyed by Waldemar.⁴⁰ Some distance farther north, at Mulde, stands a "figured stone" which is reputed to have been raised in memory of a Danish chieftain who fell in a battle with the Gotlanders.⁴⁰ There is



Fig. 19. Memorial Cross near Gunilda, in Sanda parish.

no need to point out that the memorial is at least 300 years older than this event. We approach now one of the points of concentration for the origin of the legends, Fjäle Marsh. On the road near Gunilda Manor stands a handsome medieval cross of the kind which is to be found in several places in Gotland (fig. 19). It is said to have been set up as a memorial of Waldemar's first night's camp on the island.⁴¹ Such crosses have as a rule been erected to commemorate some accident by which a human being lost his life, and the explanation which tradition gives is, of course, quite untenable.⁴² Under a bridge near Ejmunds sat a witch, who deprived of their courage all Gotlanders who passed by to fight against the Danes.⁴¹ I have also been told that blood had run hither from the battle on the marsh. Between this and Ejmunds the same authority also pointed out some pine-trees to which



Fig. 20. Memorial Cross near Grens, in the parish of Mästerby.

the Danes had tied their horses during the battle. The sanguinary battle which, according to tradition, was fought on the Fjäle Marsh, ended in the defeat of the Gotlandic peasantry. Near Grens Manor, close to the marsh, stands one of the most magnificent memorial crosses in Gotland (fig. 20)⁴³ and on this cross and on the uncommon name of the manor (Swedish *gren* = branch, fork, crotch) the legends are based, which to a large extent are of a naïve kind explanatory of the name. It shall here only be added that the tradition about the battle of Fjäle Marsh, which of course in itself may be correct and which in some degree can be said to be borne out by the multitude of legends relating to the spot, may also perhaps gain support from a couple of finds made here. The antiquary, Rev. N. J. Ekdahl, states from a journey in Gotland in 1826 that a part of an armour was found on the marsh and brought by him to Stockholm⁴⁴, and the draughtsman C. G. G. Hilfeling, whose records and pictures constitute a valuable

source for the cultural historian⁴⁵, mentions that in the year 1799 he was shown a shirt of mail which had been found in a grave at Mästerby Churchyard near-by. Since, however, both these finds have disappeared and no similar ones, as far as is known, have subsequently come to light, they cannot be made the basis of conclusions as to the existence of any warrior graves here of the same kind as those outside Wisby, which are the subject of this work.

THE BATTLE OF WISBY ON JULY 27th, 1361.

All that is known is that the first resistance of the peasants after the landing of the Danes was broken and that the road to Wisby lay open to the Danish invaders. Here on the 27th July⁴⁶ the defeated crowds of peasants, and probably also a hastily organized general levy of the population, rallied for a last desperate stand. As to the course of the struggle, contemporary sources (App. 5, 6, 7) only inform us that it was the peasants alone who fought and suffered a bloody defeat, since the defenders were "unarmed and unaccustomed to battle". That they were unarmed must not, of course, be interpreted literally but simply means poorly equipped. But that they were unaccustomed to battle, is highly probable,

for no warlike events are recorded from Gotland since the beginning of the century. The memorial cross which was erected above the fallen soon after the battle also says that “they fell into the hands of the Danes”. The scanty words almost give one the impression that there was no question of a regular battle, but that it was a butchery of the people, who fell helplessly into the power of the superior and stronger enemy. Statements about the vast number of dead also indicate this. A Swedish source from the period 1365–1371 (App. 5) states the number of fallen to be 2,000; a record in the diary of the Franciscans at Wisby, from the beginning of the 15th century (App. 7) gives the figure as 1,800, a statement which must be considered as being based on a living tradition amongst the population. Our investigations of the common graves have confirmed that the number of victims is something like the latter figure (see below p. 74). The number of the fallen is considerable in



Fig. 21. Memorial Cross at Korsgatan, near Wisby Harbour.

proportion to the relatively small number of warriors which can have taken part, and should be compared with the number of fallen in contemporary battles on the Continent, e.g. in the battle of Poitiers, in 1356, about 2,500 out of about 40,000 fighters fell, and out of 50,000 men at Navarette, in 1367, about 7,000 were left dead on the field.⁴⁷ As was often the case in medieval battles, the victor's losses were probably trifling. Nor are there any statements as to any of the more prominent members of the Danish army being killed or wounded. As an example of popular consciousness regarding the sanguinary nature of the battle, we must mention the legend about the blood of the dead and wounded running in the streets of the city and down to the sea, where a cross still standing near the harbour (fig. 21) is reputed to have been raised in memory of this terrible flood. The cross owes its origin of course, like those previously mentioned near Gunilda and Grens, to some other cause and has been drawn into the legendary circle around King Waldemar's invasion.

With regard to the site of the battle, the inscription on the memorial cross briefly says “before the gates of Wisby”. As we may assume that the dead were buried as near the battle-field as possible, especially in view of the repeated evidence of the finds pointing to the fact that the burial was delayed so long that the utmost speed was necessary, it is probable that the peasant-army with its front southwards, had its right wing supported



Fig. 22. "The Fallen". Charcoal drawing by Gunnar Hallström, 1905. In the National Museum, Stockholm.

by the city wall, and especially the strong southern gate, and the left wing by the firm stone-houses and the wall round Solberga Convent, in whose churchyard the common graves for the dead were laid out (see fig. 32). The position for the defenders may thus seem to have been very advantageous, but what could this avail against the better armour and military experience of the attackers?

No attempt will here be made to reconstruct the battle itself and its tactical features. In the absence of any evidence of these in contemporary sources, any such attempt is bound to be mere fancy.⁴⁸ But even if the written chronicles are silent, the finds from the common graves supply an illustration of the great tragedy, more harrowing than any literary description would have been able to produce (fig. 22). This last levy of the people gathered near Wisby seems to have been a complete round up of the resources of the rural districts of Gotland. Old men and boys were fighting side by side with men in the prime of life, numbering, according to the evidence of the graves, over one third of the whole army. But cripples and lame were not despised either; a number of hunchbacks, lame and stiff-jointed men, have been laid in the graves. In some instances it can be directly demonstrated that their equipment was very antiquated. Old suits of armour of a type used in the days of the Vikings were hastily patched up and donned. The numerous wounds on the whitened bones give a vivid idea of the violence of the hand-to-hand struggle. On the crania occur sometimes as many as ten to fifteen injuries, any one of which might have been sufficient to cause death, and which indicate that the battle psychosis had abnormally increased the

strength of the fighters. The frequently occurring holes in the crania from cross-bow arrows conjure a picture of a veritable shower of arrows which opened the battle, and are far more realistic than the descriptive language of the chroniclers. The force of the blows was so great that thick bones were severed. The fallen themselves here rise up, witnesses to the fact that they met honourably and courageously a technically superior enemy, and that they defended their native island and their homes to the utmost of their strength.

CONSEQUENCES OF THE BATTLE FOR WISBY AND GOTLAND.

After the defeat of the peasants, Wisby capitulated (App. 4, 7), probably at once, for two days after the battle, on the 29th July, King Waldemar issued a new charter for the city (App. 1). We do not possess any direct information as to what happened during these two days, but some conclusions can be drawn. According to a tradition recorded by the chronicler Strelow (App. 10), King Waldemar would seem not to have wanted to enter the city by one of its gates; but to show that it had been captured by force of arms, he had a part of the wall, opposite the battle-field, pulled down so that the army could march into the city through this artificial breach. The wall was subsequently rebuilt, and in memory of the fact that the troops marching into the city were ranked eleven deep, the rebuilt section of wall was crowned with eleven merlons. It is of course also possible that this is a legend at second hand, which has subsequently been attached to the part of the wall concerned (which for that matter has thirteen merlons) in order to explain why its appearance differed from the rest of the wall which is unbattlemented (fig. 23). Yet it is not impossible that the story may have a foundation of truth. There are parallels from other places, and from the point of view of architectural history there is nothing to prevent the dating of that portion of the wall, which is to this day called Waldemar's Wall, to this period.⁴⁹ The same source (App. 10) relates for the first time the story known throughout the Nordic countries of how Waldemar Atterdag levied heavy tributes on the city: if the citizens were able within three days to fill three of the largest beer vats with silver, the city would be allowed to keep its liberties and charters. The vats were set up in the principal square, and all came voluntarily with their gifts, for they had a great store of gold and silver hidden away and kept in the wall, says the chronicler, and the vats were filled on the selfsame day! Thereafter Waldemar robbed all the churches and convents of their bells, and the gold and silver and precious stones, which he had broken from their images, and especially two far-famed carbuncles, of which tradition has a great deal to tell. They are said to have been built into the front of a church and have given off such a strong light that they were able to guide navigators in the night. According to some legends they had been taken from a sea-monster, according to others they had come from a town in Pomerania, or from Arabia.⁵⁰

In contemporary sources there is nothing to hint that such looting of the city took place, but it is certain that tribute had to be paid to the invader. A Lübeck chronicle from the seventies of the 14th century (App. 6) states expressly that he took from the citizens a vast

store of gold and silver, and this is confirmed by a letter from the Wisby Council to the Hanseatic Towns, dated the 15th December, 1362 (App. 2), where it says that those goods which belonged to the other cities, and which at the time were stored in Wisby, had been saved in such a way that the burgesses "in their distress" had for their own means and money bought release for this deposited property. In the charter dated the 29th July (App. 1), which, as well as by the King, is sealed by his chief statesmen enumerated above, the city's ancient privileges are briefly confirmed, amongst those expressly mentioned being the right to coinage, but no regulation of the city's political relation to the Danish Crown

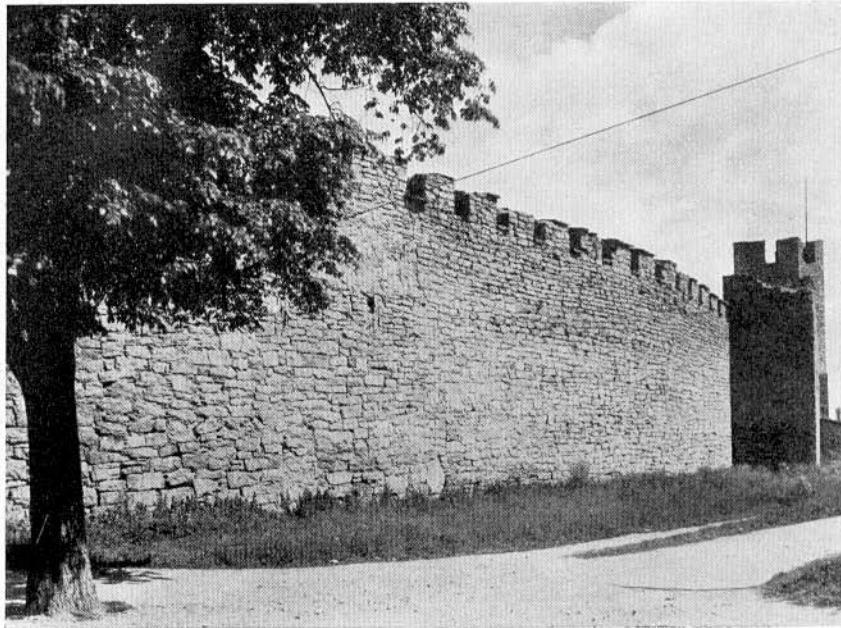


Fig. 23. "Waldemar's Wall", near South Gate, Wisby.

occurs. It is clear that it was intended to be as semi-independent as it had been in regard to Sweden. From the city's letter of homage to King Olof (App. 3) of the year 1376, we know that the tribute which was annually paid to the King of Denmark was the same as that which had been paid to Sweden, viz. 60 marks of pure silver according to Lübeck weight.

It is, therefore, clear that the city, as the price of its privileges and to escape pillage, had to pay a tribute which was certainly not inconsiderable, but which was not financially disastrous. No interruption or sudden depression in the city's commerce can be noticed. The assertions often made by later writers that the events of 1361 had entailed the city's downfall, is due to a simplification or a misunderstanding of the historical course of events. As has already been pointed out, Lübeck had begun before that time slowly but surely to surpass Wisby in its commerce and influence in the Hanseatic Union. This development continues until the time of the city's complete relapse into insignificance in the 16th century, but it does not appear that the Danish conquest of 1361 contributed to this. On the con-

trary, it resulted, as we shall shortly find, in the city being completely liberated from what was still probably a rather troublesome competitor, viz. the peasant merchants of the rural districts of Gotland. Whereas the King of Sweden seemed, as a rule, to have tried to look after the interests of the latter in any conflicts with the city, we find the opposite now to be the case.⁵¹

This new era for the rural districts had a terrible beginning during the weeks immediately following the battle of the 27th July. First, probably by way of revenge for the obstinate resistance, secondly, perhaps for political reasons, but undoubtedly mainly on account of the need of money, the rural districts of Gotland were subjected to enormous and probably planned pillage. A memento which in all its briefness is very expressive of this, is in Fide Church, not far from the Unghanse Manor, in southern Gotland. Above a picture of Christ as the Man of Sorrows, the following inscription is painted on the wall (fig. 24): "*Edes succense gens cesa dolens ruit ense.*" — "The houses are burnt and under lamentation the people fall before the sword." This inscription forms a chronogram and is one of the oldest known, i.e. those letters which have numerical significance taken together indicate a date and that is precisely the year 1361 (dvvccdlvi).⁵²



Fig. 24. Inscription in Fide Church.

TREASURES BURIED IN GOTLAND IN 1361.

Another kind of memento from these darkest days of Gotland is the treasure trove which can be dated from its contents to this period. The treasures have clearly been hidden so as not to fall into the hands of the pillagers, but those who concealed the treasures were killed before they had found an opportunity to recover their property or confide to somebody else the secret of where it was hidden. These finds are of the utmost value in determining the cultural standard of the Gotlandic peasants before the year of misfortune, 1361.

A hint of the scope of their commercial relations is obtained from the foreign coins in these finds. A small treasure of coins from Kyrkebys in Hangvar parish, which came to light in 1879, is dated by a Dutch florin of William V (1356–1389) and furthermore contains fifty-three coins from the North German towns of Lübeck, Stralsund and others, and over four hundred Gotlandic coins. There is evidence of eastern Baltic trade in a find made in 1912 near the Manor of Snäckarve, in the parish of Stenkumla, which, besides about eighteen hundred Wisby coins, contained three coins struck in Reval and seven struck in Dorpat for Bishop Johannes von Vifhusen (1346–1371). A more Western European connection is, on the other hand, provided by a treasure found in 1871 under a

stone near Levide, in the parish of Hejde. The entire number of coins probably amounted, to judge from a statement of its weight, to something like thirteen hundred, the greater part of which were from the Swedish mainland, a hundred and twenty-two Gotlandic, and twelve foreign, the latest in date being struck for the diocese of Corvey 1359–1360. The other foreign coins are four English pennies, struck for Edward III (1327–1377), one coin struck at Yvoy (French Dept. Ardennes) for Count Gaucher II de Chantillon (1303–1329), one Brabant groat, struck for Duke John III (1312–1355), one Polish groschen struck for King Casimir the Great (1333–1370), and one half-schoter for the Grand Master of the Teutonic Order Windrich von Kniprode (1351–1382).⁵³ Otherwise these finds are only of numismatical interest, which we shall not consider in detail.



Fig. 25. Buckle from middle of 14th century. Dune Treasure. Nat. Mus. of Antiquities, Stockholm.

In the remaining finds from this period which have come to our knowledge, ornaments and other objects of art predominate over the coins.⁵⁴

The biggest of these, which was found in 1881 at Dune, in the parish of Dalhem, and which is probably the biggest and richest medieval find made in Northern Europe, contained no coins except for five pendants in which had been mounted some Ibero-Moorish and Spanish Christian coins from the 12th century.

The number of objects amounts to no fewer than a hundred and twenty-two, including some of the very finest quality, actually first-class specimens of the decorative art of the period. The treasure from Amunde, in the parish of Burs, found in 1858, contained an English sterling and a Sassanian coin struck at Nakerchewan for Bahram VI (590–591), probably found in the soil in the Middle Ages and saved as a curiosity or amulet, as well as a hundred and twenty-four objects, of which, however, none are of international importance as are the foremost pieces of the Dune find. The find from Kyrkebinge, in the parish of Gothem, was unearthed in 1704, and came into our hands in a very imperfect condition. It contained probably something like a thousand Gotlandic coins, as well as an unknown number of minor objects of the same kind as the two other treasures. The remainder consists of a very handsome silver bowl and five silver spoons, dating from a period very near their deposition, an armlet of gold from the 12th century, and a gilt buckle with ornamentation in the style of the Viking Period, but probably not made before the year 1100.

It is evident already from the character of these few objects of the Kyrkebinge treasure that they are the remnants of a family treasure collected during several generations. This is seen still

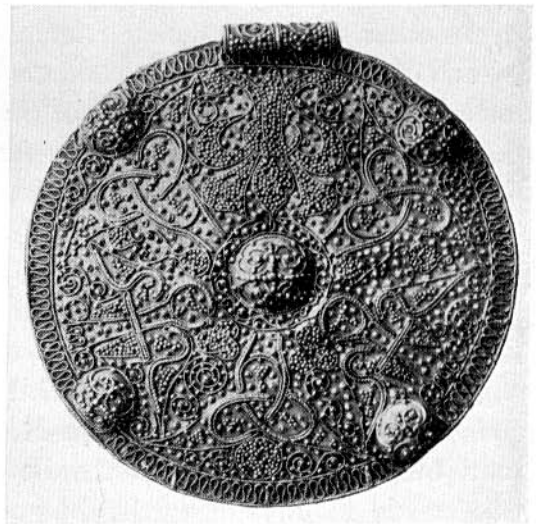


Fig. 26. Breast ornament of 12th century type. Dune treasure. Nat. Mus. of Antiquities, Stockholm.

more clearly in the case of the Dune treasure, in which practically every decade from the period about 1100 is represented by one or more characteristic objects, and whose definite forward time limit is marked by a simple ornament, which when deposited must have been practically new, a small buckle (fig. 25) made from a coin for the Grand Master of the Teutonic



Fig. 27. Persian silver cup of the 13th century. Dune treasure. Nat. Mus. of Antiquities, Stockholm.

Order, Windrich von Kniprode (1351–1382). Of the remarkable content of this treasure attention will here only be drawn to a bowl (fig. 29) with interesting figure ornamentation manufactured in England or France for a man named Zalognev (probably a Gotlander of Eastern descent) at the end of the 12th century, a couple of extremely uncommon bowls from about the same period, perhaps Limoges-work, a richly ornamented Persian silver cup of the 13th century with magic runes incised on the bottom (fig. 27), and, the glory of the treasure, one of the most precious specimens of goldsmith's work from that time, as P. Nörlund characterizes it, a buckle with figure scenes in high relief, made according to C. R. af Ugglas in Gotland from a model by a well known but anonymous sculptor⁵⁵, active there in the middle of the 13th century (fig. 28). Even parts of the Amunde treasure date back to about the year 1100, or perhaps even earlier.

The insight which these treasures give one into the taste displayed in the home of a rich farmer in Gotland in the middle of the 14th century, must inspire the very highest respect. This fine peasant culture, very susceptible to international influences yet retaining a deeply

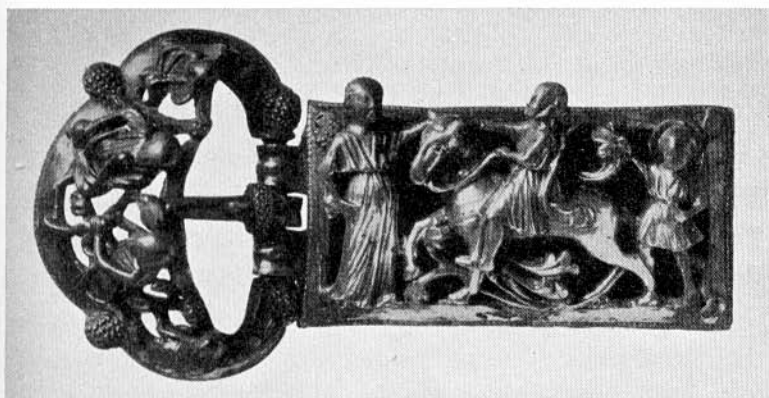


Fig. 28. Buckle made in Gotland (?) in the middle of the 13th century. Dune treasure. Nat. Mus. of Antiquities, Stockholm.

rooted national character, was completely crushed in the course of a few weeks in July and August, 1361. A characteristic feature here is the ecclesiastical architecture; of Gotland's hundred medieval churches not a single one can be shown to have been newly built in its entirety after 1361.⁵⁶ In several places big enlargements had been planned and begun before the fatal year. To a comparatively

small roman nave is added in many cases a large and high chancel, which gives the exterior a very peculiar appearance (fig. 30). A nave corresponding to this would afterwards have been erected when money had been collected. But all financial expectations were extinguished, and the big schemes could not be carried into effect. These churches stand as evidence of the violent interruption of development in Gotland.



Fig. 29. Zalognev's bowl. English (?) workmanship from the end of the 12th century. Dune treasure. Nat. Mus. of Antiquities, Stockholm.

KING WALDEMAR'S DEPARTURE FROM GOTLAND.

The finds of treasure, hidden from the pillaging Danish soldiers, can also give us an idea of the nature of the loot with which Waldemar Atterdag loaded his ships when, on the 28th August (App. 7), he left Gotland. Legend has, as Ingvar Andersson has stated, meted out poetic justice by allowing the ship which carried the booty, to be destroyed at sea. Statements to that effect appear first in a Swedish chronicle of the middle of the 15th century (App. 8), which went so far as to identify the spot as the skerries off Tjust, a part of the Swedish east coast opposite Gotland, while the Danish historian Arild Huitfeldt (App. 9) at the end of the 16th century, locates it to the neighbourhood of the Karlsö Isles, the two charming islands to the west of Gotland, near the fishing village of Kronvall (fig. 17). Here

tradition has kept it; here the people living along the coast as late as the 19th century saw dragon-fires burning, and here many other omens have been noted. Generation after generation has been charmed and enticed by the immeasurable Waldemar treasure, which lies in wait amongst the waving seaweed, and in the year 1933 an American syndicate applied for and was granted a concession to salve it. Perhaps this prosaic step dissolved the spell, and perhaps it will never more entice the Gotlandic fishermen with its phantoms.



Fig. 30. Gotlandic church with enlarged chancel. Garde Church.

HISTORICAL IMPORT OF THE CAMPAIGN.

King Waldemar's coup had succeeded. Wisby was altogether in his power, and no serious trouble could be given by the rural population. Was the symbolism in the folk songs about the daughters of the Goldsmith and Unghanse only a literary creation, or has it anything to tell us about the political intrigues behind the scanty facts which we are able to gather from the historical records? Had Waldemar and his cunning helpers succeeded in convincing the leading merchant princes of Wisby, who, with troubled minds, saw Lübeck's influence increasing, that the city under his sceptre would have better prospects of maintaining itself against competition? Had he made up his mind once and for all to crush the rural commerce? Was it for that reason that the citizens of Wisby in cold blood allowed the peasant army to be cut down before their eyes? Was it in the certainty of milder treatment that they gave up their strong fortifications voluntarily? No certain answer can be given to these questions; reasons may be advanced for and against. In a Swedish chronicle from the middle of the 15th century (App. 8), it says that the Danish bailiffs appointed by Waldemar after his departure were murdered by the population, and it has therefore

been assumed that the island for a brief period reverted to Sweden, as had the Island of Öland, which in September, 1362, again belonged to Sweden. Wisby participated for some years in the payment of the extra tax which the Hanseatic Union levied on its members for making war on Denmark, and this certainly does not hint at any very cordial relations with the sovereign. But this may also have been due to force of circumstances by reason of the political situation which could not be estimated in advance, and which was the immediate result of the Danish invasion of Gotland.

Before Waldemar had left Gotland, representatives of the Hanseatic towns and Sweden and Norway met in Greifswald, and, on the 22nd August, signed a formal peace treaty, which took the place of the armistice that had existed until then between these powers; in September this was followed by an alliance which directly aimed at joint military action against Waldemar.⁵⁷ As the result of this in the spring of 1362 the Hanseatic towns began to besiege the fortified town of Hälsingborg, the key position for the possession of Scania. But once again the Swedish king neglected to intervene with his military forces at the right moment. Waldemar succeeded in heavily defeating the Hanseatic fleet, and its commander, the Lübeck burgomaster Johan Wittenborg, found himself forced to sue for an armistice with the Danes and raise the siege of Hälsingborg. Once again Waldemar had triumphed in an apparently hopeless situation, and in their resentment at the worthlessness of their Swedo-Norwegian allies, the Hanseatic towns, on the 16th November, 1362, prolonged the armistice with Denmark for one year, and this also included Sweden and Norway. The whole ambitious coalition policy had come to nothing, and for King Magnus of Sweden the situation was much more precarious than before, since his political failure had brought grist to the mill of the anti-Danish opposition party of the Swedish nobility, which since the days of old hated him implacably. In this desperate situation Magnus took an amazing step. He became suddenly reconciled with Waldemar and on the 9th April, 1363, gave his son Håkon, King of Norway, in marriage with Waldemar's daughter Margareta, the future regent of the three united Nordic kingdoms. This complete capitulation to the hereditary enemy was, however, too much for the Swedish nobles. The Swedish crown was offered to a nephew of Magnus, Albrekt of Mecklenburg, who on the 29th November, 1363, landed in Stockholm and on the following day was acclaimed as king of Sweden by the citizens of Stockholm.

We shall not follow further the confused struggles in the North, which were shortly to bring Magnus to the dungeon of the castle where for nearly fifty years he had reigned as king. The struggle we have followed in one of its phases does not only imply a definite failure of the Swedish interests, but unfortunately also a failure for which the inefficient Swedish government alone was responsible. This paved the way for the weakest period in the history of the ancient Swedish realm, from which the country was not to rise until the rebirth of the national kingdom through the great Gustavus Vasa. The definite consolidation of the realm under the powerful soldier kings of the 17th century ultimately brought in its train at the peace of Brömsebro, in 1645, the re-acquisition of Gotland.

APPENDIX TO CHAPTER I.

FROM THE SOURCES DEALING WITH THE BATTLE OF WISBY ON JULY 27TH 1361.

1. *King Waldemar's Charter for Wisby, dated the 29th July, 1361.*

The original record has been lost. Parchment copy preserved, certified at Wisby on November 5th, 1425, by Prior Henrik of the S. Nicholas Dominican Convent, the Guardian Gotschalk of St. Catherine's Franciscan Convent, and Herman Munther. In the Danish National Archives at Copenhagen.

Rendered after N. Herlitz, *Privilegier, resolutioner och förordningar för Sveriges städer*, I, Stockholm 1927, No. 280 a, p. 308.

Wy Waldemar, van Godes gnaden kōningh der Denen vnde Wenden, vnde Cristoffer vnse sōne, van den suluen gnaden hertoghe to Lalande, bekennen vnde betughen openbare in dessem breue,

[1] dat wy bestede ghen den wisen vnde ackboren mannen, borgermesteren, raedluden vnde der menheit vnser stad to Wisbu, vnser leuen vnde ghetruwen, alle rechticheid vnde vrigheit, de se van olders hebben ghehat.

[2] Vortmer vorlyge wy en sunderlike gnade dat se zulke vrygheid hebben scholen in den vorstranden vnser rikes to Denemarken, alse andere vnse stede hebben in dem suluen ryken ligghen.

[3] Ok scholen se vnde de eren velighen bruken eres gudes in vsem rike.

[4] Ok ghunne wy en erer munthe, also se van oldes hebben ghehat.

To tughe desser deghedinge, de hir an vnde ouer weren, dat sint de hoghgeboren vørste, hertoghe Erik van Sassen, her Clawes van Lembeke, her Henningh van Podebuz vnde her Woldemar Zappe, ritter. To orkunde alle desser vorscreuenen stucke stede vnde vaste to holdende hebben wy vorbenompen Woldemar, kōningh to Dennemarken, vnde Cristoffer, hertoghe to Lalande, vnse inghezegele ghehenget an dessen breff, de ghegeuen vnde screuen is na Godes bord dusend drehundert in deme en vnde setighesten jare in sunte Olaues daghe, des hillighen kōninghes.

2. *Wisby Council to the Hanseatic Towns on the 15th December, 1362.*

Original lost. Copy in the City of Lübeck's *Registrum recessum*, which from the Ledraborg Library has come into the National Archives at Copenhagen. Re this parchment codex see the preface by Nyerup to Suhm, *Historie af Danmark*, XIV, pp. xi ff.

The record supplies information about customs duty collected; questions as to whether Wisby is included in the peace concluded between the Hanseatic Union and the King of Denmark and whether a Hanseatic meeting was fixed; states that German prisoners taken at Pleskow had not yet been ransomed.

Rendered after K. Koppmann, *Hanserecesse*, I, Leipzig 1870, No. 290, p. 221.

Wetet leven und wolgheminede vrunde, dat wi den tollē, de by uns upgheboret is, van wedderdaghen wente sunte Michelis dach hebben ghesant uppe dat hus to Ølande na der eendracht, de dar geschach to Suderkoping twuschen juwen boden und den unsen; unde de tolle van den Stokholmen, de

is uns nicht ghekomen. Item de summe des tollē, de is 15 stucke wasses, de woghen 10 schippund unde 8 markpunt; 200 mark Lubescher penninghe 20 mark Lubesch minus, 127 guldene Lubesch unde Ungersch, unde 50 stucke an matunne unde an olden schilden. Worinne wi bidden, dat git so maken,

dat wi nicht meer ghemanet en werden, unde dat unsen borgheren ere ghelt wedder werde, unde ok welken anderen bederven luden, de ere gud ander werve to Hamborg mosten vortollen, unde dat wi schadelos werden ghehouden, alse na juwem breve, den gi uns sanden. Item gi heren, so hebbe wi vornomen, dat it mit den menen steden, de in der hanse sint, unde tuschen deme koninge von Denemarken in enen velighen dach ghesat sy; unde, wo we darinne bewaret sin, dat gi wolden unde willen uns dat enbeden. Item so hebbe wi dat vornomen, dat nu to wedderdaghen een dach up ghenomen is van der ghemenen stede weghene; is dar gicht ane, dat gi uns dat enbeden. Item werit, dat gi icht vornemen, dat unse stad efte unsen borgheren schedelik were,

dat gi wolden uns dat enbeden, unde wesen der also vore, alse wi juwer erbarkeit des to loven; wente wi overme jare alsodane gud, alse mit uns van den steden, in unsen noden vrieden mit unseme gude. Item werit sake, dat uns jenich here arghen wolde, des God nicht en wille, schege uns van ju unde van den steden nene hulpe, so vruchte wi lichte mer to komende schaden, nicht allene uns, men den menen steden, wente wi uns mit der hulpe unses Heren vorseen willen dat beste, dat wi vormoghen. Item so hebbe wi vornomen, dat de Dudeschen to Plescowe noch ligghen ghevanghen; werden se winterlank nicht ghelosed, steit uns den dar icht to to donde, dat gi uns ok enbeden. Blivet ghesund in Gode. Ghescreven des ersten donnerdaghes na Lucie.

3. *City of Wisby Letter of Homage to King Olof of Denmark, dated the 15th August, 1376.*

The original on parchment in the Danish National Archives, Copenhagen. Bears seal of the City of Wisby.

Rendered after O. S. Rydberg, *Sveriges traktater med främmande magter*, II, Stockholm 1883, p. 343.

Wy borgermestere, ratlude vnde meenheyt der stat tho Wisby bekennen vnde betughen openbare in desser scrift, dat wi vnde vnse eruen vnde nacomere ghenomen vnde vntfanghen hebben to vnsem rechten erfheren den hochgeboren vorsten vnde heren, hern Olaf, koningh to Denemarken, vnde sinen eruen vnde nacomere, vnde eweliken by en vnde by der cronen to Denemarken to blyuende myt allen truwen, alse bedderue lude by eren rechten heren bliuen scholen. Vortmer loue wi an guden truwen vnde verbynden vns dar to, dat wi nenen man an vnser rat kesen scholen, he en schole deme koninghe to Denemarken, sinen eruen vnde der cronen to Denemarken huldighen vnde sweren truwe vnde holt to wesene; den eeth schal he doen dem rade to Wisby van des koninghes weghen. Vortmer vorbynde wi vns darto, dat wi vnde vnse eruen den koninghe van Denemarken vnde sine eruen vnde dat rike to Denemarken by allen rechten blyuen scholen laten, de jenich koningh, de ouer Wisby koningh heft ghewesen, ye vryest heft ghehat, ok loue wi an truwen vnde vnse eruen, dat wi den koninghe vnde der cronen to Denemarken ofte eren wissen boden alle jar scholen gheuen LX lodighe mark zuluers

by Lübescher wicht, ofte an pennynghen, alze dat suluer ghilt to Lübeke, to betalende vp vnser vrouwen dach, also se boren wart. Vortmer loue wi an guden truwen, dat alle de ghene, se sint hertoghen, heren, greuen, ridderen ofte knapen, edder schiplude edder welkerhande se sint, de vnser heren koningh Wolde-mar dar to behulpen hebben, dat wi to dem rike komen sint, de scholen des ene gantze sone hebben myt vns, vnde scholen dat nummer vppen claghen vnde wreken. Ok loue wi vnde vnse eruen, dat de vorbenomde stad to Wisby des koninghes van Denemarken vnde sinen eruen eyn open slot wesen schal to alle eren noden. Alle desse vorscreuen stücke loue wi borgermestere, ratlude vnde meenheyt gantze stede, vast vnde vntobroken to holdende by truwen vnde by eren sunder alle arghe list. Des tho orkunde vnde merer bewaringhe, dat alle desse vorscreuene stücke to ewigen tiden blyuen vntobroken, hebbe wi der stad ingeseghel van Wisby vor dessen bref ghehenghet, de ghegheuen is to Wisby na Godes borth dūzent drehundert vnde ses vnde souentich jar vp den dach der hemmel-vart vnser vrouwen.

4. *From Chronica Sialandie.*

Danish chronicles compiled shortly after 1363, with a critical tendency inimical to King Waldemar. Rendered after Ellen Jörgensen, *Annales Danici medii aevi*, Copenhagen 1920, pp. 187 ff.

— — — — —
Circiter idem tempus [1360] Valdamarus rex, congregato magno exercitu et assumpto filio Christophoro

duce, Schanium manu armata introiuit, et castrum Helzingburgh uiriliter obsedit; tandem ueniente Magno Suecie rege, uidens, quod resistere non ualeret, sibi

supradictum castrum multis condicionibus interiectis libere resignavit; quo obtento munitiones in eadem terra nobilium uolenter acquisiuit. Et ipsi nobiles, ueniam ab eodem rege Valdamaro postulantibus, hominibus uoluntarie receperunt. Castrum autem Lindholm partim minis et partim magna pecuniarum summa quasi in continenti acquisiuit.

1361. Guerra inter Magnum Suecie et Valdamarum Dacie reges, ut prius, exorta super multis articulis et promissionibus prius habitis et in posterum habendis. Rex Valdamarus, dormire inutiliter nolens, sed magis in insontes seuire uolens, maxima classe nauium cum exercitu congregata, partes domini regis Suecie peciit et insulam Oland inuasit castrumque ibidem Borholm obsedit, quo debellato capitaneos suos ibidem imposuit, muniuit et totam insulam sibi subiugauit. Dehinc tandem usque in Gotlandiam proficiscitur, ubi, tribus bellis in ipsa terra peractis, ipse uictor cum suis quasi sine lesione existens totam Gotlandiam [cepit], infinitis inquilinis prostratis ad uillam Visby, que ultro sibi aperta inuenitur. Tandem ipse, auro, argento, pellibus uariis et aliis infinitis diuiciis exinde protractis, cum suis ad propria feliciter remeauit.

1362. Ciuitas Lubecensis et omnes alie ciuitates maritime condolentes et egreferentes, quod regi Valdamaro in Gotlandia prospere successisset, parauerunt se, superbiende regem predictum extirpare cogi-

tantes. Congregata ergo multitudine magna classium et assumptis principibus terrarum, Henrico comite Holsacie in capitaneum electo, in Schaniam cum nauibus et multis militibus et millibus hominum introierunt et castrum Helzingburgh obsederunt, ad mouentes 16 machinas, iactantes et non pausantes die neque nocte. Ipse autem rex Valdamarus quosdam de ipsis captiuauit in terra, quosdam occidit et quosdam in mari cum nauibus apprehendit; finaliter uero omnes naues ipsorum desumpsit; ad ultimum treugis interpositis, ad patriam illa magna multitudo confusibiliter remeauit. Sed capitaneus eorum, [proconsul] Lubecensis ciuitatis Johannes Hvittenburgh, quia nec castrum destruere nec Daciam illis suppressere potuit, in ciuitate Lubecensi in foro communi ante pretorium fuit publice decollatus. Et sic treuge fuerunt per annum integrum et ultra.

1363. Haquinus, filius Magni regis Suecie, duxit in uxorem filiam Valdamari regis Danie, et nupcie celebrate sunt Hafnis dominica proxima post pascha; ubi domina Blancha, regina Suecie, infirmabatur et moritur, et exequie eius solenniter preparantur. Eodem etiam tempore Christophorus, dux Lalandie et Hallandie, filius Valdamari regis Dacie, in infirmitate captus per aliquot septimanas perdurante, tandem eadem infirmitate expirauit et cum exequiis solennibus in ecclesia cathedrali Roschyldis est sepultus. — — —

5. *From Libellus de Magno Erici Rege.*

Swedish contentious tract directed against King Magnus Eriksson and bristling with partly unfounded abuse of the latter. Is based for the earlier part of the king's reign upon material which had been disseminated by the Swedish prophetess Birgitta Birgersdotter, subsequently canonized, who was inimical to the king. Compiled between 1365 and 1371. See I. Andersson, *Källstudier till Sveriges historia 1230—1436*, pp. 151 ff., E. Nygren, *Vadstena klostets tänkebok*, p. 64, and S. Kraft, *Textstudier till Birgittas revelationer*, pp. 155 ff., and in *Historisk Tidskrift*, 1927.

Rendered after C. Annerstedt, *Scriptores rerum Svecicarum mediæ ævi*, III, Uppsala 1871—76, pp. 14 ff.

Secundum fuit quod contra uoluntatem omnium consiliariorum terram Scanie tradidit regi Dacie nec repetita nec reddita pecunia, pro qua prius redempta fuerat, nec securitate uiuende inter homines et magna facta uel accepta, de quibus homines male contenti et in nullis securi suspicabantur omnia esse uera, que consilarii regis Dacie in aperto prius clamabant, ambos scilicet reges contra homines suos conspirasse ad eorum perditionem, quod postea est probatum. Tercium malum est quod rex permisit regem Dacie intrare cum exercitu duas terras suas insulares, sicut prius inter se condixerant, si eas expugnare posset. In prima siquidem insula que uocatur Olandia interfecit plus quam quingentos homines et expugnato

castro totam terram redegit in seruitutem et potestatem suam et ablatis omnibus que concupiuit prefecit prefectos suos castro et toti terre. Secunda insula uocatur Gotlandia, cuius incole a paganissimo(!) libere regi Suecie obedientes existerant(!) regnoque Dacie nec in minimis molesti. Istam terram rex Dacie tribus conflictibus obtinuit et interfectis duobus milibus hominum tributoque grauissimo imposito exegit fidelitatem a residuo populo et sic recedens detinet adhuc eandem terram tamquam suam. Talis itaque rex qui sic oues suas dimittit bene dici potest proditor, qui uero alterius oues sic sibi propter superbiam et cupiditatem suam vsurpat interficiendo innocentes, mörderator* uocari potest et malignus homicida. — — —

* Swedish *mördare* = murderer.

6. *From Detmar's Chronicle.*

Chronicle compiled in 1375 and later by the Franciscan Detmar, senior master at St. Catherine's Convent in Lübeck. The Invasion of Gotland is here erroneously relegated to the year 1360.

Rendered after K. Koppmann, *Die Chroniken der niedersächsischen Städte, Lübeck, I (Die Chroniken der deutschen Städte, 19)*, Leipzig 1884, p. 529.

 In deme jare Cristi 1360 do besammelde konink Woldemar van Denemarken een grot hër, unde sprak, he wolde se bringhen, dar goldes unde sulvers ghenoch were, dar de swine eten ute den sulveren trogen. unde vurde se in Gotlande, unde makede dar vele ridders up deme lande, unde floch alto vele volkes dar neder, wente de bünnen weren ungewapent unde

strides unbewonen. he toch vort vor de stad to Wisbû; se togen em enjeghen ute der stad, unde gheven sik an des koninghes hulde, wente se seghen wol, dat dar nyn wederkivent was. aldus krech he dat land, unde nam van den borgheren der stad grote bescattinghe an gholde unde an sulver, unde toch sinen wech.

7. *From the Diary of the Wisby Franciscans.*

Statements about the battle occur in two different places in the manuscript, in the shorter one (a) being wrongly dated, "vigilia St. Jacobi" instead of "crastino S:ti Jacobi", probably a clerical error. Both are written by a hand of the beginning of the 15th century (see I. Andersson, *Waldemar Atterdags tåg mot Gotland*, p. 404). The original manuscript is in the Royal Library at Stockholm (Cod. B 99).

Reproduced from the original manuscript (the copy placed at disposal by Dr. Ernst Nygren).

(a) Fol. 41^v from the group of notices on Gotlandian and general Nordic events entered in the manuscript immediately after the calendarium (see for this Chr. Erslev in *Dansk Historisk Tidsskrift*, 5, III, pp. 342 ff.).

Anno domini. M^occc^olx^o primo waldemarus rex dacie co[e]pit gotlandiam et wisby vbi circa mille octingentos rusticos in vigilia sancti Jacobi in bello occidit qui accepto secum maximo thesauro de ciui-

tate et terra / cum suis ad propria est reuersus. et anno sequenti incinerata est ciuitas et turres ecclesie beate virginis cum campanis ab incendio perierunt.

(b) Fol. 45^v, from the Swedish chronicles (see Chr. Erslev, *op. cit.*).

Anno domini. M^occc.lx. primo idem waldemarus veniens in gotlandiam cum magno exercitu ducens secum quam plures duces de alemannia in festo sancte marie magdalene // Et in crastino sancti Jacobi cum bondonibus* terre ante australem portam ciuitatis pugnauit et ex illis. Mille octingentos in bello occidit et in mediate ciuitatem wisbyensem cum placitacione optinuit. demum in die sancti augustini recessit ducens secum maximum thesaurum auri et argenti quem de

ciuitate ac terra accepit. Eodem anno ciuitates maritime se Regi waldemaro opposuerunt et castrum hafnis destruxerunt et tunc rex de ciuitatibus**, xii. liburnos cepit et omnes quotquot in eis erant. captiuauit et in selandiam misit vbi ipsos labore et fame grauissime afflixit. Et continuo ante helsingaborch quod castrum tunc theotunici circumvallauerant inter regem et ciuitates pax est reformata.

* Swedish *bonde* = peasant.

** Crossed over

8. *From the Swedish Rhyming Chronicle.*

The part of the chronicle, the so-called "connecting poem", where the statements about the battle occur, was compiled in the middle of the 15th century. Apart from *Libellus* (App. 5) and Birgittas revelations, it is based upon a lost Gotlandian chronicle and legends of doubtful value. It dates, erroneously,

the capture of Öland after that of Gotland. Its tendency is inimical to King Magnus. See I. Andersson, *Källstudier till Sveriges historia 1230—1436*, pp. 174 ff.

Rendered after G. H. Klemming, *Gamla eller Eriks-krönikan (Svenska medeltidens rimkrönikor, I)*, Stockholm 1865, pp. 183 ff.

— — — — —
 Medhen thetta saa till gik
 redde konung valdemar sik
 tyll skips mz een här stoor
 mz holkin han till gotlandh foor
 ok lagde j garna haffn ther medher
 them saluge gutha lykkadis ey bäther
 the ville ey vndher konungen gaa
 ty loth han them gripa ok slaa
 vith vj^c [600] myste ther thera lyff
 gudh skende konung magnus för thz kyff
 han matte funnet bäther foga
 än saa förderuat sin almoga
 sydhan skynnaden staden ok landeth j röther
 saa the fingo thes aldrey böther
 vsigelighet gull ok silff han ther fyk
 gudh fögadet sa thz alth förgik
 som han villet till danmark föra
 tha for thz som man maa höra

fför tyuste skär ppa een sten
 bleff bade skipp ok gotz j gen
 ok alle the j skyppet varo jnne
 förgingos mädher aath thz sinne
 han loth sin fogda ppa gotlandh vara
 ok bödh almogan honom suara
 tha han mz guta hade endhe
 strax ath ölandh han tha vende
 Öningga gik tha sama lundh
 han loth them röffua ok skynna j grundh
 togh myste ther jngen sith lyiff
 thy the budho honom jnkte kijff
 tha han hade giorth thetta meen
 for han stragx ath danmark j gen
 ok wart thit komen nogha vell
 fför än gutha slogo hans fogda j heell
 ok lyddo vndher suerige som för
 thz är tro almoge som saa gör

— — — — —

9. From Arild Huitfeldt's Chronicle.

Arild Huitfeldt (1546—1609), a Danish senator and chancellor, published several old laws and chronicles, and compiled a Danish chronicle up to the year 1559. He utilized in this work some recorded material that has now been lost.

The complete title of the chronicle is: *Danmarkis Rigis Krönicke ved Arrild Huitfeld til Odersberg. D. K. Canclär.*

Rendered from the second edition published in Copenhagen in the year 1652.

— — — — —
 Aar 1361. vaar der atter Krig imellem Kong Wolde-
 mar oc Kongen aff Sverige / huilcken kom for mange
 Artickle oc Løffte skyld / tilforne vaar loffuet / oc
 endnu skulde fuldgioris / som vaar for det Gifftermaal
 skyld / med Kong Haagen oc hans Daatter / vaar
 loffuet oc icke fulddragen. Den Svenske Historie inde-
 holder / Kong Magnus at haffue været vred paa de
 Gullandske / oc handlet med Kong Woldemar / hand
 skulde offuerdrage dennem: huilcket oc kand være
 loffuet tilforne / oc aff begge samtyckt. Thi siden
 Vissby bleff en Stappel oc Nederlag / viste de Kong
 Mogens føye til Vilie / aff forneffnde Land.

Kong Woldemar drager med sin Hær / først til
 Øland / huor hand ihuelslog 500. Mand / belagde Borck-
 holm / fick det ind / sætte der paa en Høffuitzmand oc
 gjorde sig gandske Landet underdanigt. Men der hand
 vaar bortdragen / finge de Svenske Øland tilbage.
 Derfra drog hand at Gotland / huor hand gjorde tre
 Slactninge med Almuen paa en Dag / oc bleff dennem

offuermectig. Aff Landfolcket bleff slagen 1800. Der
 hand kom til Byen / stod den hannem velvilligen
 oberfore / dog vilde hand icke inddrage at Porten /
 men lod nedersla it stycke Mur / oc kom igiennem
 med hans heele Slactordning: huilcket skeede fierde
 Dagen for S. Jacobs Dag. Her samlet hand it wsigeligt
 stor Bytte oc Roff / fordi det vaar en Stappelstad oc
 Nederlag / oc med samme Rigdom seyglet hand til-
 bage. It hans Skibe bleff under Karlsøe / med kosteligt
 Gods / aff Kircker / Klostere oc Borgere tagen med
 meget Sølf paa. Den Stad Visby erbydt for sin Be-
 leilighed skyld / at hand ligger saa got som mit udi
 Østersøen / til en Stappel oc Handelsted / for atskillige
 slags Nationer / strax effter at Kong Woldemar den 1.
 haffde ødelagt oc forstyrret Vineta, oc Kiøbmænd
 som tilforne haffde boed til Vineta, Vender / Ælster /
 Samlender / Litthower / Prytsser / Rytsser / Poler / Øs-
 terske / oc Vesterske / oc andre som med dennem haffde
 handlet / søgte om Friheder at bo der / thi Landet Got-
 land / same By ligger paa / hørde aff fordum under

Sverige. Aar 1158. den tid atskillige oc mangeslags Tungemaal / samlede dennem til Vissby / da soer mand Fred / at huer skulde haffue 8. Faffne aff Landet / oc Forstranden offuer Agger oc Eng / paa det huer diss bedre kunde hielpe sit Gods. Huem som kom til Anckerhold under Landet / skulde være under samme soerne Fred. Den tid Byen nu meere oc meere tilvoxe aff Folck / Manddrab / Forræderi / Tuist oc Wenighed / tiltog / da sende Kiøbmændene til Hertug Henrich Løfue aff Beyern oc Saxen: Hand stadfestede dem aff Visby først deris Ret / effter som hans Grotfader / Keyser Lotharius den giffuet haffuer andre Kiøbstæder. Der hos vaar Bisp Gerholt / Bisp Eumont / Bisp Beno aff Mekelnborg / Margreffuer aff Voberg / Greff Frederich aff Arensberg / Greff Henrich von Raffuensberg / Greff Alff / Greff Sivort / Greff Volrad / Greff Henrich von Roseberg / Lyddert von Meysen / Ludolff von Valtingerode / Gunfelt am Camererer / Ludolff von der Drost / oc Greff Reinholt aff Lybeck / Anno 7. Friderici Imperatoris. Siden den tid / der Trætte kom imellem dennem paa Landet / thi de haffde egen Ret / Da sende Kiøbmænd til Kong Magnus Ladelaas / til Konning Byrge / til Hertug Erich oc Hertug Woldemar / oc til Koning Magnus Smeck / huilcke alle stadfestede dem udi Visby deris Friheder oc Kiøbsteds Ret. Denne Kong Magnus

Smeck aff Sverige / Norge / Skaane / hand gaff dem tuende Lowbøger ens liudendis: Den ene paa Tydske / den anden paa Gottiske: kom der nogen Sag / som icke fantis udi den Bog / skulde mand med Beskeedenhed rette det. Hand gaff dem oc den Frihed / at Byen oc Landet skulle hafve it Indsegel / oc en Ret. Til huad Rigdom den By hafuer været kommen / er endnu at see / aff de mange sköne Steenhus / hualde Gader oc Taarn om Byen findis: men findis nu inden Murene mangesteds øde oc vust / at mand kand saae der nogen Lester Korn inde.

Aar 1361. stadfeste Kong Woldemar oc hans Søn Christoffer / dem til Visby alle deris Privilegier oc Friheder / de før haffde hafft. Item / forunte dem at haffue sliig Frihed udi Danmark oc udi Førstendomet / som andre hans Vndersaatte udi Danske Stæder haffde. Sammeledis at bruge deris Gods fellig udi Riget: Item / at haffue deris egen Mynt / som aff Arrild / offuerværendis Hertug Erich aff Saxen / Her Claus Limbecke / Her Henning Podebusk / Her Woldemar Sappe. Datum 5. Dagen effter Olai Dag / Aar 1361. til Visby.

Der detta spurdis til Stæderne / er alt Dansk Gods arresterit: huilcke did seyglede / bleff paatagne / saa de Danske fast udi alle Søstæder vaare wfri.

10. *From H. N. Strelow's Cronica Guthilandorum.*

Hans Nielssön Strelow (1587—1656) was suffragan bishop in Gotland. His chronicle, which was printed in 1633, is based for the time in question upon Huitfeldt's chronicle (App. 9) and on documents that have now been lost (e.g. King Magnus' letter of warning to Wisby of the 1st May, 1361) and folk-lore. The title of the chronicle is: *Cronica Guthilandorum. Den Guthilandiske Cronica, huor udi beskriufuis, huorledis Guthiland er opsøgt oc paafundet etc. Aff Hans Nielssön Strelow, Guthilander, Copenhagen 1633.* Rendered after the original edition, pp. 162 ff.

Vdi Suerrig tilstod det møget ilde / Konning Magnus førde it utuctigt Sodomitisk Lefnet / vilde ey lade sig sette til Rette / endog offte paamint / huorfore hans Regimente var alle hadeligt / hand forliger sig med Konning Valdemar / oc hannem Skaane igien lefuere / Konning Valdemar mente de Tydske som det i Pant hafde / kunde ey selge det som de icke egede: Hand fryctede for sine egen Vndersaatte / oc torde sig icke forlade til dennem / huorfore hand forbinder sig med Konning Valdemar. De Suenske Historier sige / hand endocsa skulde bevilliget / Kong Valdemar at maatte indtage Guthiland oc Vissby / thi de viste Konningen aff Suerrig en ringe ting til villie aff fornefnede Stad. Konning Valdemar drager til Guthiland / som en Kiøbmand om Høsten / hafuer Sønderst i Landet / 10 Mile fra Vissby hafft sit Tilhold / hoss en aff Høffdingerne i Landet Wnghanse ved Naffn / (er kommen i Venskab med hans Daatter / som er blefuen Fruct-

sommelig / hendis Fader er en gang kommen forsnart / der de vaare ene / gaff Kong Valdemar en Ørefigen / som hand paa den tid tog til tacke) hafuer den Vinter ofuer offte kommet i Vissby / oc reiste Landet igien / forspeidede huor sterck de vaare / oc Leiligheden ofuer alt Landet / med leilighed til hans Skibsflaade at andsette.

Konning Magnus fortrød / at Skaane var saa borte / oc fick kundskab / at Konning Valdemar gjør ferdig med en stor Krigssmact / vilde forsuare det hand hafde. Kong Magnus tenckte at Guthiland var hannem iveyen i den Østresøe / oc Vissby møget for sin Rigdom skyld allevegne berømmet. Huorfore hand skrifuer dennem paa Guthiland oc i Vissby til / om Vinteren / med sin Forbitzer oc Tromand Herr Niels Turissøn / Brefuet er saa liudendis.

Magnus Dei gratia, Svecorum, Norvegiorum & Scaniæ Rex, dilectis sibi in Christo Proconsulibus, Consulibus ac toti communitati civitatis Visbycensis,

gratiam in Domino & salutem. Exigunt (proh dolor) hominum peccata, dierumq; malitia, ut unquam sint vel ullo loco securi, sed ex omni parte pavidi aut suspecti, pro ut ex diversarum mundi partium disturbii ac gverris satis audistis, ac propterea semper vigilandum est, & potius ante tempus peractum occurrendum, quam post vulneratam causam remedium quaerere, illos nempe felices describit antiquitas, quibus ex alieno praestatur cautela periculo. Quapropter vos per praesentes requirimus, ac firmiter, & sub obtentu gratiae nostrae vobis praecipiendo mandamus, quantum sit navium & personarum numero consueto, pro expeditione nostra cum armis sufficientibus vos paratis, quae semper die nocteq;, quotiescunq; per nobilem militem Dn. Nicolaum Thurissen dapiphereum nostrum dilectum requisiti fueritis, statim absq; morae dispendio pro regi defensione propria & quo requiret seu recipiet procedere valeatis. Sic inpraemissis acturi sitis vestrum honorem, & nostrum favorem diligenter illibatum habituri. Datum Hapsiscalum Ociliensis dioceseos, Anno Domini 1361. Sabbato ante Dominicam Invocavit.

Wi Magnus aff Guds Naade / Suerigis oc Skaane Konning / ynsker os elskelige i Christo Borgemestre oc Raadmænd / oc gandske Vissby Stads Menighed / Naade oc Fred i Herren. Menniskens Synder / oc denne onde tiid (dissverre) foraarsager / at mand aldrig paa nogen sted kand være tryge / men paa alle sider fryctactig oc fortænkt. Eftersom I nocksom hafue hørt aff Verdens adskillige Horlumhej / oc derfor vilde her altid vaagis / oc heller i tide saadan deris Forsett forekomme / end siden at søge Medel / naar mand hafuer Skaden / den sigis aff de Gamle lycksalig / huilcken der blifuer viis aff en andens Skade. Huorfore Vi med dette voris Breff endelig utkrefuer aff eder / oc under voris Naadis Hørsomhed biude oc befale / at I bereder saa mange Skibe oc Personer / til voris Krigsberedning / med fuldkomnen Vaaben oc Verie / som altid baade Nat oc Dag / saa tit i blifue der om andmodet / ved Velb. Streng Ridder / Herr Niels Thurissøn / voris elskelige Forbitzer / strax uden nogen Forhaling / til voris Rigers egentlig Defension, oc Forsuaring kand fare fort / huor hand eder biuder oc befaler. Saa giøre I det som eder vel anstaar / oc os igien hafue altid eder i all Naade vel bevogen. Datū Hapsal paa Øsel / Fastelawens Søndag / Aar 1361.

Strax der efter tilskreff dennem igien / at det vilde gielde dennem først an / Brefuit er saa liudendis:

Magnus Dei gratia Rex Sveciae, Norvegiae & Scaniae, Viris discretis, Proconsulibus, Consulibus, ac toti Civitati Visbyensi in Domino salutem & gratiam. Novistis dudum ad nostram deductum fuisse notitiam, quosdam de nostris amicis, in nostrum & totius regni damnum & dispendium conspirare, qui loca vestra tanquam iis viciniora, clandestinâ & armatâ manu, & valido exercitu invadere moliantur, nisi civitatem

vestram, muros & portus, sufficienti & diligenti custodia, quoad omnia necessaria, tam in vigiliis, quam in aliis observationibus habeatis praemunitos: Quapropter universitatem vestram monemus, ac monendo firmiter praecipimus & mandamus, quantum diu noctuq; in omnibus locis, quibus hujus pericula evenire speratis, diligenter advertere studeatis. Sic pro occasione vestrae diligentiae, regnum ipsum aut vos detrimentum nullarum patiamini ex incauto, quod minus formidare habetis, dummodo sufficiens cautela civitati ac portuum vestrorum defensio habeatur. Horum nihil omittere, sicut statum regni, ac nostrum honorem duxeritis diligendum. Datum Stockholmis, Anno 1361. Sabbato ante ascensionem ejusdem.

Wi Magnus aff Guds naade / Suerigis / Norgis oc Skaane Konning / helse eder Velvise oc Forstandige Mænd / Borgemester oc Raadmænd / oc gandske Vissby Menighed / Naade oc Fred i Herren. I vide vel / at der er os lenge siden tilkiende gifuet / nogle aff voris Venner / til voris oc det gandske Rigis Skade oc Affbreck / sig hemmelig at forbinde / med en gandske sterck Krigssmact oc stormender Haand / eders Stæder som ere dennem nest / at indtage / uden saa er / at I hafuer eders Stadmur oc Hafne med nødactige oc flittig Varetect / saa viit som alting fornøden er / baade Nat oc Dag / oc anden Tilsium vel forsiunet oc bevaret. Huorfore Vi formane eder alle oc en huer / oc der hos endeligen biuder oc befaller / at i baade Nat oc Dag / paa alle steder / huor i tencker / saadan fare skulle andgaa / hafue flittig indseende / saa skal huercken Riget eller I formedelst saadanne Flitighed / lide nogen uformodendis Skade / huorfore I icke skal hafue eder at befrycte / den stund i Staden flittig forvarer / oc eders Hafner vel forsuarer. Tager her ingen Forsømmelse fore / eftersom I Rigens Gaffn oc voris Ære acter oc elsker. Stockholm / 1361. Søndagen for vor Herris Himmelfart.

Kand her aff vel eractis / at de Suenske i deris Beskyldinger til Kong Magnum, hafuer icke været som de foregifue / som aff forskrefne Documenter er beviist / at hand skulde hafue samtyckt / Konning Valdemar at indtage Guthiland / eller ville deris Forderfuelse.

Der de aff Guthiland spurde Konning Valdemars Tilkommelse oc Vdreissning / actede de det aldelis intet / for den store Mact som de kunde bringe til veye / Men dreff udi deris Samquem / Gilde og Geste-bud / stoer Spott och Tidkort der med / (men ingen holde sin Fiende for Spott) de giorde Spil eller Leeg efter hans Krigsordning / huilcket skulde spillis i alle Samquemme / besonderlig om Fastelawens tider / i deris Companier / oc endnu i voris Julestufuer er brugeligt / de tager huer andre i Hænderne / giøre en rund Kreis eller Ring / oc Valdemar skal gaa uden fore / oc snige sig ind / hos huilcken hand indkommer / skal straffis. De ere pa Guthilandiske Sprock Ordene saa liudendis.

Vdskreid Waldemar med varum Luff /

*Der udi meenis Kongen aff Suerrig / som gaff
Kong Waldemar Loff at ofuerdrage dennem.*

Jack tør vel inde gange /

Siger den staar udenfore.

Waldemar mit varum Luff.

Du maat vel ude stande /

Suarer de andre.

Waldemar med varum Luff oc Møydum.

Det vaare dig better heime blifue /

Valdemar med varum Luff /

End du imod Gutherne vill stride /

Valdemar med varum Luff oc Møydum.

Du kand better lucke Høe /

Waldemar med varum Luff /

End at komme og gillie vor Møer /

Med varum Luff oc Møydum.

Spure din Fott / spure din Fott /

Waldemar med varum Luff /

Dig kommer nu Gotherne ridend imod /

Med varum Luff oc Møydum

Ridt i Ring / ridt i Ring /

Waldemar med varum Luff /

Oc lad din Hest hier springe omkring /

Med varum Luff oc Møydum.

Better Kand du leicke paa Lut /

Thi hand var en got Luthenist.

Waldemar med varum Luff.

End som du kand komme hier udt /

Med varum Luff oc Møydum / etc.

Hand kom for Landet under Chronevold / huor at Landfolckit gjorde der strax en Slactning med hañem / oc hand bleff dennem ofuermectig / siden samlede de sig igien / oc holder en anden Slactning med hannem / paa Fiellemyer i Meistebye / anden Dagen holder de paa samme sted den tredie Slactning / oc da bleff nederlagt den Guthilandiske Mact / de andre tagen til fange / huor hand lod opreise it Steenkors / som staar i Grenssgaard / om det er aff Fielle Myer forflyt / eller steden som Gaarden staar / hafuer liggit i Myren / er mig ovist. Der de i Vissbye spurde dette store Nederlag / som Kong Valdemar hafde giort Gutherne / oc hand Vissby at beleyre / hafde i sinde / lode de Forstederne / uden den Østre oc Nøre Port nedbryde / som aldrig siden bleff opbyggt / lod deris Folck forsamle. Drog hand med sin Krigsmact for Vissbye Stad / oc den belagde / men Borgerne gjorde Vdfald / slogis med hannem / huor 1800 ere ihjelslagne / kunde de ey lenger udstaa Beleyringen / oc ydermere Modstand /

men ginge aff Staden / suore hannem / oc leferede hannem Stadsens Nøgel oc Regimentet. Steden huor dette skeede / til en Amindelse / lod hand opreyse it Steenkors / oc der paa lod udhugge disse efterskrefne Ord / oc staar samme Kors i Slottens Bedning.

Anno domini M.CCC.LXI. feria tertia post Jacobi, ante Portas Visby, in manibus Danorū ceciderunt Gothenses, hic sepulti, orate pro iis.

Men hand vilde icke inddrage ad Portene / thi hand befryctede sig for Forræderi / (eller at det icke skulle sigis de hafde gifuet sig under hannem / at hand icke med Krigsmact hafde vundit Staden). Men lod nedslaae strax it stycke Mur / ved det Synder Port / huor hand med sin hele Slactordning er inddragen / oc der samme Mure eller Vold er igien opmuret / lod sette til en Ihukommelse / huor mange Mand tycke i huer Leed hafuer været / oc indgangen 11 Mand i huer Leed.

Lod K. Valdemar strax bygge it Capel / uden for Vissby / udi Slottsbedingen / ofuer de døde oc slagne / oc kaldede det Sølfberrig / til en Ihukommelse / thi det var imod Aftenen / der hand bekom Byen / som er blefuen til it Nunne Closter.

Her samlede hand it usigelig Bytte oc Roff / oc gjorde en contract med Vissby Borgere / om de inden 3 Solemercke / kunde fylde 3 af de største Ølkar fuld af Sølf / skulde de blifue ved deris forrige Friheder / Øllkarne blefue førde paa Torfuet / oc alle udbare godvellingen / (Thi de hafde megit Gods aff Sølf oc Guld nedgrafuet / oc i Muren forvarit) oc samme Dag fylte dem. Siden røfuede hand alle Kircker oc Closter deris Sølf / Guld oc dyrebare Steene fra / som hand allevegne aff Billederne lod utgrafue / besynderlig i vor Frue Kircke / de to Carbunckelsteene / som sade i Muren / som steden i Muren endnu bær vidne om / huilcke om Natten skinede saa klare som Solen om Dagen / oc vaagede huer Nat 24 Vecter om samme Kircke / ingen at gaa der ofuer efter Soelens Undergang / ved deris liffs fortabelse / Klockerne røfuede aff Kirckerne / dog det bekom hannem ilde / Thi der it aff hans Skib kom til Karlssøe sanck det der med Top oc Tafuel / huor sañne kostelig Gods / huilcket hand hafde aff Kircker / Closter oc Borgere ladit tage / var inde. Oc sette K. Valdemar hans Fogeder i Landit / med nogit Folck / huilcket der skulde holde Folcket under Lydelse oc Tuang / oprette Ting oc Stefne / som endnu kaldis Valdemars Ting / men disse Fogder begynte nogit forhardt / huorfore Almuen forsamlede sig / oc slog strax alle hans Folck ihjel.

En ved Naffn Niels Guldsmid / er kommen til Guthiland / huilcken for sit kostelig Arbeid skyld er megit besøgt / oc hafde sancket en stor Rigdom / Thi der var Guld oc Sølf nock at arbeide aff: Samme Guldsmid hafuer haft en ofuermaade deilig oc hofferdig Daatter / hendis Klededract var icke efter voris Guthilandske Quinders. Hun hafuer haft mange Beiler oc Friere / som alle ere blefuen afviste / huorfore de ere

alle høyligen ofuer hende fortørnet / at den Kul-
pusters Daatter skulle giøre dem den Spott / oc hende
til Vanære giort mange Skandviser / som oc i Kempe-
bogen ere indførde.

Denne samme Niels Guldsmid / med sin Daatter
saa bold paa Gulland / er bortreist til Dannemarck /
fortellet Konning Valdemar / om den suare Rigdom /
deris meget Guld oc Liggendefæ. Der klager de ofuer
i en Vise / udi deris Selskab:

Niels Guldsmid drager til Kongen oc liufuer /
Den lede Forræder oc slemme Tiufuer:
De Guther hafuer saa møgit Guld /
De kunde det icke eigo /
Svinen jætter aff Siøfuer Trug /
Hustruer spinder med Guldthieno.

Aar 1361 / stadfeste Kong Valdemar oc hans Son
Christoffer / dem til Vissby / alle deris Privilegier, de
før hafde haft.

Item / at hafue deris egen Mynt / som aff Arrilds
tid / ofuerverendis: Hertug Erick aff Saxen / Herr
Claus Limbecke, Herr Henning Podebusck, Herr Val-
demar Sappe. Datum 5 dage efter S. Olai Dag /
Aar 1361. til Vissbye.

Item / forunte dennem / at hafue slig Frihed udi
Dannemarck oc udi Førstendømmet / som andre hans

Vndersaattere udi Dannemarckis Stæder hafue / sam-
meledis at bruge deris Gods udi Riget.

Der dette spurdis til Stæderne / er alt Dansk Gods
arresterit, huilcke did seilede / blefue paatagne / saa
de Danske fast udi alle Søesteder vaare wfrie.

Aar 1361 / forbandt de Lybske oc andre Hense-
stæder dennem hos Østersøen huilcke fortrød / at
altingist var gangen Kong Valdemar saa vel i Haande
paa Guthiland / deris Kiøbmandskab oc Gods dennem
var berøfuet oc fratagen / Stappelen forstyrret.

Det at hefne / oc vedergjøre saadan W-ret / sam-
ler de Skib oc megit Folck / forbinder dem med Kong
Mogens i Suerrig / Kong Hagen i Norge / Grefue
Isern Hendrick aff Holsten / Hertug Henrick aff
Meckelborg / oc andre Førster / giorde for samme
Folck til Øfuerste / Grefue Hendrick / en deris egne
Borgemester Johan Wittenberg / de tilskreff Konig
Valdemar Vndsigelsebreff / hand skreff tilbage med
samme Bud / it andet Breff huercken meere eller mindre:

Söwen vnde söwentich Hänse /
Hebben söwen vnde söwentich Gänse /
Wo mich de Gänse nicht en bitten /
Na de Hänse frage ich nicht en schitten.

Denne Feide varede i mange Aar / oc giorde i
Dannemarck stor skade / oc finge skade.

11. The Folk-Song about Nils Guldsmed's Daughter.

The song is known in different variants from central and southern Sweden, and has also been penned down in Norway and Denmark. The following text is a reconstruction by Professor Sverker Ek on the basis of six central Swedish annotations.

Rendered after S. Ek, *Den svenska folkvisan*, Stockholm 1924, p. 157.

1. Nils guldsmed han ägde en dotter så fin.
— *uppå Gulland* —
Hon spann på guldtinen det finaste lin.
för de danske
för de möjorna de ha dig vunnit.
2. Dan-kungen kom seglandes under den ö,
— *under Gulland* —
han spørjer om guldsmedens dotter är mö.
3. Konungen rider sig till guldsmedens gård,
— *uppå Gulland* —
ute för honom själv guldsmeden står.
4. »Var välkommen dan-konung till min,
för dig har jag blandat både mjöd och vin.»
5. »Jag passar inte på varken mjöd eller vin,
men du skall låta mig få dotteren din.»
6. »Min dotter hon är så litet ett barn,
hon sover var natt på sin fostermors arm.»
7. »Jag vånnar hon var icke mer än årena tre,
så skall du låta mig henne få se.»
8. Gullsmiden sveper sitt huvud i skinn,
så gångar han sig i högaloft in.
9. »Statt opp liten Kersti du kläd dig på,
för danske kungen han vill dig få.»
11. Jungfrun klär på sig kjortelen blå,
som vävd var med guld i varendaste trå.
12. Jungfrun klär på sig tröjan grön,
som lyste av guld i varendaste söm.
13. Jungfrun hon var icke bältegrann,
hon kasta kring sig femton vippor gullbann.
14. Så tar hon på sig en rosenkrans,
den skulle hon bära i riddaredans.
15. Jungfrun hon stiger i salen in,
hon lyste så fager, som solen hon skin.
16. Dan-kungen räcker vit hand ifrån sig:
»I afton skall du träda möjedans för mig.»
17. »Inte kan jag dansa och inte jag må,
men dansen för kungen jag träder ändå.»
18. När hon hade dansat tre gånger omkring,

- så dånade hon mitt i möjering.
19. Brått går jungfrun i stenstugan in,
där föder hon två rosendekind.
20. Konungen efter i stenstugan går:
»Vem är väl fader åt barnen två?»
21. »Min fader han var visst en okloker man,
han byggde min bur vid sjöstrand.
22. Han byggde min bur vid sjöstrand,
där lade så mångt skepp uti land.
23. En köpman bröt sig i buren in,
och jag förlorade äran min.»
24. »Det var jag själv, konung av Danmarks land,
som låg här med mina skepp vid strand.
25. Jag var den köpman, som buradörren bröt,
och jag var den, som din ära åtnjöt.
26. Du give mig nu din snövita hand
— *uppå Gulland* —
och följ mig hem till mitt fädernesland.»
för de danske
för de möjerna de ha mig vunnit.

12. *The Folk-Song about Unghanse's Daughter.*

The song is only known through one Swedish record from Ostrogothia in 1810, which reverts to a tradition from the 17th century, but is also penned down in Denmark and in the Faeroe Islands and in Iceland. In the Swedish version the girl's father, Unghanse, has been replaced by the mother, except in the chorus. The ensuing text constitutes a reconstruction made by Professor Sverker Ek of the original wording. See S. Ek, *Den svenska folkvisan*, pp. 159 ff.

Rendered after S. Ek and J. Mjöberg, *Fornsvensk litteratur*, Lund 1935, pp. 39 ff.

1. Dankungen rider till Ung-Hanses gård,
Hans Unge rider med ära.
Hans Unge själv ute för honom står,
Med rosor och utskurna kläder.
2. »Och hörer Du, Hans Unge, vad jag säga må,
skulle stolts Malfred vara på er gård?»
3. »Stolts Malfred hon haver så strängelig ont,
att hon ej tål tala vid ungarlar ett ord.»
4. »Och hör du, Hans Unge, vad jag säger dig,
svarar du så, det kostar ditt liv.»
5. Hans Unge bad konungen gå i stenstugan in,
medan han fick gå upp till dotteren sin.
6. Hans Unge han gick uppför höganloftsspång,
stolts Malfred hon lyddes uppå hans gång.
7. Hans Unge klappar med fingrarne små:
»Statt upp, stolts Malfred, drag låset ifrå!
8. Dankungen är kommen uppå vår gård,
du måste straxt inför honom gå.»
9. Stolts Malfred drog på sig en silkesydd särk;
det var hennes egna händers verk.
10. Stolts Malfred tog på sig en kjortel blå,
och rödaste guldets i sömmarne låg.
11. Stolts Malfred tog på sig den kjortelen röd,
och rödaste guldets hon på golvet strör.
12. Stolts Malfred tog på sig den tröjan grön,
hon lyste nu både fager och skön.
13. Stolts Malfred tog på sig strumpor och skor,
och så går hon utför högan lofts bro.
14. Stolts Malfred drog på sig de handskarne små,
och så mände hon inför konungen gå.
15. Stolts Malfred inför konungen steg,
och konungen henne med blida ögon neg.
16. Konungen talte till småsvenner två:
»I hämtan mig in mitt tavelbord.
17. I hämtan mig in en kanna med vin,
och så mitt lilla förgyllande skrin!»
18. »Och hör du, stolts Malfred, vad jag säger dig!»
Du skall spela guldtavel med mig!
19. Jag sätter nu upp mitt Lindebergs slott,
vinner du det, jag håller dig gott.»
20. Första guldtärning på tavelbordet rann,
dankungen han tappa, stolts Malfred hon vann.
21. »Jag sätter nu upp min gångare grå,
vinner du den, så skall du den få.»
22. Andra guldtärning på tavelbordet rann,
dankungen han tappa, stolts Malfred hon vann.
23. »Jag sätter nu upp min vita hals,
men du skall sätta dig själv i pant.»
24. Tredje guldtärning på tavelbordet rann,
stolts Malfred hon tappa, dankungen han vann.
25. »Och käre, danske konung gack långt ifrån mig!
Den gångare grå den giver jag dig.»
26. »Den gångare grå den får jag, när jag kan,
men jag vill ha den jungfrun jag med guldtärning
vann.»
27. »Och käre, danske konung, gack långt ifrån mig,
och Lindebergs slott det giver jag dig.»
28. »Lindebergs slott det får jag, när jag kan,
men jag vill ha den jungfrun jag med guldtärning
vann.»
29. Konungen talte till liten smådräng:
»I hämtan mig in min skarlakans säng.»
30. Hans Unge han var ej så långt därifrån,
han ville väl se, huru leken skulle gå.
31. Hans Unge slog dankungen på rödblommand kind,
så blodet det stänkte på skarlakan fin.
32. Dankungen han mälte ett ord med hast:
»Hans Unge, I slog nu alltför fast.»

33. »Vore du så vettig, som du är båld,
min dotter kunde du fått i våld.»
34. »Väl är jag så vettig, som jag är båld,
vill Gud, stolts Malfred får jag i våld.»
35. Konungen tog henne uti sitt knä,
gav henne guldringar och fäste henne med.
36. Konungen tog henne uti sin famn,
— *Hans Unge rider med ära* —
gav henne guldkrona och drottningenamn.
Med rosor och utskurna kläder.

13. *From P. A. Säve's Records of Traditions.*

Per Magnus Arvid Säve (1811—1887), superintendent of antiquities at the Royal Academy of History and Antiquities, was a prominent collector and connoisseur of old-time language and mementoes. Born, and mostly resident in Gotland, he devoted the bulk of his energies to his native island. His numerous and valuable records are kept in the Manuscript Collection of the Uppsala University Library. Amongst these are several legends regarding Waldemar Atterdag's stay in Gotland (Cat. No. *R 623*: I, Sägner: 259, 384, 385, 386, 470, 471, 766, 825, 884, 1043, 1048; Lekar: 2; III: 1, 460, 527, 648; IV: 21).

The ensuing abstracts are reproduced from the original manuscript.

I: 259. *K. Waldemar på Gotland (1360).*

Då konung Waldemar beslutat att ta' Gotland o. plundra Wisby, kom han först hit i största tysthet, o. gick ett helt år förklädd som handelsman af o. an uti i Stor-södret. — Vid Skous ell. Skogs i Hamra var då en trullkarring, m. hken han rådförde sig: då hon förstod hans afsigter o. hörde hs skrytsamma hot att han skulle ta o. bränna Landet, sade hon hm rent ut, att han alldrig skulle kunna ta' in Gotland, isyn. inte det Norra. När det sedan gälde, bleknade ock verkl. Suder-gutarne för Wald:s stora makt. När W. hörde det, gjorde han kompakt m. Trullkär:n att han skulle få in staden o. jemväl Södra Häradet, men också då skona hus o. folk. — Och när Trullk:n sedan fick höra att han ej hållit ord, utan till o. m. brutit karbunkel-stenarne ur Sct Nicolai kyrka i Wisby, sade hon, att han alldrig skulle få dem hem, emed. de tjent att leda de sjöfarande på hafvet. — En gång kom W. då förklädd till Unghanse i Öja, då der just var bröllop: W. glömde sig, o. klef för långt fram till bröllopsbordet, hvarf. han fick sig en örfil af Husbonden; hket han den ggn beskedligt tog till tacka. Han fick dock låna hus der, och gjorde sig god vän m. Bondens unga dotter, s. fick se hs guldstjerner under kläderna; men, s. W. red. vunnit hennes kärlek, bad han henne tiga dermed; o. Unghanses dotter gjorde så. Emellertid väntade W. hvar dag på sin krigsflotta s. han stämt hit för att ta' Gotland. Han gjorde sig dock god tid vid Unghanse för att väl genomspeja landet: en dag gick han med den vundna flickan ut på en åker o. bad henne stiga opp i ett högt träd o. speja efter flottan 3:ne gånger, men hon såg ännu intet skepp. Heller ej då hon steg opp en annan gång; men då hon spejade tredje ggn, fick hon se hela W:s flotta komma seglande. — Nu så gick han till Sundre, o. råkade der en flicka vid Wännes, s. löskade honom (»för han var faslig eft. quinfolk») o. gömde hm sed. und. kjortelen, då spejarna kommo dit o. sökte hm: åkertvären, der detta

möte skedde, hette deraf *Dylaren* (döljaren). För all denna flickans villighet, tillsade W. henne att hon skulle hänga ett hvitt lärfts-lakan vid gårds-grinden, så skulle gården för hennes skuld bli skonad för hs soldaters plundring; gården hette förut Aikskogs, men för flickans vänlighets skull, skref W. öfver dörren, att den dereft. skulle heta »Wännes». — Då W. nu visste att flottan var m. hans krigshär i Gotländska farvattnet, blef han först modig; gick nu till sin gamle värd, Unghansen, o. sade hotfullt att de snart skulle mötas på Fjäle-myr. — En bonde vid Djufues i Sundre och »Getaren» vid Bunnäs voro då en dag utrodda på sjön för att fiska: då tog W. »Jauäsen» m. sig till Klinte, der Gutar hade samlat sig. Der red då öfver fältet en man på en hvit häst, o. då sade Jauäsen: »denne är vår Höfding». Då skjöt W. på denne att han måste gömma sig bakom en sten; o. sedan skjöt han på Fjäle-myr Unghansen af midtpå — men hästen sprang hem m. nedre delen ell. grenen, s. blef hängande öfver sadeln: det var för örfilen!

Sedan tågade W. till Wisby; ss. han slagit bönderna, slog han nu Borgarna o. tog in staden, o., utom allt annat rof, bröt han ock ut karbunkelstenarna ur Sct Nicolai gafvel. — Men då hade han åter kompakt m. en trullpacka o. blef kär i hennes dotter, o. denna karring rådde hm att ej fara på fartyget m. godset (Waldemars svärd??); det han heller ej gjorde, utan tog Trullkarring o. hen:s dotter m. sig o. reste på ett annat skepp från det plundrade Wisby. Men då han kom ungefär vid midten af Gotland, vid Carls-Öar, gaf han befallning att sjelfva gods-skeppet skulle gifva ett äre-skott, s. skulle höras öfver hela Landet: alla kanoner lossades; men fartyget sprack o. sjönk — och så uppfyldes Skogs-karringens hotfulla spådom! — Trollkär:ns dotter tog han m. sig, o. kunde alldrig vara från henne: när hon dog, kunde han alldrig vara från liket, o. det fick ej begravas. En Hofman, s. blef ledsen vid all denna konungens sorg, undersökte liket o. fann att det hade en svart lapp

under vänstra armen. Han tog bort lappen o. satte den under sin egen vänstra arm: nu fick liket begravas, ty all konungens kärlek till den döda öfverflyttades nu på Hofmannen. Men denne blef förskräckt när W. ville »laikä o. fläikä» hm; hvarf. han kastade lappen i ett träsk. Detta ville konungen W. nu alld. öfvergifva, utan bygde sig ett slott på pålar i träsket.

Nils Didriksson Wännes,
uti Sundre, kyrkovärd, f. 1777.

III: 648. *Guten i Bäl.*

När Kung Valdemar 1361 anföll Gotland, tågade Närder-Gutarne under sin anförare Gute genast söder ut för att värja landet. Men de togo så väl till bästa under vägen, att de alla voro skrytsamma o. öfvermodiga utom Guten, som red före dem o. var tyst. Då de ändtl. under högljudt skryt o. många stora ord tågade öfver Aimunds-bro i Mästerby, blefvo de alla förtrollade af en »trull-kärring», hken kung Waldemar haft med sig och som då låg under bron; men på Guten kunde hon dock ej rå. — Också, fastän Guten räddade lifvet i slaget på Fjäle-myr, blefvo dock alle Gutarne slagne af k. Waldemar.

Derföre sade samma trull-kärring sedan:

»Hade de alle kommit der
»Som Guten i Bäl,
»Då hade kung Waldemar legat »ruten» här!»

L. Nordin.

I: 471. *Stenkors vid Grens i Mästerby.*

Wid Grens i Mästerby slog K. Waldemar år 1361 Gutarne, ell. kanske rättare vid Fjäle myr: dervid skall hafva hänt att Böndernas anförare, från Grens, blef skjuten af midt uppå, der han satt o. red på sin häst, så att den öfre delen af karlen föll till marken, men den nedre delen af kroppen blef i grenen sittande på hästen, o. deraf skall gården Grens fått sitt namn.

A. Th. Snöbom & J. Nolander från Mästerby.

Vid slaget på Fjäle-myr, blef en karl (en Dansk stor Herre ell. Kungens son) afskjuten vid midjan, så att grenen ell. begge benen hänge fast i sadeln (deraf gårdsnamnet »Grains»), då hästen sprang in på gården, ruskade på sig, då msko-halfvan föll af hm, hvarpå hästen sprang kring törstig, skrapade marken m. hofven, der en källa sprang opp. — Häst o. karl ligga begrafna und. korset.

Grains-Mor berättade detta 21/5 52.

I: 385. *K. Waldemars Skatt vid Carls-Öar.*

Eft. spådomen sjönk K. Waldemars dyraste skepp m. Sct Nicolai karbunkel-stenar o. all den öfriga i

Wisby utplundrade skatten just mellan Stora o. lilla Carlsö. — Man säger, att man ännu vid klart väder o. stilla sjö kan se huru *karbunkelstenarna* glimma mot solen; o. att sjelfva fartyget, s. ligger närmast lilla Carlsö då man ser Sanda kyrka en spak-längd bakom och Klinte kyrka just i kanten styrbord om ön, synes äfv. stund. klarligen und. vattnet. Men en stor svart hund synes jemt sitta der på storluckan och vakta på godset till Domedag.

Jac. Ekelund i Eista.

I: 386. *K. Waldemars Skatt vinnes.*

Det var en sägen, att om ngn kunde få 2:ne stute-kalfvar helt hvita s. voro begge på en gång födda af samma ko, o. dessa blefvo uppfödda m. bara mjölken tills de voro fullväxta o. oxe-stora, så skulle man m. dessa tvilling-oxar kunna draga opp K. Waldemars skatt ur djupet. — Då det ändtl. eng. hände att en ko födde helt hvita tvilling-kalfvar, s. voro stutar, uppfödde ägaren dem på nämnda sätt ell. m. bara mjölk till de voro oxstora, o. spände dem då före att draga opp skatten vid Carlsöar. — Men då oxarne m. all makt togo i, föll en af dem på knä, o. hördes det en röst ur djupet: »K. Waldemars skatt ligger der han ligger — den ena kalfven har fått vatten-blandadt!» — Och så var det ock: pigan, s. sysslade kalfvarna, hade ant. spillt mjölk ur »spannet» ell., s. andra säga, gifvit en dryck deraf åt sin fästeman, s. eng. i tysthet besökte henne, o. hade då — emed. kalfvarna alltid skulle ha sitt fulla mått, slagit en tår vatten i den eller mjölk; o. deraf var han då det gälde matt, o. hans Husbonde kunde sål. ej vinna K. Wald:s skatt. —

I: 2. *Waldemars-(Båldermans-)leken.*

Flickorna taga i ring och dansa omkring: midt i ringen står en stol, omkring hvilken ett lika antal gossar ställa sig. Flickorna sjunga:

»Waldemar (Bålderman)! ståt uppå stol;
»Ty stolen är satter för Waldemars fötter,
»Att han skall hafva en jungfru skön,
»Som uti dansen går.»

Eller:

»Stolen är satter för Konungens fötter:
»Kung Waldemar!
»Han skådar en, han skådar två,
»Han skådar dem alla, i dansen månd' gå.
»Skåd' snart eljest får du ingen!»

En gosse stiger nu upp på stolen, och flickorna fortfara att sjunga:

»Han skådar sig en, han skådar sig två,
»Han skådar den bästa i dansen månd' gå:
»Skåd' snart annars får du ingen!»

Gossen hoppar härefter ned från stolen, och lägger händerna på axlarna af den flicka han behagar. Sedan

han sålunda valt sig en maka, blir han kvar hos henne i ringen. Och de andra flickorna dansa åter kring och sjunga:

»Waldemar! Statt upp —»

och derefter

»Han skådar sig en —»;

då en annan gosse stiger upp på stolen och väljer sig en flicka i ringen; hvilket fortfar tills alla gossarna fått hvar sin maka. — Då gå alla gossarna in i ett närgränsande mörkt rum, vid hvars dörr ställes en dörrvaktare, försedd med en ihopvecklad duk, på hvilken

knut är slagen. En i sender af flickorna går nu in till gossarna, hvilka hålla sig tysta i mörkret. Hon utväljer den, hon tror vara sin make, och kommer så ut med honom. Har hon valt rätt, får hon behålla honom, och en annan flicka går in att välja, tills hvar fått sin make. Den flicka (gosse), som ej valt rätt, straffas af dörrvaktaren med duken, och måste välja om igen, tills hon (han) fått den rätta. — Sedan alla flickorna sålunda fått igen sin make, gå *de* in i det mörka rummet, och gossarna skola nu på samma sätt leta rätt hvardera på sin maka; då leken är slut.

A. Snöbom.

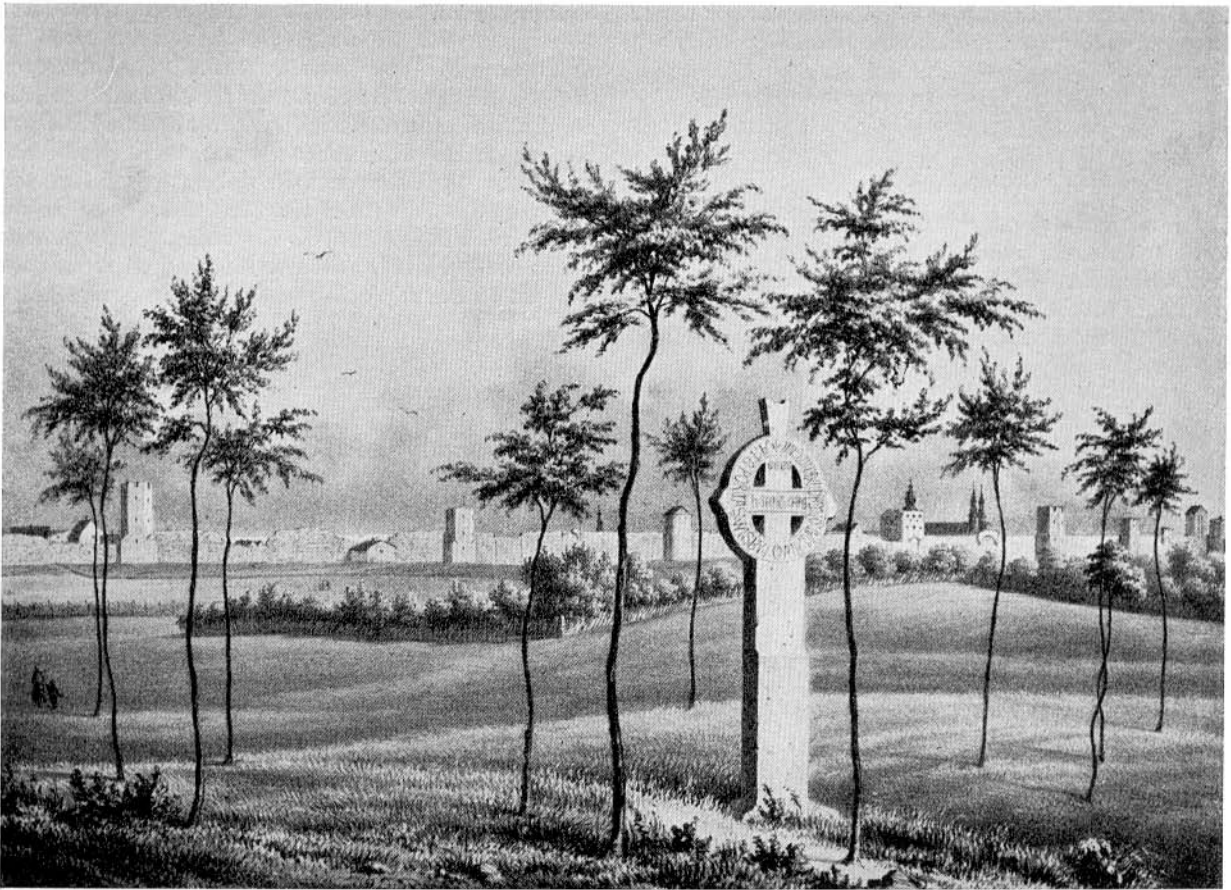


Fig. 31. Korsbetningen in the middle of the 19th century.
Lithograph by A. Nay from a drawing by P. A. Säve 1846.

CHAPTER II.

THE EXCAVATIONS.

PREVIOUS FINDS.

The earliest news of finds from the common graves at Korsbetningen dates back to the year 1826. In that year the Rev. N. J. Ekdahl, on behalf the Academy of History and Antiquities, made a voyage of investigation to Gotland, and in his report⁵⁸ described the place and the cross in the following way: "There is a cross of well-trimmed coarse marble, from which the spot has received its name. Close to this cross formerly stood Solberga Convent, two or three of whose original documents are preserved in the archives of the Bishopric of Wisby. No remnants of the convent are left except the uneven ground and a large, ornamented block of marble, which had been in the footing of one corner. A stone's-

throw from the cross is the Government powder and rifle magazine, and when this was erected, on digging the foundations, a lot of human bones were found whose crania were as a rule crushed and penetrated by spiked maces, which provides information of the fighting methods of those days." The building here referred to (fig. 32: 14) was erected in the year 1811⁵⁹ and is still in existence (fig. 40: 5), though now used as a smithy. Ekdahl thus obtained his information fifteen years after the finds had been made, and his remark to the effect that the crania showed holes from spiked maces (or from arrows, as we generally call them) shows that his information cannot be imaginary; he or his informants must have seen crania of the same kind as those found during the later excavations.

Since the building stands a fair distance from the nearest common grave known to us, it is probable that during the work of excavation a common grave was despoiled: to what extent it is now impossible to decide. The extent of the building—10 × 14 m.—and the depth of the excavation—almost 2 m.—makes it likely that a whole grave may very well have been destroyed. There is no statement in the report relating to the finishing of the building, of any finds having been made, but this is hardly to be expected, as the report only touches upon military and technical questions.

Until then probably no building had existed on the spot since the days of the convent. It is certain that in the course of centuries the convent, like other ruins in Wisby, had been used as quarries, and in the 19th century no traces of the convent walls were visible. The remnants of the buildings, which were covered with vegetation, imparted to the ground an undulating character, and its hillocks were often interpreted as more or less effaced tumuli.⁶⁰ This was perhaps also partly correct, for the convent area had in the year 1711, and possibly on other occasions, been used as a plague graveyard.⁶¹ Through the erection of the powder magazine the terrain had also to some extent been altered, in that a protective wall was erected round the building on the side facing the town, to diminish the danger in case of an explosion. Another powder magazine (fig. 32: 15) was subsequently erected some twenty-five metres south of the former. The place at that time probably presented a somewhat neglected appearance, but through the care of the lord lieutenant of the county, Mr. M. S. von Hohenhausen, it was improved in the 'thirties or 'forties of the last century, and sixteen deciduous trees were planted round the cross, of which two are still standing. In the year 1830 a churchyard for the town was also laid out not very far away (fig. 32: 6). No further finds of common graves are mentioned in the excavations carried out in connection with these operations, but in the churchyard, walls dating from the convent have certainly been found, so that the latter must have extended some way southward; and also, in 1868, when making the excavations for the mortuary chapel there (fig. 32: 7), a fairly large burial ground of skeletons was found, dating from about 700 right up to 1100 A.D. A single grave can be dated to about 500 A.D. This burial field (fig. 32: 8) was investigated not only by Oscar Montelius but also by the county architect A. W. Lundberg.⁶²

Wisby, which ever since the end of the Middle Ages had been an unimportant and stagnant place, experienced during the latter part of the 19th century a period of great prosperity. While the number of inhabitants in the year 1800 was 3,780, it had in the year

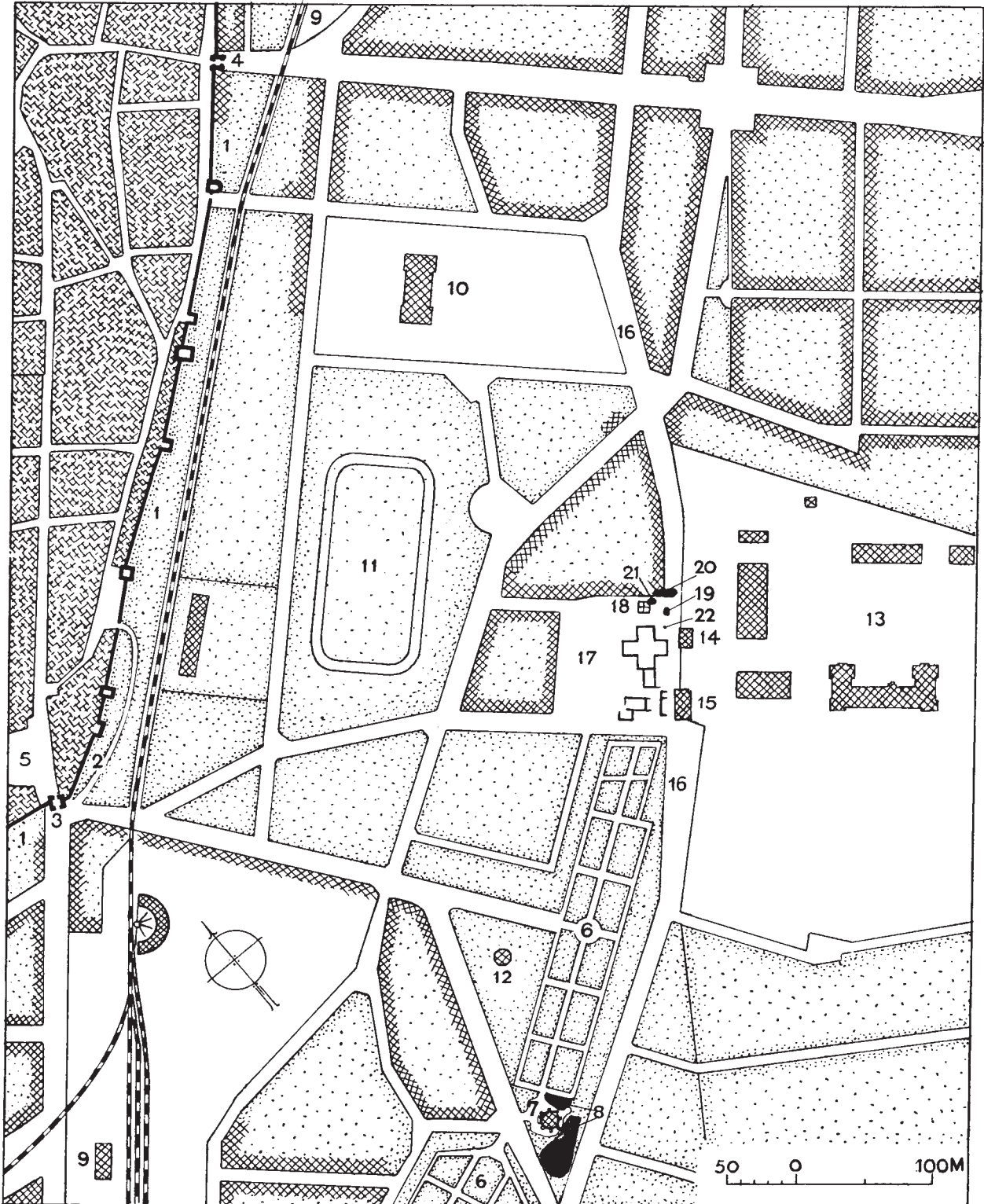


Fig. 32. Plan of Korsbetningen and neighbourhood.

For explanations, see p. 49.

1900 risen to 8,376. Barracks, hospitals and other public buildings were erected, and extensive private building operations followed. It is natural and fortunate that these building operations took place chiefly outside the city wall, though even there many amenities were spoiled. The unimpeded view from the landward side across the wall and its towers, which we can see on older pictures (figs. 1, 2, 31), and which makes such an austere and striking impression, has almost completely vanished and of course more of the city's peculiar character might have been saved and preserved if a better understanding of its value had prevailed. On the other hand, we may consider ourselves fortunate that no more spoliation has taken place, and several really serious menaces to the beauty and monuments of the city have been averted.

The two powder magazines and the mortuary chapel at Korsbetningen were merely the precursors of building operations, which very soon did not leave much more than the ruins untouched. In the years 1904 to 1909 the large barracks for the Gotland Artillery Regiment were erected there (fig. 32: 13), and between these and the wall a villa suburb grew up rapidly, which spread right to the memorial cross of the year 1361. Hardly more than 10 m. from this a dwelling house was erected in 1903 (figs. 39, 40: 6) and according to a rumour current amongst the workmen employed, some skeletons were apparently found on that occasion also. As a matter of fact this is very probable, for the place is crowded with graves from different periods, but whether these skeletons dated from a common grave of 1361, is uncertain. The fact that iron is reputed to have been found with human bones, may be considered as indicating the presence of a common grave. However, everything found on that occasion has been destroyed.

THE 1905 EXCAVATION.

In the spring of the year 1905, the Veterinary Surgeon of the Gotland Artillery Regiment, Arenander, instructed a non-commissioned officer, subsequently colour sergeant, Hjelm, to build an arbour near the smithy (the former powder magazine). On the 22nd May, in the course of excavation, the latter encountered at a shallow depth a large number of human crania, partly covered by mail. Fortunately at that time in Gotland there was an archaeologist who passionately tried to prevent every vandalism of the monuments

Explanations for fig. 32.

1. Wisby City Wall, south-eastern part. 2. "Waldemar Wall". 3. South Gate. 4. East Gate. 5. Södertorg (South Square). 6. Old Churchyard, laid out in 1830. 7. Mortuary Chapel, erected in 1868. 8. Iron Age burial ground, investigated in 1868 and 1869. 9. Railway Station. 10. Council School. 11. Sports Ground. 12. Water Tower. 13. Barracks. 14. Powder Magazine, erected in 1811. 15. Powder Magazine, erected in 1848. 16. Södra Hansegatan (Street). 17. Solberga Convent Grounds. 18. Memorial Cross erected over the dead warriors of 1361. 19. Common Grave 1. 20. Common Grave 2. 21. Common Grave 3. 22. Common Grave 4.



Fig. 33. Starting the excavation of Common Grave 1 on May 23rd, 1905.

om Waldemarskorset grävning i går skelett med ringbrynja funnet. Undersökning? Vördsamlingen Wennersten" (State Antiquary, Stockholm: On crown land 17 paces east of Waldemar's cross in excavation yesterday found skeleton with mail. Shall investigations be made? Respectfully, Wennersten). On the same day Wennersten held in his hand the State Antiquary's authorization to make an archaeological investigation on the spot, and this was started without delay.

Peculiarly enough, a few days prior to the discovery of the common grave, the 20th May, other archaeological work had been started at Korsbetningen. As is seen *inter alia* from Ekdahl's report, it had been evident from early times that the remains of Solberga Convent were located on this spot.⁶³ However, doubt was thrown on this by some investigators during the latter part of the 19th century⁶⁴, by reason of certain statements occurring in medieval records, which suggest that the Solberga nuns had dwelt within the city precincts.⁶⁵ In a paper published in 1895, the prominent expert on Wisby, C.



Fig. 34. From the excavation of Solberga Convent in 1905. On the right O. V. Wennersten, on the left N. Lithberg.

of his native land, and who dictatorially and zealously took care of every find which the inexhaustible soil of Gotland rendered. This man, the curator of the Gotlandic Archives, Doctor Oscar Vilhelm Wennersten, was immediately informed of the find. In conformity with Swedish archaeological law, he had the work stopped, and on the following day the State Antiquary received the following telegram: "Riksantikvarien, Stockholm. Kronans mark 17 steg öster

J. Bergman, nevertheless supported the probability of the tradition.⁶⁶ In the autumn of 1894 a contractor named N. Pettersson had, in the course of some excavations on the spot, come across the corner of a wall of a monumental building, and very likely in conjunction with this find, plans had been made for an excavation of the site for the purpose of arriving at a definite solution of the position of the Solberga Convent.

These plans materialized as a result of the instructions of the State Antiquary in the spring of 1905 under the supervision of Mr. Pettersson, who under the superintendence of the State Antiquary looked after the care of the ruins of Wisby. In the beginning



Fig. 35. Emperor William II's visit to the excavations on July 25th, 1905.

of July the supervision of these excavations was taken over by Doctor Wennersten, who engaged as his assistant for this task the young archaeologist, Nils Lithberg, subsequently professor of ethnology at the Nordic Museum in Stockholm, who remained there for about two months. In order to supplement the scanty funds available for the work, the opera singer G. Sjöberg, who was keenly interested in all kinds of archaeological research, gave a large concert at Wisby. Towards the end of September the contents of the burial pit had been wholly recovered and the work concluded.

It was perfectly clear to Mr. Wennersten from the very beginning that it was a warriors' grave from 1361 that had here been discovered. "In order to get a general view of the whole," writes Wennersten in a report on the excavation campaign⁶⁷, "the outer lines of the grave were followed and its entire surface laid bare. The grave covers an area of some four square metres, and it may be estimated to contain something like three hundred skeletons⁶⁸, that had long ago been thrown into it, forming a mass one metre thick, which, as it now lies, presents a pathetic picture of the horrors that accompanied a war in those days."

The whole grave lay exposed by about the 10th July, and the archaeologists had already begun the work of clearing, when it became known that Emperor William II intended to visit Wisby during his summer cruise in the Baltic. In view of this, the German Consul at Wisby, Mr. C. E. Ekman, who actively aided the later excavations, requested that the grave should be allowed to lie open until after the emperor's visit. After the State Antiquary, Hans Hildebrand, had inspected the work on July 15th, he gave permission for it to remain as it was until the arrival of the emperor. In the meantime, the excavations were concentrated upon laying bare the convent buildings. On July 25th the emperor arrived and what he saw obviously made a profound impression on him, for, as recently as during his residence at Doorn, he has kept himself informed of the progress of the work and the results. The excavations had already attracted a good deal of attention from the general public and the Press, and the imperial visit naturally contributed further to the publicity. The singular picture, which unfolded itself to the spectator at the opened grave, has been beautifully interpreted by Gunnar Hallström in his expressive charcoal drawing "The Fallen" (fig. 22). A worthy text to this macabre picture has been given by the art historian Doctor E. G. Folcker in his fine essay *Hic sepulti*⁶⁹: "— — — In a single almost conglomerate mass, like a gigantic coral, three hundred skeletons are crowded together, not laid side by side in the stillness of death, but flung into the huge grave like rubbish on to a rubbish heap.

"In poses which in the living would denote hatred or tenderness, pain or hilarity, despair or ecstasy, but which are here hallowed by the passive majesty of death, these human skeletons lie before us. One of them seems to have spread its arms for an embrace, another has taken a gigantic step with legs wide apart, on one edge two are seated leaning against each other as if for support, inside the thorax of one is wedged the cranium of another, and many have fallen into fragments and become a confused mass.

"Plunderers of the dead have certainly carried on their profession on the battle-field, and many of the victims were probably stripped before being thrown into the pit; then decay did its work, but there still remain armours as well as numerous parts, and herein lies the particular inducement for research in this marvellous find.

"Some of the most fascinating pieces in this awful arsenal of death are two heads which are still covered by their mail coifs, as if they were resting there, with the meshes of the armour adhering closely to the head; one coif is pulled down over the forehead and at the opening, surrounded by the rusty-brown meshes, the yellowed cranium with its strong teeth and empty eye-sockets is visible—a work of art one might almost say from the time of the early Renaissance, indeed, a work of art by the hand of the master—Death.

"When the dead were buried in their huge grave their arms do not seem to have accompanied them, since no swords, battle-axes or crossbows have been found during the excavations. But the effects of blows from weapons can still be observed and it is from these that one can see clearly how awful the slaughter must have been on that July day in the year 1361. Penetrated between the ribs in a thorax is the arrow-head which with a hiss reached its goal before the hand-to-hand struggle began. Large pieces have been cut out of strong thighs; in a cranium the first blow cut off a splinter, the second cleft it in two. This was



Fig. 36. From the 1905 excavations of Common Grave 1.

done with swords heavy as crow-bars and often wielded with both hands, or with battle-axes broad of edge with hafts a yard or more long, of the kind much in use, called Danish axes, and which here also were wielded by Danish hands. In one cranium there is a large hole, perfectly square; in another, a somewhat smaller one. These are the marks of spiked clubs or maces, called "knouts", with stout iron spikes sticking out around them.

"Straining all their muscles, and expending all the strength of their bodies, these men attacked each other, the blood spurting, limbs being crushed, and the flesh being cut from the bones in ribbons. When one has looked at the fallen men who have been flung into the huge grave, one almost believes the words of the saying that on this day, the third after St. James, in the year 1361, the blood flowed in streams through the gates of Wisby and ran down the hillocks right to the sea."

Even the archaeologist, hardened and inured to the sight of open graves, stood before this, silent and reverent. In a lecture before the Royal Academy of History and Antiquities, on the 7th November, 1905, Doctor Emil Eckhoff, the prominent investigator of the Wisby Ruins, said⁷⁰: "I must confess that it was a moving and awe-inspiring sight; for my own

part I have not participated in any research of a more harrowing nature, or with more feeling. The number of fallen who had been buried here was about three hundred. They did not lie in the restful stillness of death, but these skeletons occupied positions which made them fully alive in one's fancy. Wild hatred, energy, panic, fear, horrible pain, all these are expressed in the positions in which they lay."

From the accounts of the excavation filed by Wennersten and Lithberg with the State Antiquary, it is learned that the upper part of the layer of skeletons was only $\frac{1}{2}$ –1 m. below the surface of the soil. Since the ground about here, as has been shown above, has undergone many changes in its configuration, this does not prove anything definite about the original depth—Wennersten estimates on his part that the removal of soil on this spot has lowered the level of the ground almost 1 metre. The original bottom of the pit very likely lay $1\frac{1}{2}$ –2 m. below the present surface of the soil. On the surface the burial pit formed an almost oval shape, which extended NE–SW, with a length of about 7 m., the greatest breadth being about $5\frac{1}{2}$ m. It had been thrown up in two portions so that right through the centre of the pit there ran a low wall in an approximately E–W direction, marked in the upper level of the layer of bones by a rise which to the eye—and also on photographs—looked like a wavy ridge (fig. 36). The layer of bones was probably $\frac{1}{2}$ –1 m. thick, and only in the middle above the wall was it slightly thinner.

As is already apparent from the above descriptions the bodies had been flung-in at random, and the skeletal parts lay there so intertwined with one another, that the separate individuals could be followed in their whole extent only in very exceptional cases. All organic parts, both of corpses and clothing, (which they may possibly have worn on being buried) had decayed, but on the bottom of the grave there was a black layer nearly $2\frac{1}{2}$ inches thick of an almost soapy consistency, which, during the hottest part of the summer, in spite of the cool tarpaulin roof, on some days made a visit to the grave rather unpleasant.

The uncovering of the layer of skeletons began at the north side of the grave and proceeded towards the south until it had been laid bare in its entirety. After the filling-in soil and the layer of lime and mortar superimposed upon the skeletons had been removed, the soil was cleared away down to the layer of bones, which were then laid bare by brushing. Then began the removal of the bones and objects, the work being done—this time again from the north side southwards—through the layer of bones down to the bottom. On account of the jumbled position of the bones belonging to each individual skeleton, the greater part of them sometimes had to be taken out layer by layer working downwards. However, the whole grave was not uncovered, when the first skeletons at the northern edge were taken out. This was due to the fact that lying there were two skeletons wearing the best examples of mail armour found, and the excavator did not want to expose these to the risk of being altogether destroyed by rust before the whole process of exposing the grave should be concluded.

The method of removal was to push a sheet of iron below an object together with the skeletal portions belonging to it. After this had been done, a bed of baked sand was made around the object, and this was further soaked with rubber solution to make it steady.

After that the sheet iron was drawn on to a wooden disc and placed in a specially constructed case. Finds taken up and skeletal parts were carried on stretchers every evening to the premises of the Archives, where they were stored for the time being. It sometimes happened, however, that finds which had not as yet had time to be taken up had to be guarded on the spot, and this was frequently undertaken by the enthusiastic leader of the excavations himself. This was done, for instance, on the occasion of the emperor's visit, when a good many of the more interesting finds were taken back to the site to be shown



Fig. 37. Coif of mail left on cranium. From the 1905 excavations (Regn.no. *B II*).

there. As the visit took place later than announced, Doctor Wennersten watched without a break for three days and two nights.

The more remarkable finds of armour or parts of such, as well as other objects made during this season, consisted of two frontal parts of armour (Nos. 2 and 20), some coifs of mail (fig. 37), parts of gauntlets, a number of arrow-heads, etc.

In view of the limited financial and technical resources, and the trifling assistance and support that could be afforded at that time by the central archaeological authorities, one cannot seriously blame the management of the investigation. The self-sacrificing zeal which Doctor Wennersten displayed, is well known and proved, and the work of preparation certainly took place with the most meticulous care. What we have particular reason to regret is that the work of photographing and measuring the position of uncovered objects was not done on a larger scale than was the case, but we should in this respect take into due consideration that photography at that period was not by any means so commonly

used for excavation purposes as we now consider a matter of course.⁷¹ It must also be remembered that this investigation had presented itself quite unexpectedly, and that the complicated conditions of the find proved to be extremely difficult to master from a technical point of view. In the later excavations we had still the same difficulties to face, though we were financially and technically much better equipped, and knew, after several years' preparations, what was to be done.

During the next few years some minor excavations were probably made within the convent area, which had been purchased by the State in accordance with an Act passed in Parliament in 1906.⁷² More systematic research work on the spot was made possible by a considerable sum given for the purpose by Count Eric von Rosen of Rockelstad, which was handed over to the State Antiquary in June 1908, and in 1909 for one month during the latter part of summer, excavations concerning the convent were carried on, but were also intended to find out whether some more common graves were to be found within the area. The result exceeded all expectations; two new burial pits were discovered, one close to the cross, the other a little farther to the east, clearly the same graves which were subsequently investigated (Nos. 2 and 3).

THE 1912 EXCAVATION.

An investigation into one of the newly discovered graves soon became a necessity. In the autumn of 1911 a start was made on the construction of the road, Södra Hansegatan (fig. 32: 16), which now runs in a northerly direction from the cemetery between the two old powder magazines on the one side and the Solberga ruins on the other. Doctor Wennersten anticipated, and drew the State Antiquary's attention to the circumstance that the easternmost of the two common graves (No. 2) would be touched by this road. This happened on the 10th September, 1912, and in a report to the State Antiquary on the following day, Wennersten predicted a four days' investigation, but in reality the investigation into this grave covered over eight months. The 1912 excavation was concluded on the 5th December. During this time the work had, however, proceeded for only thirty-eight days.

Almost immediately finds were encountered which promised to be as rich as those in grave 1. On the 13th September Wennersten reported: "The finds to-day have proved to be a suit of mail and two armours of steel plates; during the 1905 excavations only one find of the latter kind was made." And more of the same kind followed, as well as parts of gauntlets and other parts of armour and equipment. The nature of the grave otherwise agreed with what had been discovered in 1905; the same irregular accumulation of skeletons, the same injuries to the bones, giving evidence of the last struggle. But the dimensions were different; at the conclusion of the excavations, Wennersten stated the width as being 6½ metres, while the length extending NW-SE could not even be guessed at, since the terminal edges had not been observed in either direction. The excavation concerned an area of about 5½ metres in the middle.



Fig. 38. From the 1912 excavations of Common Grave 2.

In spite of the stimulating richness of finds, and though the finances of the excavations, thanks to Count von Rosen's donation of funds, were secured, the work, either on the part of the leader of the excavation or the central authorities, does not seem to have been carried on with the energy which characterized the 1905 campaign. To make a complete recovery of the mass of finds on the same lines as before does not appear to have been Wennersten's intention from the beginning, and finally the work had to be stopped on account of the approaching winter. The whole burial pit was filled in, the road was finished, and there does not even seem to have been any idea of continuing the investigations. Perhaps one may suspect that the enormous scope of the finds and a feeling that the technical resources of the time were not equal to the scientific demands made upon them, led to the matter being put off.

The finds were removed to the National Museum of Antiquities for preservation and treatment, but even so, they were neglected through lack of funds and space. After Professor Sigurd Curman had been appointed State Antiquary and Director of the Museum in 1923, he made it his first task to enlarge the museum premises. In August

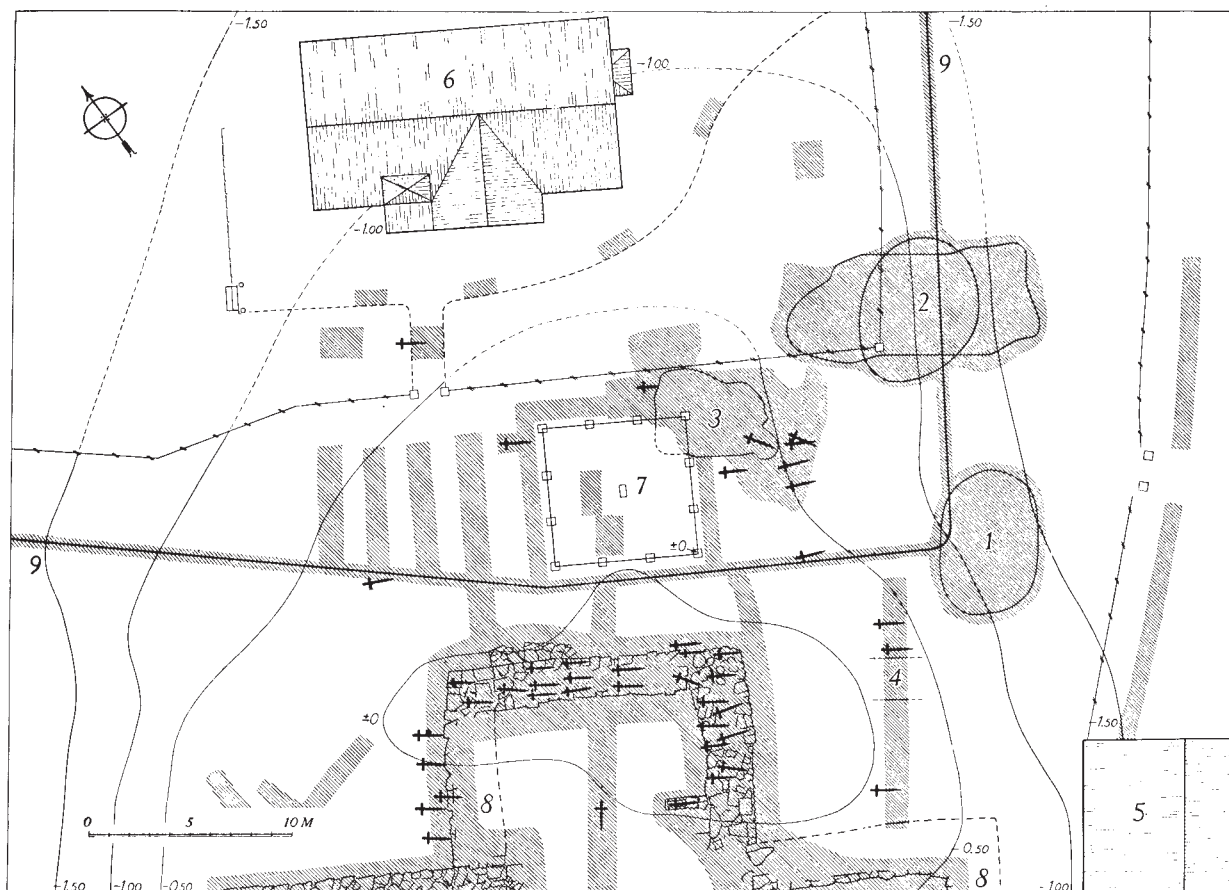


Fig. 39. Plan of excavation area.

1. Common Grave 1, investigated in 1905.
2. Common Grave 2, investigated in 1912 and 1928—1930.
3. Common Grave 3, investigated in 1928.
4. Common Grave 4, not investigated.
5. Powder magazine, erected in 1811, when a common grave was probably spoiled.
6. House, erected in 1903.
7. Memorial Cross.
8. Foundation walls of Solberga Convent Church.
9. Ditch for water main made in 1924.

Diagonally shaded lines indicate excavated areas.

The crosses mark scattered burials, earlier or later than the common graves.

± 0 = 44 metres above sea level. The contour lines relate to a survey made in 1905.

1924 new temporary, but usable premises were given to the museum, and one of the first collections to be transferred there for treatment were the Korsbetningen finds, the work being entrusted by the State Antiquary to the author of this work. Fortunately, it was found that the finds had not been damaged by the delay (some of the more valuable parts of armour in the meantime having been preserved) and the work of reconstruction of the



Fig. 40. Excavation area at Korsbetningen. For explanation of figures, see fig. 39.

various groups of plates was started. But it very soon became obvious that a scientifically reliable reconstruction of these could not be made until I myself had had an opportunity of studying the position of the finds in the soil.⁷³

In the meantime an extremely regrettable accident had occurred, which also called for renewed excavation. In the late summer of 1924, about the same time as I was unpacking the old finds in Stockholm, pipes for a water main in Wisby were being laid down in the street, Södra Hansegatan, where the common graves were situated (fig. 39: 9). On the 13th August the trench for the water pipes had reached common grave 2. During the next few days the grave was in its entire breadth and depth cut through in the most ruthless manner by the trench for the water main. If only human bones had been met with, the misfortune, from a scientific point of view, would not have been so serious, although a natural feeling of piety should have prevented this vandalism, but unfortunately, several parts of armour of very great interest also lay in the way of the road, and these were taken up without any observations whatsoever being made as to their relative position.

Towards the end of 1925, when I had finally gone through all the finds and got a clear idea of the course of the earlier excavations, the State Antiquary decided that preliminary

work should take place in the summer of 1926. This was carried out from the 4th to the 10th August and included the opening of a series of trial trenches and pits in the area round the cross (fig. 39). In the course of this work there was once more evidence, as far as one could see, of an untouched common grave just west of the cross (grave 3). As it was quite uncertain at that time how large a part of grave 2 was still left, it was decided that grave 3 should become the subject of a more thorough excavation, which was deemed necessary for the purpose of doing full scientific justice to the remarkable finds.

THE 1928 EXCAVATION.

In view of the interest which the prospective excavation might be estimated to present to Danish historical research, the State Antiquary invited the National Museum of Denmark to be represented at the excavations by someone who, along with myself, should take part in the supervision of the work. This invitation was accepted by the Museum with satisfaction, and as its representative Doctor Poul Nörlund was selected, who is internationally renowned through his archaeological investigations into the medieval Nordic remains in Greenland. At the request of the Academy of History and Antiquities, the Government asked the 1928 Parliament for a special grant for the purpose, and in order to stimulate interest in the scheme, the National Museum of Antiquities organized an exhibition in February 1928 of the most remarkable finds already discovered. This small exhibition proved unexpectedly successful, and the grant asked for was passed by Parliament. Further financial aid was given by the Danish Rask-Örsted Fund and the Town of Wisby.

The excavation season lasted from the 18th June until the 11th August, 1928, and the two leaders were assisted by Harry Johansson M.B. as osteological expert, Nils Åzelius B.A. as photographer and technical assistant, Ture Carlsson as draughtsman and foreman of the workmen, and Håkan Fernholm as archaeological assistant. The number of workmen varied from one to three, apart from the night watchman, and when the layer of skeletons had been exposed, the rougher work was confined mostly to packing the finds.

Common grave 3 at first displayed an appearance which we had not expected. About 1 m. below the surface of the soil, and within an area of about 12 sq. m. there lay, fairly well oriented E-W (or rather SE-NW, which direction, to judge from the position of the church, had been taken as E-W) some twenty skeletons on the same level (fig. 41). Furthermore, a vast number of odd parts of skeletons was found lying amongst the others in great confusion (fig. 42). Just below this grave, which was termed burial I (in Roman figure) was found the common grave proper with an extent of about 6 × 4 m. This consisted of two pits, II (fig. 43) and IV, quite separate from each other and filled with skeletons lying across each other in the utmost disorder. Also, alongside these pits minor collections of skeletons were found, of which the largest was numbered III. The total number of individuals amounted to 119, and the grave was thus much smaller than grave 1, investigated in 1905.



Fig. 41. Common Grave 3, burial I. Scattered fragments of skeletons removed.

The comparatively small extent of the grave was in itself an advantage, in that the working conditions were thus simpler than if the grave had been larger. But what we had very soon to admit as a disappointment was the striking dearth of finds in the grave. The finds were limited to some coils of mail, handsome enough in themselves (figs. 44, 45), and some small iron lamellae and buckles. On the other hand, larger armour plates were altogether lacking, which was very regrettable, since the main purpose of the excavation—apart from giving an insight into the general structure of the common grave, (which was accomplished satisfactorily)—was to supply some guide as to the reconstruction of the armour by observations about the relative position of the plates in the soil.

In view of this, and also in order to gain an idea of the extent and nature of common grave 2, we decided after one month's work to carry the investigation farther, so as to include a survey of this grave. As we knew the position of the water main of 1924, no difficulties were encountered in finding the grave. We worked our way from the south along the water main laid down in 1924 and soon laid bare the grave at a shallow depth below the present street level. The southern and northern edges of the grave were found to extend at approximately right angles to the water main not only on one side below the street, but also on the other side below an adjacent private garden. It was found that the grave, as well as by the water main, had been cut through on some other occasion at an unknown

date in such a way that an approximately triangular portion on the western edge of the water main and in the northern part of the grave had been isolated; this part was numbered VI while the other portion of the grave, which was situated to the west of the water main, was numbered V. The part east of the water main was numbered VII (fig. 60).



Fig. 42. Common Grave 3. Detail of burial I, before removal of scattered fragments of skeletons. Shows the skeletons 2, 3, 4, 5 in the upper row and the upper parts of skeletons 7 and 9 in the lower row. Above skeletons 4 and 5 is a previously deposited skeleton which has been cut off above the pelvis.

The surface of the layer of skeletons in this grave bore distinct traces of having been previously exposed. The bones were partly broken into pieces and were generally more decayed than had been the case in grave 3. Before we had got down to the layer of skeletons proper, some finds were made which hinted at the much richer treasures which this grave contained; these were two finds of gauntlets (Nos. 1 and 5). Also there were found, apart from coifs, a large unbroken piece of a mail shirt and armour plates and lamellae, partly in their original positions.

Apart from the investigations into the common graves themselves, several trenches were opened in various directions in the neighbourhood of the cross, partly for the purpose of determining whether more common graves existed there, and partly to try to define the extent of the convent church, of which earlier excavations had not given any evidence. No



Fig. 43. Common Grave 3, burial II.

further common graves could, however, be observed, but on the other hand several single, scattered graves, spread over the area, were found (fig. 46), of which some, to judge from the stratigraphical conditions, were older, but others, again, later in date than the common graves⁷⁴. In a trial trench opened to the west of the memorial cross and running in a southerly direction we encountered fairly deep down a rough foundation wall, which was then followed and proved to belong to the church building (fig. 47). This, curiously enough, was found to be built as a centralized church in the shape of a Greek cross.⁷⁵ The determination of the position of the church and the older graves found round about the common graves, also offered great interest in conjunction with the researches into the common graves,

since it can be said with almost complete certainty that these had been dug in consecrated ground in the ancient conventual cemetery.

THE 1929 EXCAVATION.

The hopes entertained of a rich find of armour, which had been aroused by the trial excavation in common grave 2, made it very desirable from a scientific point of view to



Fig. 44. Coif of mail from the 1928 excavations, cut to pieces and lying round the neck. Note the terrible cut right across the nose. (Regn.no. *Gc 2*).

be able to pursue and fulfil the investigation into this grave. Already in the course of an inspection made on the spot by the State Antiquary, Professor Curman, towards the end of the excavation season, it was decided that this should also be done. A greatly increased grant was obtained through the 1929 Parliament, and further funds were placed at our disposal by the Rask-Örsted Fund, by the fund established by Mrs. C. Blair-Bruce for archaeological research, by the town of Wisby, and by private persons in Wisby who were interested. The 1929 season lasted from the 27th June to the 25th September, and the leaders were the same as in the preceding year. As osteologist Dr. Elias Dahr, lecturer at the University of Lund, co-operated, and as photographer Mr. Åzélius was again active.

The assistants were the undergraduates A. Karnups, of Riga, A. Hoff, of Copenhagen, H. Fernholm and H. Olsson, and also, for briefer periods, Miss Gertrud Serner, N. Forsberg and N. Tidmark. The working foremen were Mr. T. Carlsson and Mr. E. Åström. The number of workmen varied from one to five.

Even if the hopes of rich finds during this summer were very optimistic, they were, nevertheless, not to be disappointed. Amongst the series of armour uncovered, special mention may be made of Nos. 24 and 25, which were a severe test of the skill of the

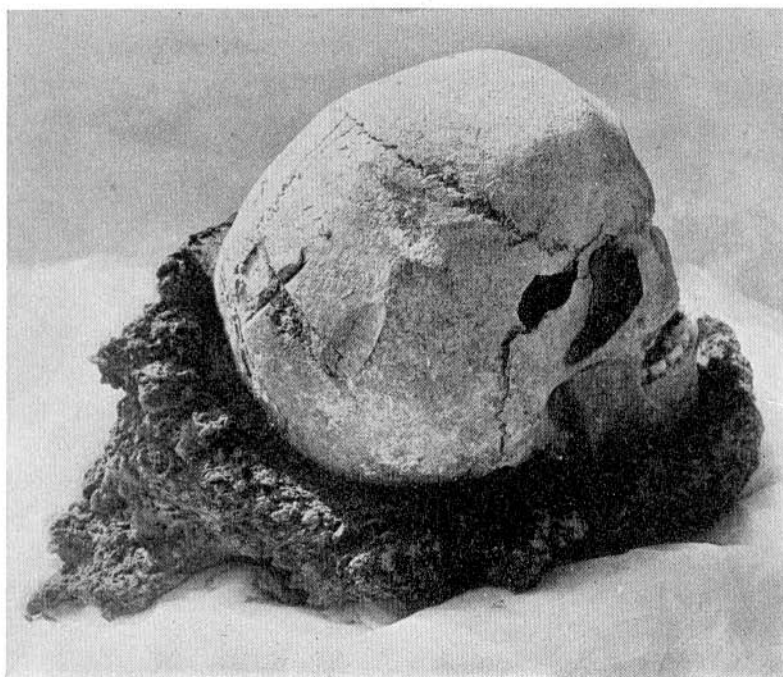


Fig. 45. Coif of mail, same specimen as in fig. 44. Note several severe cuts in the neck and on the right side. Visible farthest down in figs. 43 and 71.

archaeologists who had to carry out their measurements; viz. Mr. Karnups and Mr. Olsson. Thanks to their indefatigable and meticulous labours, these remarkable armours could be reconstructed with certainty. Further, a very fine gauntlet (No. 2), a mail shirt (which we succeeded in recovering whole, fig. 48), a leather pouch with approximately four hundred coins (fig. 49), not to mention many other interesting objects were found. Amongst the convent ruins only some final minor investigations were made that summer.

It had been intended to find the time to open up the whole common grave 2 during this season, but the nature of the finds, being more complicated than expected, made this impossible. Another excavation season was required, and once more Parliament and the town of Wisby made grants towards it.

THE 1930 EXCAVATION.

The excavations proceeded in the summer of 1930 from the 25th June until the 1st September, though the filling-in of the pit and the packing of the finds were not completed until the 10th September. Unfortunately Doctor Nörlund was unable to take part in this season's work. Mr. Dahr and the photographer Åzelius co-operated as before, and also Harald Olsson and Arne Hoff, as well as the undergraduates M. Lagerquist and (for brief periods) J. Lagervall as osteologist, and Per Fett, of Oslo. Mr. Ture Andersson and occasionally Mr. Ture Carlsson acted as foremen. During the greater part of the work no



Fig. 46. Scattered burials within 1928 excavation area. In the upper right-hand corner part of burial II, Common Grave 3, is visible.

other labourers were employed. Only in the beginning and at the end of the season some were employed to open and refill the pit.

Though the finds during this summer did not equal those of previous years either in quantity or in quality, they were yet very considerable. Amongst the armour found was the very interesting one No. 7, also two coin finds and a fine hunting knife with silver mounts, to mention only the most remarkable ones. In some portions of the grave, numbered VIII-X, we only recorded the position of the more important finds (see plan, fig. 60). The skeletal material was found to be much decayed at the very bottom of the pit, because it was formed of clay mixed with stones, which made the lowest layer constantly moist. The excavation was also impeded by a violent cloudburst, during which the rain, though prevented by the tarpaulin roof from coming in directly from above, collected in such quantities

that it required several days to pump it out (fig. 50). The last bone was taken out of the grave on the 30th August.

At the end of the excavation season another untouched common grave (No. 4) was found by means of a trial trench dug at the angle between the northern and eastern arm of the cross of the convent church (fig. 51). The skeletons lay here, as in the topmost layer in



Fig. 47. Foundation of northern wall of Solberga Convent Church with later burials on top.

common grave 3, properly oriented E-W, and to judge from the observations that could be made in the narrow trial trench this is probably also quite a small grave, perhaps smaller than No. 3. That this grave is contemporary with the other common graves, can be seen from the fact that one of the skeletons has two distinct cuts on its right upper arm (fig. 52). With the exception of this bone, which was removed, the grave was left quite untouched.

No investigations were made in the convent during this summer, but the area was levelled and sown with grass. The extent of the walls concealed in the soil, was ascertained,

and marked with pieces of limestone set on edge. A large, simple wooden cross was erected to mark the sanctity of the spot (fig. 351).

EXCAVATION TECHNIQUE.

The ordinary technical methods of excavation, as such, could not be employed on the task before us. As regards the skeletons, it was first of all necessary to bring together the various parts belonging to the same individual. As, however, only in exceptional cases a whole skeleton could be directly traced and recovered altogether, a system had to be evolved



Fig. 48. Dr. Nörlund (on the right) and Dr. Dahr at work in uncovering shirt of mail *Vxx 6* during the 1929 excavations. In the foreground, armour No. 1 (*Uyy 1*). Cf. fig. 58.

by which the position of the various skeletal parts might be reconstructed at some future date. That a simple measuring and drawing of the surface of the common grave could not be undertaken, was clear from the evidence of the photographs available from the older excavations. I therefore decided from the very beginning that photographing from above was the simplest method of procedure, and secured the assistance of a skilful photographer experienced in scientific work. I also decided that, for marking the finds, a division into squares should be made of the area under excavation with different denominations for the squares, but the way in which this division was to be arranged could only be decided in the field. After common grave 3 had been laid bare in 1928 Mr. Åzelius, the photographer, made various attempts to arrange the squares and we decided on the following method. The whole area was divided into large squares with 5 m. sides, which were numbered consecutively. The areas which contained the common graves, were divided into a system of

smaller squares with $\frac{1}{2}$ m. sides related to the larger ones (point *Ff* in the minor system coincides with point 46 in the major system, fig. 54). The lines in an E-W direction were given large letters and in a N-S direction small letters (partly duplicated⁷⁶), so that each point of intersection between the lines received a denomination consisting of a majuscule and one or two minuscules, e.g. *Aa*, *Ab*, etc., *Ba*, *Bb* etc. or *Rxx*, *Ryy* etc. The squares were given



Fig. 49. The great coin find in 1929 being gathered up. On the left Dr. Wennersten and Mrs. Ella Hellgren, Keeper of Wisby Museum.

the same denomination as the lower, right corner when north is upwards (fig. 53). The terminal points of lines were marked in the edge of the grave with iron pins, and before taking photographs white cords were laid out between the iron pins with lead weights woven into them, which enabled the contours of the ground to be followed by the cords without being disturbed by wind. After that, the photographing from above took place. For this purpose a sort of roof was constructed of beams above the burial pit (fig. 55), which at the same time served to support the tarpaulin cover placed as a protection against

rain and sun (fig. 56). From this roof the surface of the layer of skeletons with its net of squares was now photographed (fig. 57). The plates were developed and printed at once, and after a couple of hours the archaeologists had in their hands working prints on mat paper, which had been printed rather light in colour to enable one to write and draw on them (fig. 58). On these prints, which together constituted a plan of the grave, was introduced the letter designation of the square system, and the visible layer of finds was now ready for removal. Every object and every part of a skeleton or connecting portion of a skeleton was marked with the respective denomination of square and a consecutive number, and



Fig. 50. Burial pit filled with water in 1930.

then entered in a special book, where one page had been set aside for each square, e. g. *Rxx 1*: iron lamella, *Rxx 2*: shin and foot, *Rxx 3*: ditto; *Rxx 4*: thigh and shin bone, *Rxx 5*: ditto (same individual as *Rxx 4*), *Rxx 6*: buckle, and so on. In so far as it could be determined with any certainty that bones belonged to the same skeleton, they were given the same number even if they extended into other squares. If any connection or relation between bones with different numbers could afterwards be proved, this was noted in the records. The number was at the same time entered on the working print. As soon as a number had been given to any object or skeletal part, this was removed, cleaned and packed away. Minor parts belonging together were put into bags which were marked. Trifling or very fragmentary pieces were likewise collected in bags, which were only given the number of a square.

After everything that was visible on a working print had been taken up, the net of squares was laid out again, new photographs were taken and the taking up of the finds proceeded in the same way as before, and so on until the bottom of the grave was reached. By this system the whole of common grave 3 was investigated.

In the case of common grave 2 the same method was employed in principle, but it was not followed so rigorously as in common grave 3. For in this grave large portions had already been removed in 1912 and 1924 when their positions were not noted and no complete reconstruction of the skeletons in the grave could therefore be effected. In the uppermost layer, which had been touched in the 1912 excavation, and the part around the trench for the water main, only the position of more important finds was noted in the manner described



Fig. 51. Common Grave 4 from the south; farthest away, on a slightly higher level, some later scattered burials can be seen.

and it would have been meaningless to deal with the deepest layer of skeletal material in this way, as this had become largely decomposed through the action of moisture. In the investigation of common grave 2 a modification of the method employed in common grave 3 was therefore adopted. In some instances, on steeply sloping surfaces, the cords were replaced by cardboard discs, which were placed at the points of intersection of the lines and on which the denominations of the squares were noted.

By this system it was always possible to note the position of finds of bones and objects in one layer in relation to superimposed or underlying layers, for the cords and their points of intersection were always lying precisely below each other. By reason of the cords resting directly on the layer of finds and not being stretched, no perspective distortions occurred between the network of squares and the layer of finds. It need not be added that necessary levelling was carried out.



Fig. 52. Common Grave 4. The skeleton farthest to the south with cuts on the arm.

graphed. The value of possessing such a series of superimposed photographs, proved to be invaluable in the work of reconstruction. Naturally photographs from other positions were also taken whenever they were required.

In conclusion it might be said that the rusted shirts and coifs of mail, often containing hardly any metallic iron whatsoever, presented great difficulties in taking up and removing whole. At first, we tried for some time to make a plaster-of-Paris bed, but this did not turn out very well. On the advice of the photographer we then tried pouring paraffin wax over the object, and this proved to be so successful that we adopted the process to an ever greater extent. Where required the paraffin wax casing was reinforced with wooden slats and gauze bandages cast together with the paraffin wax, as in the case of the big shirt of mail from the 1929 season (fig. 59). I do not know how we should otherwise have been able to lift it up and transport it whole to Stockholm. In the laboratory of the Museum the cavity was filled with plaster of Paris, after which the paraffin wax was boiled into the rusted iron. Even when taking up whole groups of plates, which could be better separated and distinguished and studied

As regards consecutive groups of plates of armour, special photographs were taken and also measured drawings made, generally half scale but occasionally also full scale (for the armours 24 and 25). As the armour plates were generally lying in several layers on top of one another, fresh drawings were made as fresh plates were revealed. Every plate, or fragment whose relation was uncertain, was given a special consecutive number or letter after the mark which applied to the whole complex (e.g. *Prr 8: 1*, *Prr 8: 2*, etc., or *Rå 8: a*, *Rå 8: b*, etc.)

The photographing of such groups of plates was done in such a way that the position of the legs of the camera tripod was marked with pins, and marks were made on the tripod to denote how far the legs had been pulled out. After that the group of plates was photographed, generally straight from above. After the topmost plates had been removed, fresh photographs could be taken from exactly the same point as the previous one, and so on, until everything had been photo-

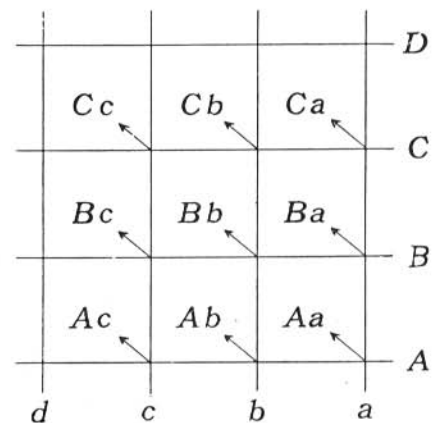


Fig. 53. Diagram illustrating denominations of squares.

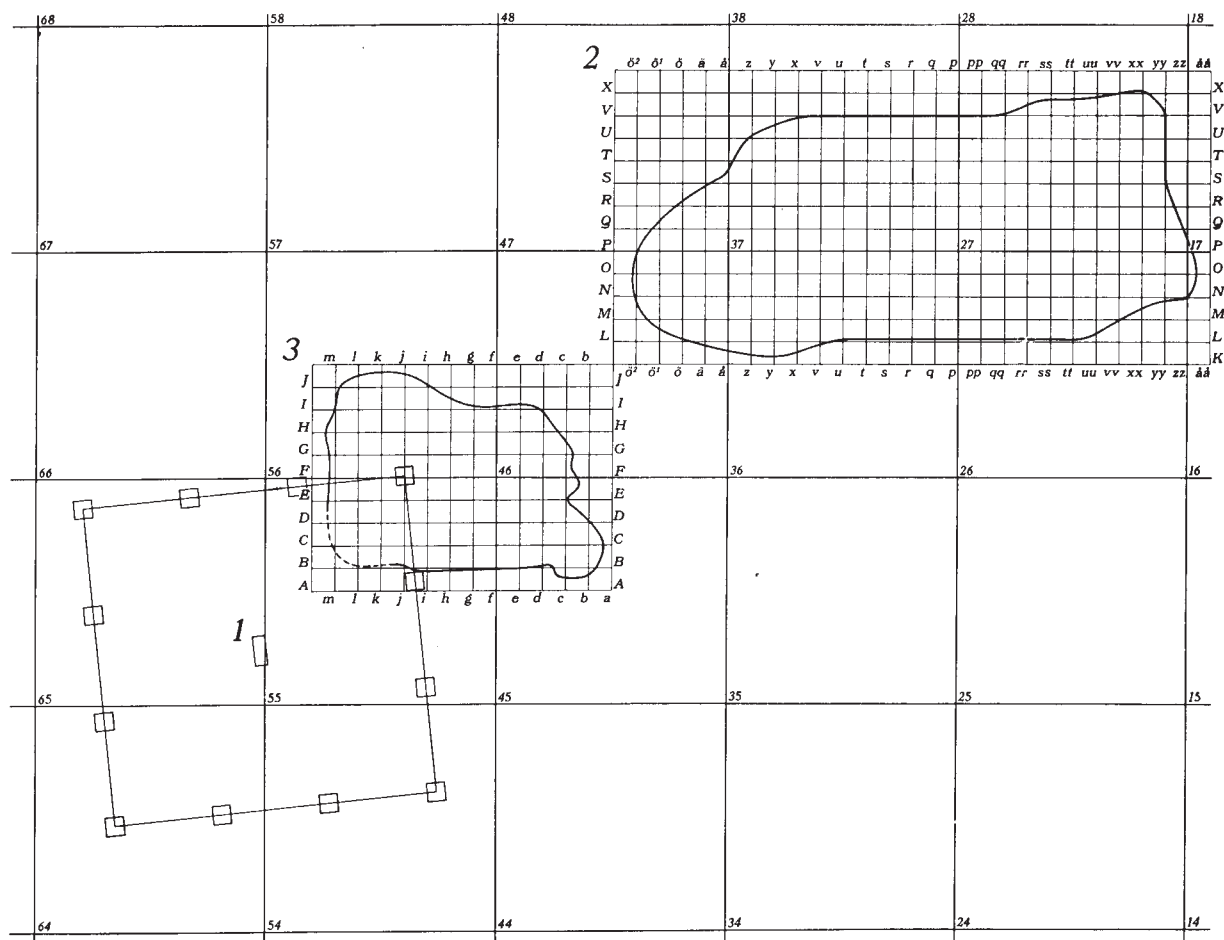


Fig. 54. Plan of major and minor network of squares for excavations in 1928—1930, and their denominations.

1—memorial cross (surrounded by railing).

2—common grave 2.

3—common grave 3.

Side of minor squares = $\frac{1}{2}$ metre.

in the museum laboratory than in the field, we employed the method of pouring over paraffin wax successfully, and this method has since then been used many times in other archaeological excavations.

THE COMMON GRAVES.

We have found in the preceding survey that three common graves have been the object of complete scientific investigation: No. 1 in the year 1905 with 258 individuals, reckoned from the number of femurs, or, according to a more probable calculation⁷⁷, 268 individuals, constituting 22.62 % of the whole number of 1,185 individuals probably found; No. 2 in 1912 and 1928—1930, with 710, or more probably 798 individuals, constituting 67.34 %

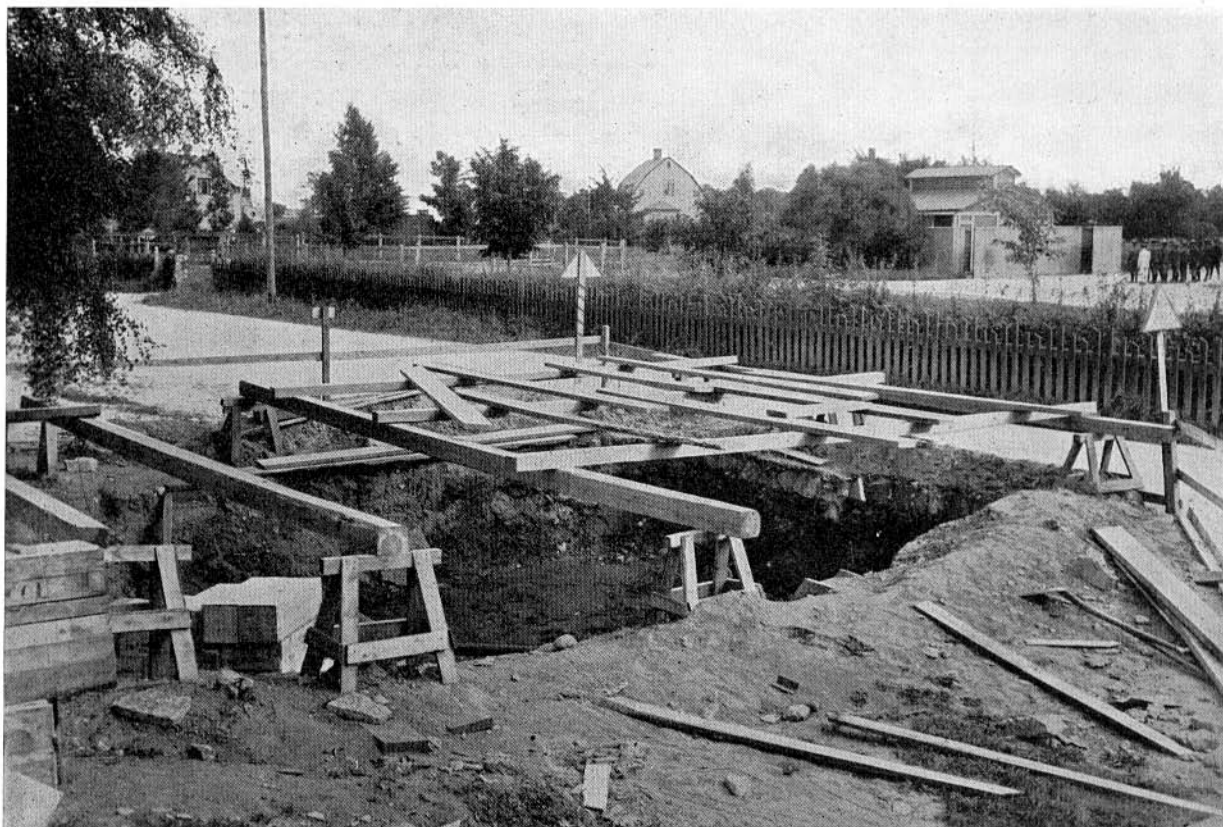


Fig. 55. Eastern part of Common Grave 2 with roof-beams.

of the whole number of individuals; No. 3 in 1928, with 119 individuals or 10.04 % of the whole number of individuals. Another common grave, No. 4, was discovered on making a trial excavation in 1930; its dimensions are probably small. The whole of this grave remains untouched. In the year 1811 a common grave No. 5 is reputed to have been despoiled. We may regard this grave as a fact, but we have nothing to guide us for judging its dimensions. Whether a further, sixth grave was destroyed in the course of building operations in 1903, is uncertain, and also whether any other common grave may still be concealed in the neighbourhood. Of course, trial pits have been sunk all over the locality (fig. 39), but there is perhaps a small chance that some grave pit may still be left.

The graves 1-3 contained, as has been stated, probably about 1,185 individuals. If we reckon that grave 4 contains the same number of individuals as grave 3, and that grave 5 was just as large as grave 1, we get a total number of 1,572 individuals. This approaches remarkably close to the figure 1,800, which according to the Gotlandic chronicles, written in the beginning of the 15th century, are said to have fallen in the battle (see before p. 23).

Of the general appearance of common grave 1 we know little more than what has already been related. The approximately oval pit was $5\frac{1}{2}$ m. broad and 7 m. long and its greatest depth was $1\frac{1}{2}$ to 2 metres. At the bottom of the pit approximately right across the grave

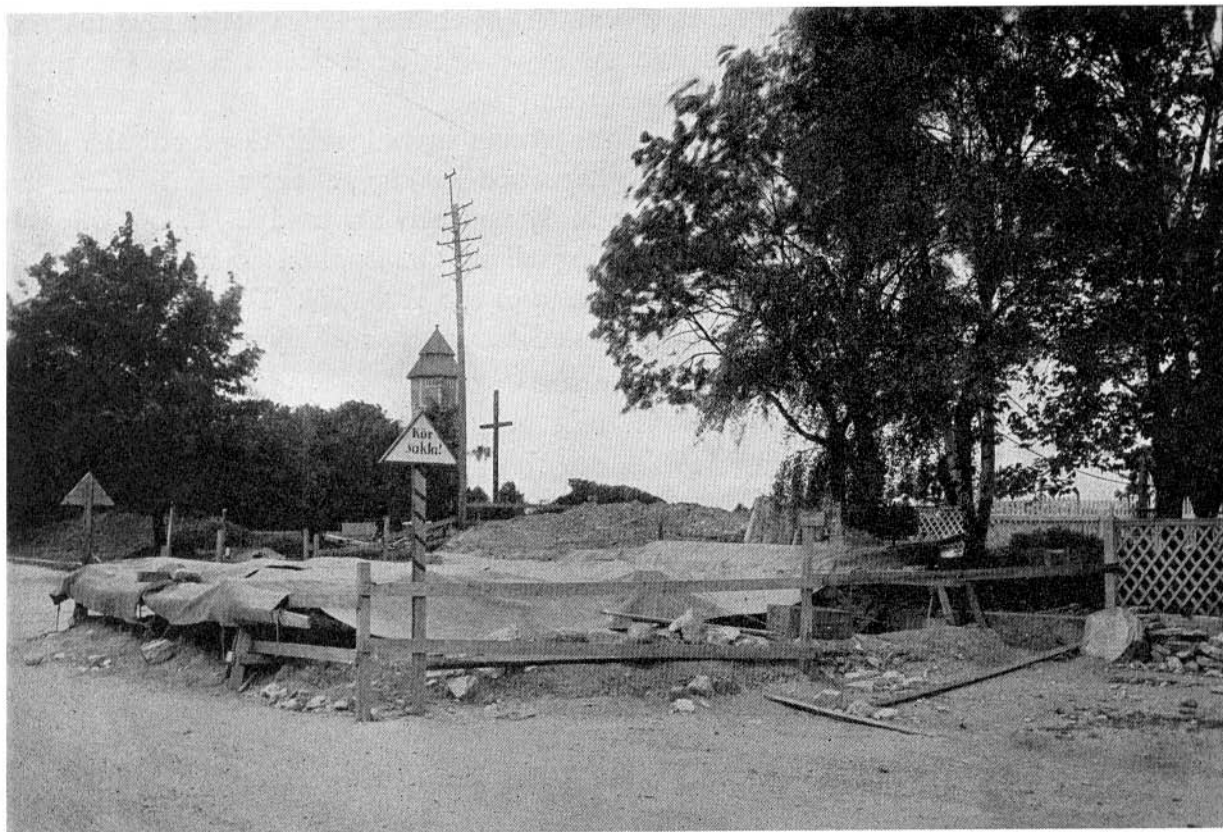


Fig. 56. Common Grave 2 with tarpaulin over roof-beams.

was a low mound, which probably indicates that it had at first been dug as two pits lying close beside each other, which, when the depth grew greater, had been made into one by removing the intervening wall. The thickness of the skeletal layer was estimated at $\frac{1}{2}$ –1 m. The corpses lay intertwined without any order whatsoever. No upper layer with a more regular burial as in common graves 3 and 4 is mentioned.

The length of common grave 2 was considerably greater, viz. over 12 m., while the greatest breadth was approximately the same as in grave 1, about 6 metres.⁷⁸ It was widest at the east and tapered towards the west. This pit was also divided by a low mound, which was, however, much nearer the western end of the pit, and did not extend across the whole breadth, but projected some distance from the south side (fig. 61). The remainder of the surface was on the whole almost level, with steep sides (fig. 62). It was here only about 1 metre below the street level while its western portion, where the ground level is less disturbed, showed a maximum depth of about 2 metres. The layer of skeletons was probably about $\frac{1}{2}$ metre deep.

The grave had been seriously disturbed, partly when it was cut through by the water main in 1924 and partly on some other occasion when the part denoted by VI was dug around (see fig. 60). After the conclusion of the investigation in 1930, a minor portion in

the squares *Uvx* was left untouched below a beautiful birch tree, which we wanted to save; the number of skeleton parts left was trivial. As in grave 1 the skeletons in this grave also lay in great confusion, without the slightest order.

Common grave 3, though the smallest of the graves investigated, displayed the most complicated structure. On top (and therefore deposited last) lay, about 1 metre below the present surface of the soil, a layer of skeletons fairly regularly oriented E-W, and this was named burial group I. The corpses, numbering about twenty, had been buried simultaneously as was seen from the entangled position of the skeletons. Together with these skeletons, lay a large number of supernumerary skeletal parts, probably parts of individuals



Fig. 57. Photographing from roof-beams.

previously buried on the spot, whose graves had been disturbed when the grave was being dug. Such a skeleton, half destroyed, cut off at the waist, was found, as indicated in fig. 42, above skeletons 4 and 5, and another, consisting only of the legs with a cranium between them, carefully placed in position, was found beyond the lower end of skeleton No. 19, but on a higher level (fig. 69). One part of burial group I, the south-western corner, was not excavated, as it projected below the railing that runs round the cross, which we did not want to disturb. The estimated number of individuals will probably not be very much altered by this, as the unexcavated corner of the grave contained at the most three or four skeletons.

Partly below burial group I, which occupied an area of about 12 sq.m., were found two burial pits with skeletons in great disorder, as in common graves 1 and 2. One of these, the larger, denominated burial group II, had a diameter of about 3 metres, the other one, the smaller, IV, a greatest extent of only fully 2 metres. Burial II projected only slightly

below I and reached a greatest depth of about 2.30 metres below the surface of the soil. Burial IV, on the other hand, lay altogether below I (fig. 70); its greatest depth was 2.15 metres, and some of the skeletal parts projecting furthest upwards, made contact with skeleton No. 6 in burial I.

Partly below and with its upper parts touching skeleton No. 19 in burial I, but on the other hand projecting partly above burial II, there was found a small and sparse accumula-

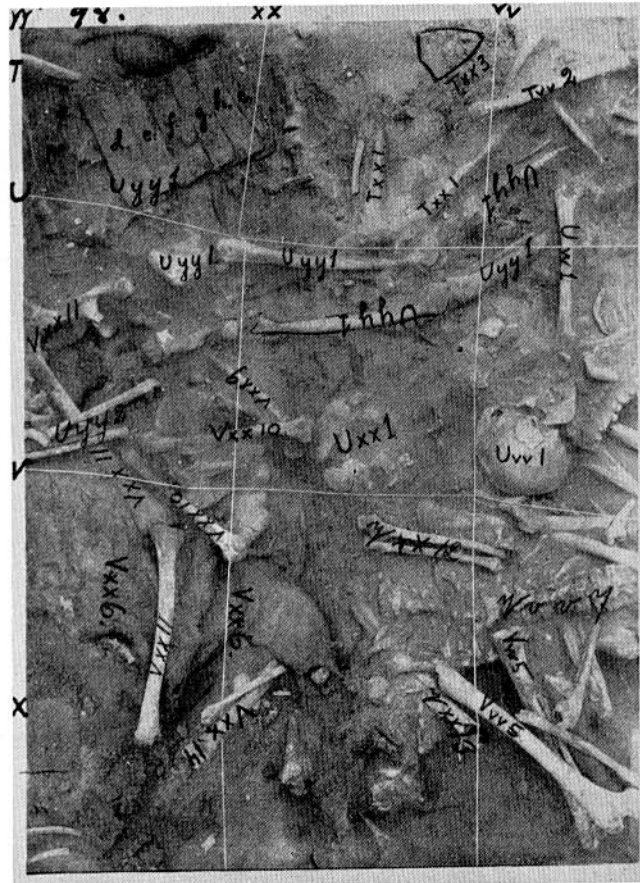


Fig. 58. Working print of part of Common Grave 2. (At the top is seen skeleton *Uyy I* with armour No. 1, at the bottom left-hand side shirt of mail *Vxx 6*.) Size of original 13 × 18 cm.

tion of skeletal parts, called burial group III. This consisted chiefly of a single skeleton (fig. 71: a), lying crouched on its face, and many partly coherent and partly supernumerary skeletal parts (fig. 71: b), the latter perhaps derived from disturbed graves. But on the other hand one of the supernumerary legs had been cut off and wounded. Also, some other scattered parts of skeletons or accumulations of skeletons have been found outside the limits proper of groups II and IV. The whole thing looked very peculiar.

Probably groups II and IV should be interpreted as a single pit in two parts, something like common grave 1, but with a more marked difference between the two parts of the grave. The skeletal material in burial III and other minor skeletal portions were very likely de-

posited after the big pit had been partly filled in, and finally the individuals in burial I had been buried after further filling-in and levelling of the bottom. It may very well be questioned if burial I really dates from the year 1361, especially as no wounds whatsoever could be observed on these bones. But on the other hand, the existing contact with underlying undisturbed skeletal portions of burial IV denote some relation to the common graves, and so, also, does the fact that on some of the skeletons, buckles of precisely the same sort were lying in exactly the same positions as in the other graves (figs. 117, 118). During the excavation we paid special attention to this question, but nothing was observed that

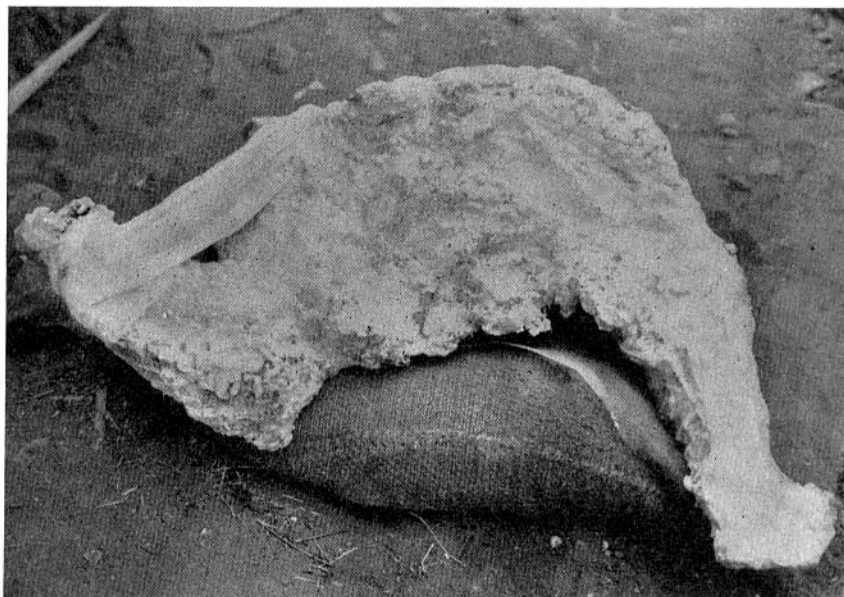


Fig. 59. Shirt of mail *Vxx 6* cast in paraffin wax and ready for transportation. Cf. fig. 93.

might suggest that burial I was of a later date. I consider therefore that burial I must also be dated to the year 1361.

As regards common grave 4, which has only been studied in a trial trench one metre wide, it can only be stated that the skeletons lay, as in 3: I, oriented E-W at a depth of about 1 metre below the present surface of the soil. One of the skeletons, the one furthest south (fig. 52), showed two distinct wounds from cuts, and the others may be safely dated by this. The number of the skeletons observed was eight. These are not included in the estimate of the entire number of individuals found.

If we now compare the common graves with one another, and in doing so ignore grave 4, of which we know practically nothing, it is at once obvious that common grave 3 differs from the other two in every possible way. The skeletons are distributed in several considerably smaller accumulations, and the top layer really shows a burial which, at any rate in comparison with the other graves, can be described as careful and reverential.

The difference is not confined to these outward signs. As regards the age of the fallen

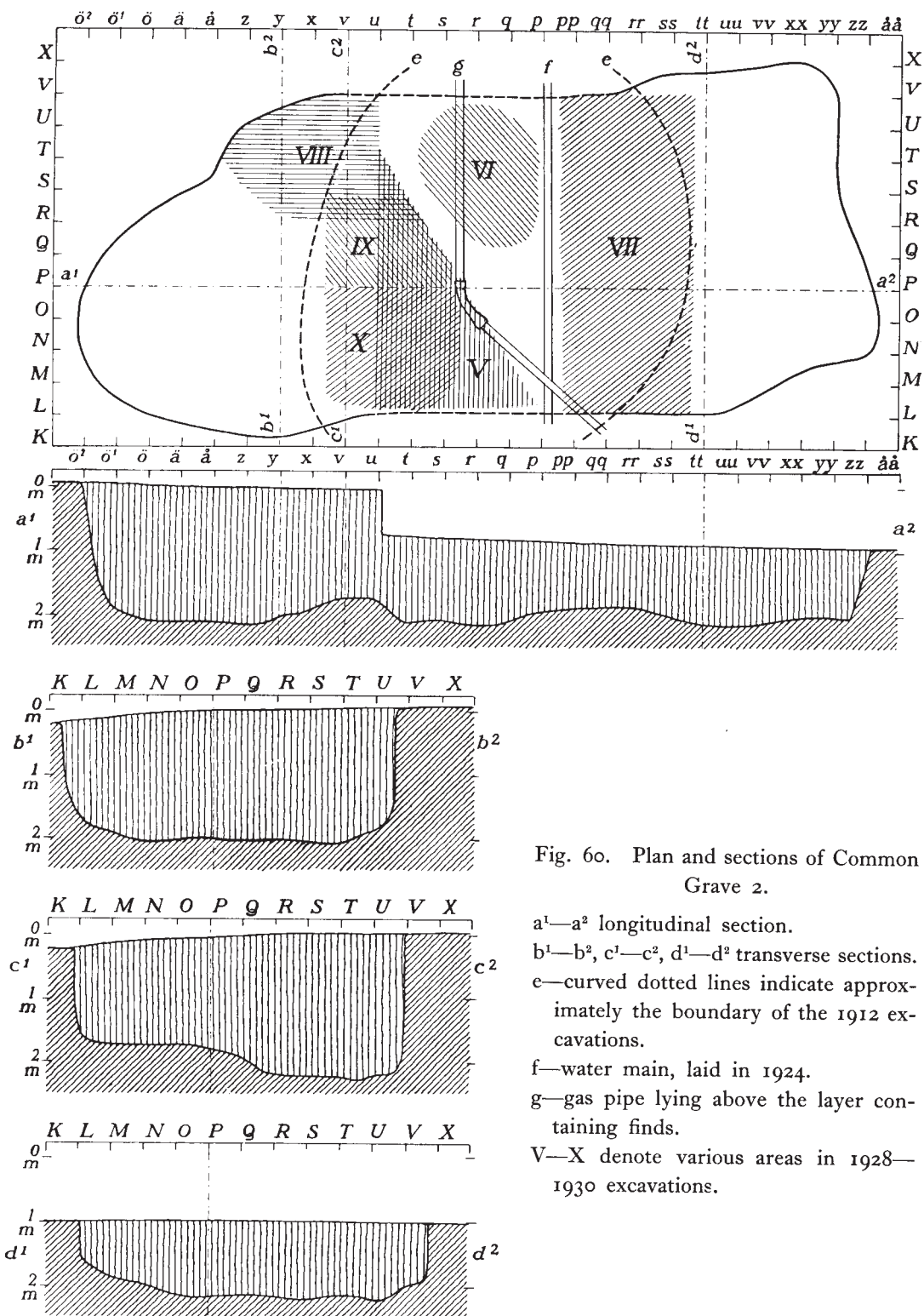


Fig. 60. Plan and sections of Common Grave 2.

a¹—a² longitudinal section.
 b¹—b², c¹—c², d¹—d² transverse sections.
 e—curved dotted lines indicate approximately the boundary of the 1912 excavations.
 f—water main, laid in 1924.
 g—gas pipe lying above the layer containing finds.
 V—X denote various areas in 1928—1930 excavations.

persons, it is shown that common grave 3 contains a proportionately larger number of young individuals, viz. 37 %, as against 16 % in grave 1 and only 8 % in grave 2, which also shows a smaller number of elderly persons than the other graves, whereby the number of individuals suitable for military service amounts to 80 % as against only 45 % in grave 3. Common grave 1 occupies an intermediate position with 53 % of individuals of military age.⁷⁹ Even if for grave 3 we have to take into account that supernumerary bones, intermingled from earlier burials, have brought about too large a preponderance of the younger ages, there remains nevertheless a difference which is far too great to attribute it merely to chance. Even an investigation into the sizes of the bodies has supplied a difference for common

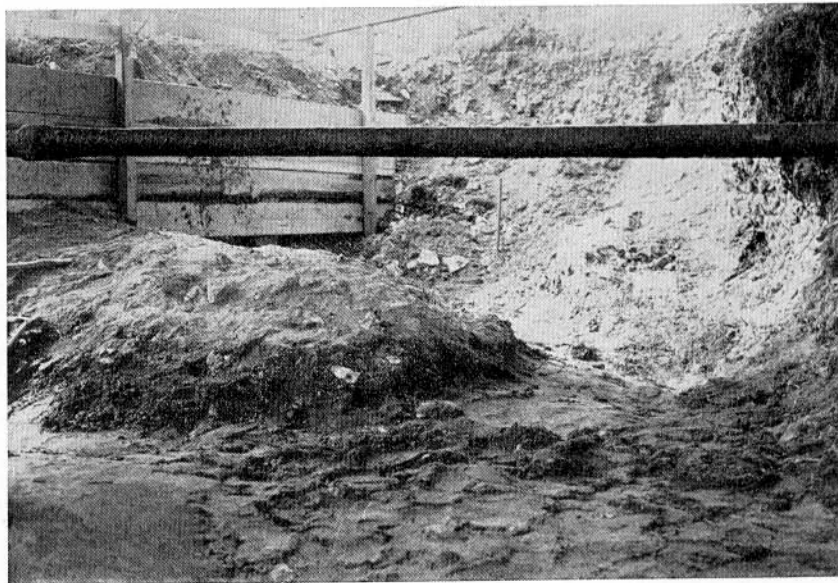


Fig. 61. Common Grave 2. Western part from N.E. after removal of skeletons. From the south side projects a mound; in the foreground a gas-pipe (fig. 60: g).

grave 3 as compared with the other two. While graves 1 and 2 show average heights which approach each other as closely as 168.92 ± 0.27 cm. and 168.81 ± 0.19 cm. respectively, the same figure for grave 3 is 167.84 ± 0.30 cm., i.e. almost exactly 1 cm. less.⁸⁰ The difference may seem trifling, but when it is a question of the results of a large number of measurements as it is here, it cannot be neglected, especially since it points in the same direction as the investigation into age, towards a weaker human material. It should be emphasized that in the measurement of the length no juvenile or senile bones have been taken into account. Also common grave 3 displays a striking preponderance in proportion to the others of healed fractures and non-specific arthritical changes, while on the other hand traces of *malum coxae senile* are rare, this being of course due to the greater number of juvenile individuals in the grave.

When we consider the wounds, we shall find that grave 3 shows a proportionately far greater number of cuts on the extremities than the other two graves, all of them localized

to the lower extremities, while on the other hand, in regard to cranial cuts, the contrary is the case. Wounds from arrows, too, are relatively fewer in common grave 3, though the difference is not so great.⁸¹

The finds of armour also emphasize the peculiar nature of common grave 3. Only the mail coifs have been found there in approximately the same proportion as in grave 1 (grave 3: 5 % of the number of individuals, grave 1: 7.5 %), while, on the other hand, the number of coifs in grave 2 was far greater, viz. 20 %.⁸² In grave 3 no parts of coats of plates or gauntlets and only a few lamellae of armour of type VI have been found, whereas from grave 1, hundreds; and from grave 2, several thousand of these have been discovered.



Fig. 62. Common Grave 2. Eastern part from N.W. after removal of skeletons. In the foreground the water main laid in 1924 (fig. 60: f).

Therefore, we have a small grave partly containing properly buried corpses, many of them young and over half of them of ages unfit for military service. Amongst the full-grown individuals the average height is less than normal; and no armour is found. What can this mean? The first question is whether it is a grave of noncombatants, slain by the victor. But this is impossible, for the civil population cannot possibly have been killed by cuts on their legs; besides, the coifs show that at least some were armed warriors. The top layer, in which the skeletons are altogether unharmed, might have consisted of non-combatants, who died for some reason in connection with the troubled times at the period of the battle. This may possibly explain why they have been given decent burial. The lack of armour in this grave might indicate that it had been dug first, when there was plenty of time to remove all the precious garments. The correctness of this theory is suggested not only by the greater quantity of armour in grave 2, but also by other finds from the latter grave such as coins and the hunting knife, which show great haste and carelessness

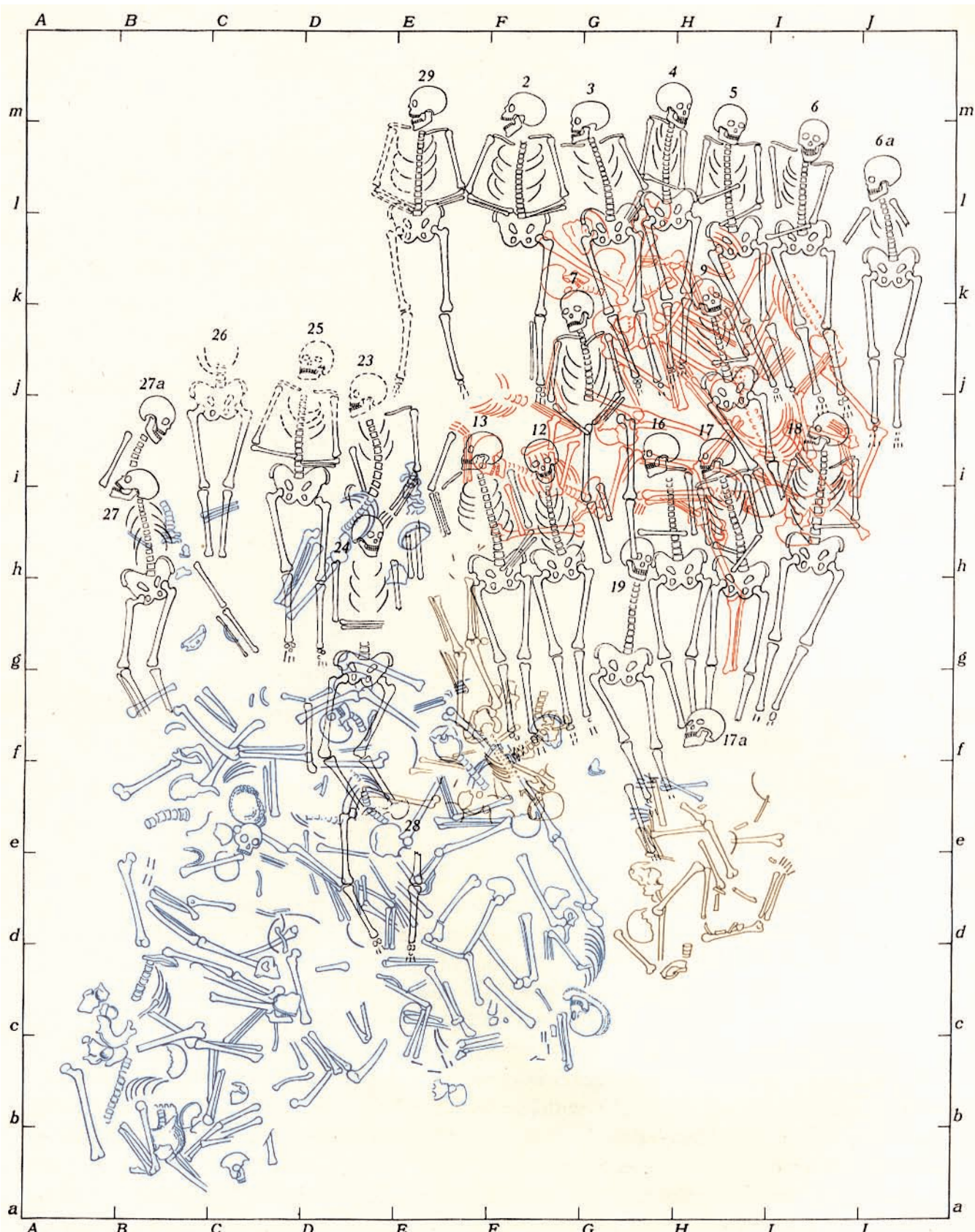


Fig. 63. Plan of Common Grave 3. (Only portions of skeletons on top are shown.)

Black = Burial group I. Blue = Burial group II. Brown = Burial group III. Red = Burial group IV. Erratum: No. 12 should be No. 14.

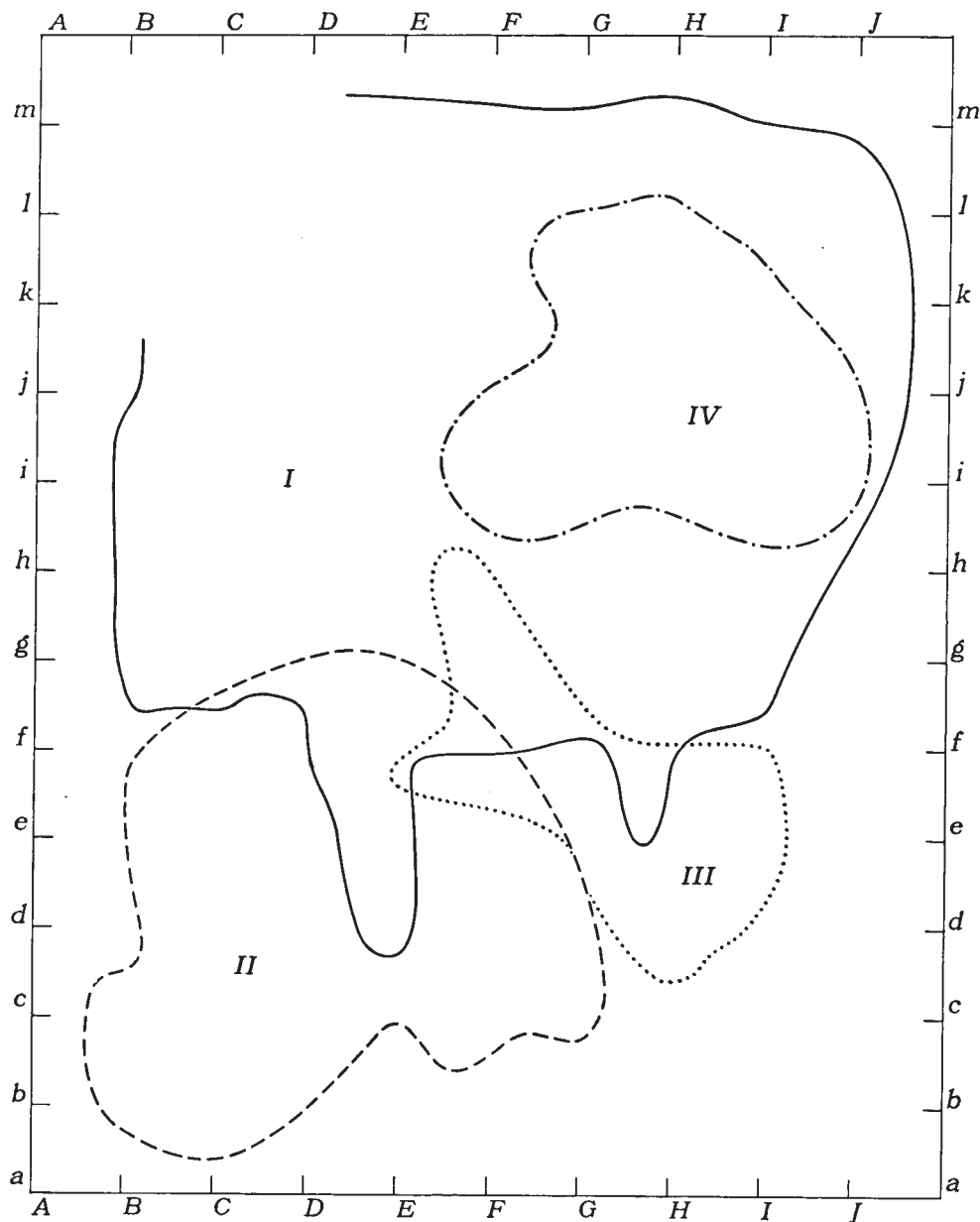
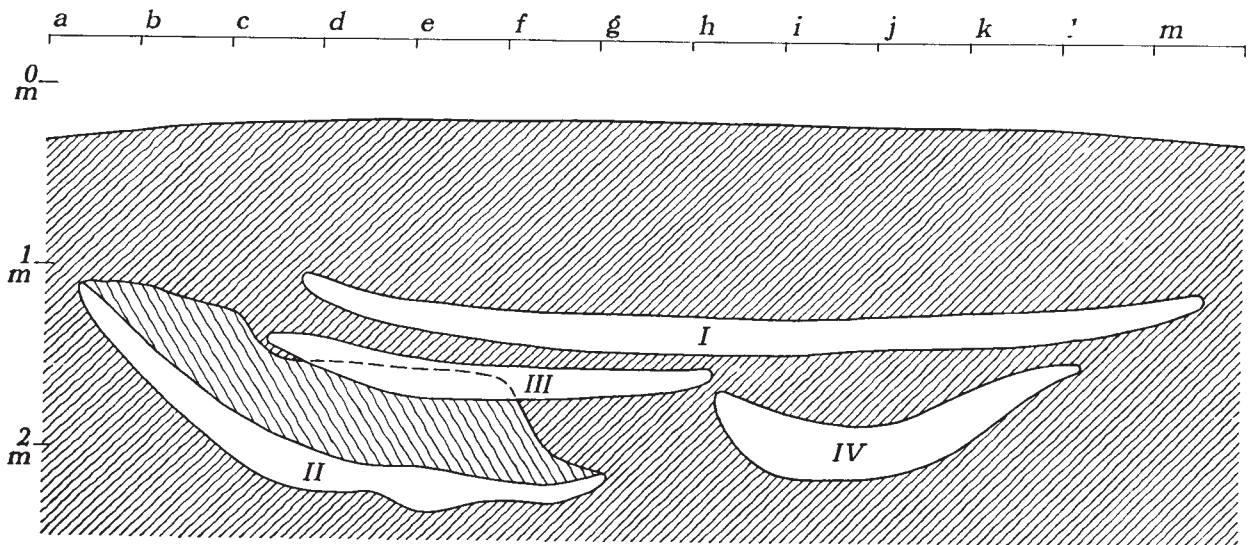


Fig. 64. Diagrammatic plan of Common Grave 3.

in burial. The special characteristics of grave 3 may however be explained mainly through the assumption that it contained a part of the Gotlandic peasant army, which, after the Battle of the Fjåle Marsh, was mostly composed of individuals over and below military age. The fact that it is nearest to the memorial cross, which only mentions the Gotlanders and not the Danes, supports this hypothesis.

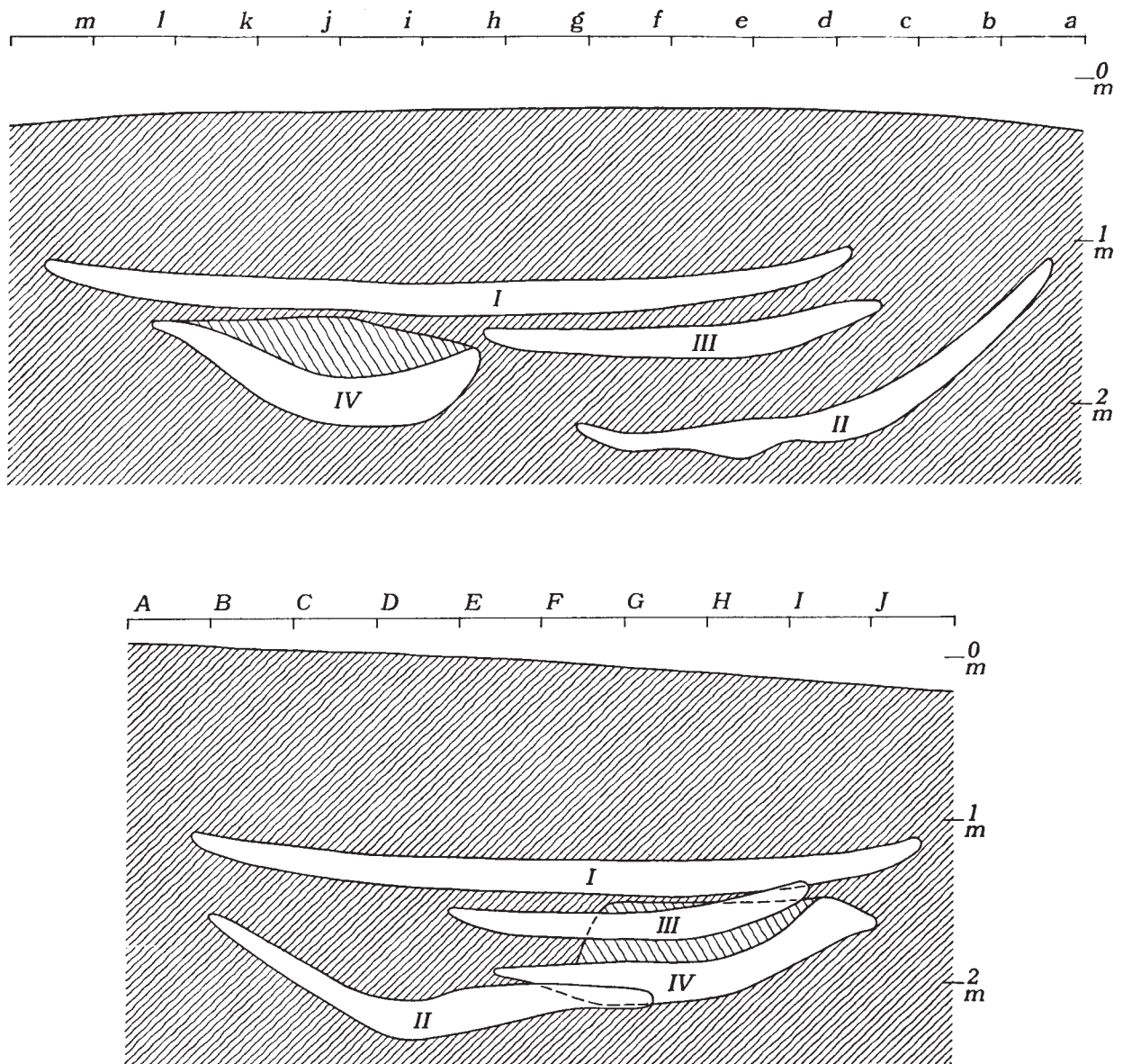
But surely this does not mean that the other two graves only contain Danes. It is in reality quite unreasonable to imagine that such a large part of the fallen should have belonged



Figs. 65, 66. Diagrammatic sections through Common Grave 3. Cf. plan fig. 64.

to the victorious side. If the remaining graves contained Danes and Gotlanders in the same proportion as graves 1-3, 89 % of the fallen would in that case have been Danes, and even if we calculate assuming that the remaining graves contain Gotlanders only, and that the whole number of fallen was 1,800, the Danes would still have amounted to 59 % of the fallen, and this too is obviously unlikely.

But there are also other arguments against the theory that graves 1 and 2 contained only Danes. In the first place, there is the large number of the remains of cripples and lame people, found in these graves. It is quite out of the question that the Danish king brought with him any such men in the carefully selected army which he had naturally



Figs. 67, 68. Fig. 65 observer facing south, fig. 66 facing east, fig. 67 facing north, fig. 68 facing west.

gathered round him for the daring attack on Gotland. As has already been mentioned, there are to be found—both absolutely and relatively—a far greater number of cases of *malum coxae senile* in graves 1 and 2, totalling twenty-two cases, as against only one case in grave 3. This disease made the individual entirely unfit for military service. Even a flagrant case of tuberculosis, which caused a knee-joint to become rigid at an angle of 55° , comes from one of these two graves, and also in the material from these two cases of hunch-back have been noticed, not to mention many other similar phenomena.⁸³ Another circumstance which speaks in favour of Gotlanders having been buried in common grave 2, are the coin finds. Of the five finds of coins in common grave 2, four contain only Swedish and Got-

landic coins, while the fifth contains Danish, and certainly also Swedish coins, but of different issues from those in the other finds. It is true that a Danish soldier may have carried Swedish or Gotlandic coins, but at any rate some of the Gotlandic coins were certainly the property of Gotlandic men.

It is most probable that graves 1 and 2 contained Gotlandic men also, but mixed with so many of the Danish warriors, that it is definitely noticeable in respect to age, length of body, distribution of wounds, etc.

This question is not only in itself of great interest, but there is also the concomitant question of whether the armour found belonged to Danes or Gotlanders. If one could have assumed that graves 1 and 2 contained only or almost only Danes, this question would have been solved at once. But with the more indefinite results at which we have arrived, the question as to the armour must be debated separately.

To start with, it may be stated that since the difference in character between grave 3 on the one hand, and graves 1–2 on the other, is at any rate to a great extent due to the difference in the character between the two armies, and since a greater wealth of armour in graves 1–2 constitutes one of these characteristic differences, it is probable that the armour found in graves 1–2 belonged to Danes. This, in fact, also seems to coincide very well with the picture we have obtained from the finds of the Gotlandic army, consisting for the greater part of youths, old men and cripples, who, one might also add, were poorly armed and equipped. However, we are not justified in drawing this conclusion too hastily. As has been pointed out above, we must also reckon with the fact that the burial was performed more carefully in the Gotlandic grave 3, which explains why it is so much poorer in finds.

There remains nothing else but to investigate whether the armour itself can supply any clues. Such an investigation is made in a later chapter (pp. 225 ff.). We shall here merely state that in regard to a certain type of armour, we consider it highly probable that it was worn by Gotlanders, but there are reasons to assume that another type belonged to a Danish knight. Regarding the majority of armour found, we cannot find any reason for adopting a specific attitude. However, the conclusions at which we have arrived regarding the nationality of the armour, coincide with what we have assumed already, namely, that in graves 1 and 2 Gotlanders and Danes were buried together.

PUBLICITY.

We have mentioned above that the earlier excavations were given very remarkable publicity at the time, even in the foreign Press. During the excavations of 1928–1930 the interest of the general public and the Press was often rather troublesome. We considered it reasonable not to deprive the general public of the possibility of seeing the unique spectacle presented by the excavations, and the fence round the area of excavations was constantly surrounded by interested spectators (fig. 73). Wisby is a great tourist and holiday resort, and a visit to the excavations was a very popular item of the sightseeing programme. We were particularly pleased, of course, that some experts also visited us (fig. 74).



Fig. 69. Common Grave 3, burial I, before removal of scattered fragments of skeletons (cf. fig. 41). On the left, in the foreground, parts of a previously buried skeleton whose cranium was placed between the thighs, probably on the occasion of burial I.

Sometimes the sensational news of the excavations, as presented by the Press, was rather surprising even for us. The record for this is held by the American paper "New York American", which in its Sunday supplement, "The American Weekly", of the 2nd July, 1929, had a gigantic article on the excavations, based upon sources unknown to me. It gives evidence of such a lively and macabre imagination that it would be a pity not to keep some extracts of it for future reference. To start with, mention is made of the earlier excavations under the leadership of Doctor Wennersten: "His spade at once revealed that under the meadow's sod lay a huge common grave containing hundreds of skeletons in armor where they had been hastily tossed in tangled confusion. Here was an archaeological treasure, but the research had to stop at that point for an unforeseen reason.

"Though the flesh had disappeared from the bones and grinning skulls of these warriors during the six centuries since they fell for their country, the moist earth had become so saturated with the decay that only men with abnormally tough nerves could endure the overpowering odor that rose from the excavation.

"Two natives were found willing and able to dig. But to get this frail and rusty armor out intact required the skilled and patient fingers of a trained archaeologist such as Doctor Wennersten, who unfortunately could not work in the pit without fainting. In 1912 another attempt was made, and had to be given up for the same reason. It was during this second



Fig. 70. Common Grave 3. Juxtaposition of burial I (skeletons 6 and 6 a) and burial IV. On the right the untouched layers of soil which border on pit IV can be clearly seen.

occasion that Kaiser Wilhelm's yacht, the "Hohenzollern", dropped anchor in the harbour of Wisby, and Doctor Wennersten, rising up from his sickening work, saw looking down at him the face of the German Emperor. It took some courage for the Kaiser to even stand at the top of that pit, but he did, and asked shrewd questions of the learned man below. It also took courage for the scientist to say:

"Here you see, Your Majesty, how frightful are the consequences of war. I hope you will remember!"

"The Kaiser's staff bristled at this presumption, but the war lord laughed, made a humorous reply, and later decorated the bold Swede. In two years came the great war. His Majesty had evidently forgotten the odor of Wisby.

"Sixteen years passed until last summer Doctor B. Thordeman, another Scandinavian archaeologist, tackled the problem with new methods and greater resources. By removing the soil from much of the vicinity, he permitted most of the noxious gases to escape. With chemicals he was able to deodorize much that remained. Even at that, on windless days,



Fig. 71. Common Grave 3, showing difference in levels of burials I, II and III. In the foreground a cranium (regn.no. *Gc 2*) belonging to burial II, lying at point *Gc*; III a: part of a skeleton lying in squares *EF e—g*; III b: skeletal parts in squares *GH de*.

it was necessary for him and his expert assistants to wear masks and breathe air pumped to them from above.”

A writer in the “Prager Presse” on the 6th March, 1929, showed less concern with world history but the most revolutionary ideas of the museums of the future. Under huge headlines he tells his readers the sensational news that the National Museum in Stockholm was planning to reconstruct in one of its largest halls the whole common grave: “Wenn der jetzt gefasste Plan zur Ausführung kommt, werden die künftigen Besucher des Reichsmuseums zu Stockholm das Massenkriegergrab aus der Waldemar-Schlacht in seiner ursprünglichen Gestalt beschauen können; die Kriegergerippe werden in ihrer natürlichen Stellung nebeneinander angebracht werden. So weit als möglich werden die Skelette Ihre Rüstungen tragen und mit den gefundenen Waffen versehen sein.”

The public has usually shown a keen interest even in the exhibitions, which have been organized on different occasions for the purpose of showing the result of the excavations. Mention has already been made of the small exhibition of the older finds which was organ-



Fig. 72. Common Grave 4. On the right, at a slightly higher level, a child's skeleton deposited later.

ized in 1928⁸⁴, and which attracted so great a public that it often almost overfilled the exhibition room where the finds were on show. The finds were transferred afterwards to the Museum at Wisby, where a permanent show has been held ever since. In the following year, 1929, the Danish National History Museum in Frederiksborg Castle asked permission to organize a similar exhibition⁸⁵. This was arranged by Doctor Nörlund and myself, and on this occasion some of the most remarkable finds from the 1928 campaign could also be included, besides some other material, illustrating the finds and their positions (fig. 75). From the beginning the number of visitors exceeded all previous records for the Museum. A fresh exhibition of several armours which had been mounted was organized during the year 1930 in the National Museum of Antiquities at Stockholm.

The work of dealing with the finds, and especially the very tedious reconstruction of armour, called for a good deal of time. In the beginning of 1935, however, it had proceeded so far that the management of the Museum considered themselves in a position to present to the National Museum at Copenhagen, as recompense for the aid given by the latter, a selection of the finds, which are of just as much interest to Danish as to Swedish history. With the consent of the Swedish Government the suits of armour Nos. 5, 9 and 20 were sent to the Danish National Museum, as well as a coif of mail (figs. 91, 92), and some

lamellae and parts of mail of interest merely for purposes of study. Upon this occasion the National Museum also expressed a desire to be allowed to hold an exhibition of all the mounted armour and other more remarkable finds, as well as the huge silver treasure from Dune (p. 29), which had probably been deposited because of the Danish invasion of Gotland, in 1361. The loan was granted and the big exhibition took place in June 1936, in a



Fig. 73. Spectators at the 1930 excavations.

particularly imposing form, arranged by Doctor Nörlund.⁸⁶ As soon as the new building for the Swedish National Museum of Antiquities, which is in course of erection, is ready, a separate hall will be devoted to the finds from the common graves.

During the first excavations at Korsbetningen the idea was formulated in several quarters that the skeletons from the common graves, should, after they had been studied, be restored to the spot where the fallen warriors had originally been buried, and deposited in a mausoleum which should be



Fig. 74. Prof. P. Post, of Berlin, and Dr. E. A. Gessler, of Zurich, studying the shirt of mail *Vax 6* in the 1929 excavations.

erected close to the memorial cross. This pious and reverent consideration for those who gave their lives in the defence of their native land, has since been repeatedly mooted. I believe it to be fortunate that it was not carried into effect in the form that was suggested at first; the simple medieval cross, with its noble form and its brief inscription grips one's heart in a way that any latter-day mausoleum would be quite unable to do. But we must

feel profound sympathy for the idea behind the suggestion, and I trust and hope that all skeletal parts, which are not of immediate scientific importance, will be deposited in a subterranean vault below the cross. These remains constitute not only archaeological or anthropological material, they are also precious relics, and as such are indissolubly bound to the soil which has been saturated with the blood of the fallen warriors.



Fig. 75. From the exhibition of the Wisby finds in 1929 in the Danish National History Museum at Frederiksborg.

CHAPTER III.

THE FINDS.

HOW DID THE FINDS GET INTO THE SOIL?

The bulk of the contents of the common graves consisted of skeletons of the warriors who had fallen in the battle. In comparison with these the remainder of the finds were trifling as to their quantity, although—as has already been pointed out—proportionately more numerous in common grave 2 than in common graves 1 and 3, the latter being practically devoid of finds in the form of objects.

The majority of the finds accompanied the corpses when they were thrown into the burial pits. This must be considered as applying not only to the greater number of armour and mail garments but also to other parts of garments, such as buckles and spurs. Very likely many other objects also got into the soil in the same way, e.g. coins which were carried in the pockets or garments, or knives and arrow-heads, several of which have been found in positions that suggest that they must have penetrated the body of a fallen warrior. But, on the other hand, sundry things clearly must have been thrown into the burial pits purposely, without having been attached to any corpse. Thus none of the gauntlets found were on the hand, and some of the armour must also have been thrown in empty. Finally, a few objects and also some skeletal parts of human beings and animals (see pp. 76, 197) may have been in the soil with which the graves were filled in, and in this way have got in unintentionally. In such cases they may, of course, have belonged to a much earlier period than that of the battle.

It is really most astonishing that so much armour and other things have been buried with the fallen warriors. Great battles have, of course, been waged almost everywhere, and common graves in which the fallen have been buried, have been found elsewhere, but finds like those from Wisby have, as far as I know, never been discovered before, and one wonders whether this is due to chance or if the contents of the Wisby graves are really exceptional.

It is probable that the latter explanation, at least to some extent, is correct. From contemporary records we find that the corpses of more prominent warriors were taken charge of and buried separately in churches and convents, but also that the corpses left lying on the battle-field were exposed to the depredations of robbers and marauders, who appropriated anything they could find. A French miniature from the 15th century (fig. 76), which has been kindly placed at my disposal by the owner, Professor R. Forrer, of Strasbourg,

shows in a very striking manner how the corpses were completely stripped of their clothing before being laid in the graves.⁸⁷ This certainly seems to be the most natural way; coifs, gauntlets and armour were expensive things—why, then, should they be thrown away? And it was not only such things that were allowed to follow the dead into the grave at Wisby. We see from preserved buckles, spurs, coins and other things, that even garments



Fig. 76. Mass-burial after a battle. French miniature.
In the possession of Prof. R. Forrer, Strasbourg.

which subsequently decayed altogether, remained on the corpses, to some extent; for the occurrence of coins, for example, can only be explained by their having been concealed in the clothing.

But on the other hand, we must not either exaggerate the amount or the proportion of armour. Several of the reconstructed specimens consist in fact of only a few fragments and something like twenty almost complete sets of armour are really not a very large percentage of twelve hundred dead. But the fact remains that no other similar finds have

been made. The only explanation that I can suggest is that, for some reason or other, it was some time before burial could take place. Perhaps it was a day or two after the battle before the town surrendered; perhaps the billeting of the foreign warriors prevented the townspeople from taking charge of the burial formalities at once, and there was certainly no permanent population outside the wall at that time, except the nuns in the Solberga Convent.

Besides, the battle was fought in the middle of summer, on the 27th July, and not very much time need have elapsed before the corpses were in such a condition that they could hardly be stripped, and, in any case, nobody wanted to strip those which were in a very bad state of decay. This may very well suffice as an explanation why some of the armours were allowed to accompany the dead to the grave. But several of them lay in the grave without surrounding any skeleton, and had, therefore, been thrown in empty, as had also the gauntlets and some of the coifs. We must remember that even worn armour possessed considerable value; why was care not taken of it as in the case of the broken weapons? None of these were allowed to follow the dead into the grave. The only explanation for this is that everything was done in a great hurry.

DISTRIBUTION OF FINDS.

The curious fact that nearly all the armour was found in common grave 2 has already been discussed (p. 81). If we further examine the distribution of the armour within the vast surface of the grave, we shall find, to start with, that the centre portion is relatively lacking in finds (fig. 77). This is probably because the positions of the finds from the older excavations which touched this very area, are not exactly known. If we were able to insert these finds in their proper places, the distribution would probably be fairly even over the whole surface. What is more peculiar, is that armour of the same type has to some extent been found close together. Thus the armour of type I is concentrated in the eastern part of the grave, where, on the other hand, none of type II occurs; but all these, as well as three suits of type III, akin to the former, come from the western part of the grave, while armour of type IV—V tends to be more towards the centre although lying in the western part of the grave. It is only the lamellae finds that are distributed throughout the grave. The question is whether any importance should be attached to this circumstance. Might it not be feasible that different detachments had different types of armour and that warriors with similar equipment fell close to each other, and thus came to lie close together in the grave? I must confess that I consider this improbable, and that I am inclined to attribute the distribution of the armour to chance, but this is only because I am unable to find a more credible explanation.

SURVEY OF THE VARIOUS FINDS.

The most remarkable finds in the common graves, from an archaeological point of view, consisted of the coats of plate and lamellar armour. There were twenty-five armours sufficiently well preserved that the main features of the construction could be defined, and

which consequently could be mounted. These armours are the subject of detailed descriptions on pp. 345 ff., and their more general aspects are dealt with in Chapter 5. To these must be added sundry separate plates or minor agglomerations of such belonging to various armours which are described on pp. 405 ff., which we do not propose to deal with in this chapter. Also the gauntlets, of which three are nearly complete, as well as several major and minor fragments of others, are of such extent and importance that detailed descriptions have been devoted to them on pp. 414 ff., and a separate comparative description in Chapter 6. On the other hand, there are a few other parts of armour plates for the protection of the extremities, to which we shall revert in this chapter.

Supplementing this armour, and, in the majority of cases, altogether replacing it, shirts of mail were worn. Several such have been found, but only two of them in such a condition that they could be preserved as a whole. A coif of mail was worn on the head. Nearly two hundred such coifs have been found, though the majority of them were completely in pieces when uncovered. On the other hand, many of them belong to the chief finds from the common graves. Over the coif, a helmet or iron hat was certainly often worn; though none, either whole or in fragments, have been found, obviously because it was easy to remove them from the corpses.

Of the cloth garment worn under armour, there remain only the buckles. These have been found in large numbers, occasionally lying in pairs in the pelvis. On the other hand, neither hooks nor buttons which might be imagined to have belonged to the garments have been found. Some rivet-like bronze buttons very likely belonged to belts. Also some belt-mounts of other types have been found. Three spurs were still on the heels of the skeletons. These are of particular interest, because they show that some of the warriors that fought in the battle were mounted.

Only a few pieces of jewellery were found, which was quite natural; among them was a silver ring with an inscription, which was still on the finger of the skeleton, and three beads of various materials. The latter, I think, probably did not belong to the dead, but got into the grave with the filling-in soil. This might also apply to the coin found singly, but on the other hand, hardly when several were found together, as for example, one find which consisted of no fewer than 385 coins in the remains of a leather pouch. As has already been pointed out, it is clear that these coins were in the garments of fallen warriors and accompanied them into the grave unnoticed by those who attended to the burial. They thus constitute—especially the big find—further very palpable evidence of the hurry and carelessness which characterized the work of burying the dead. It is also conceivable that the dead carried on their persons the keys which have been found, of which there are quite a number, and possibly also a long bronze needle with an eye. Still, I rather think that this was lying in the soil and belonged to the nuns who lived on the spot. This is confirmed by similar needles being found during the excavation of the convent. The same also applies to a spindle-whorl of stone.

Besides their head-gear and wearing apparel (with what it contained), the warriors were equipped with shields and weapons of attack. No trace whatsoever of shields has been

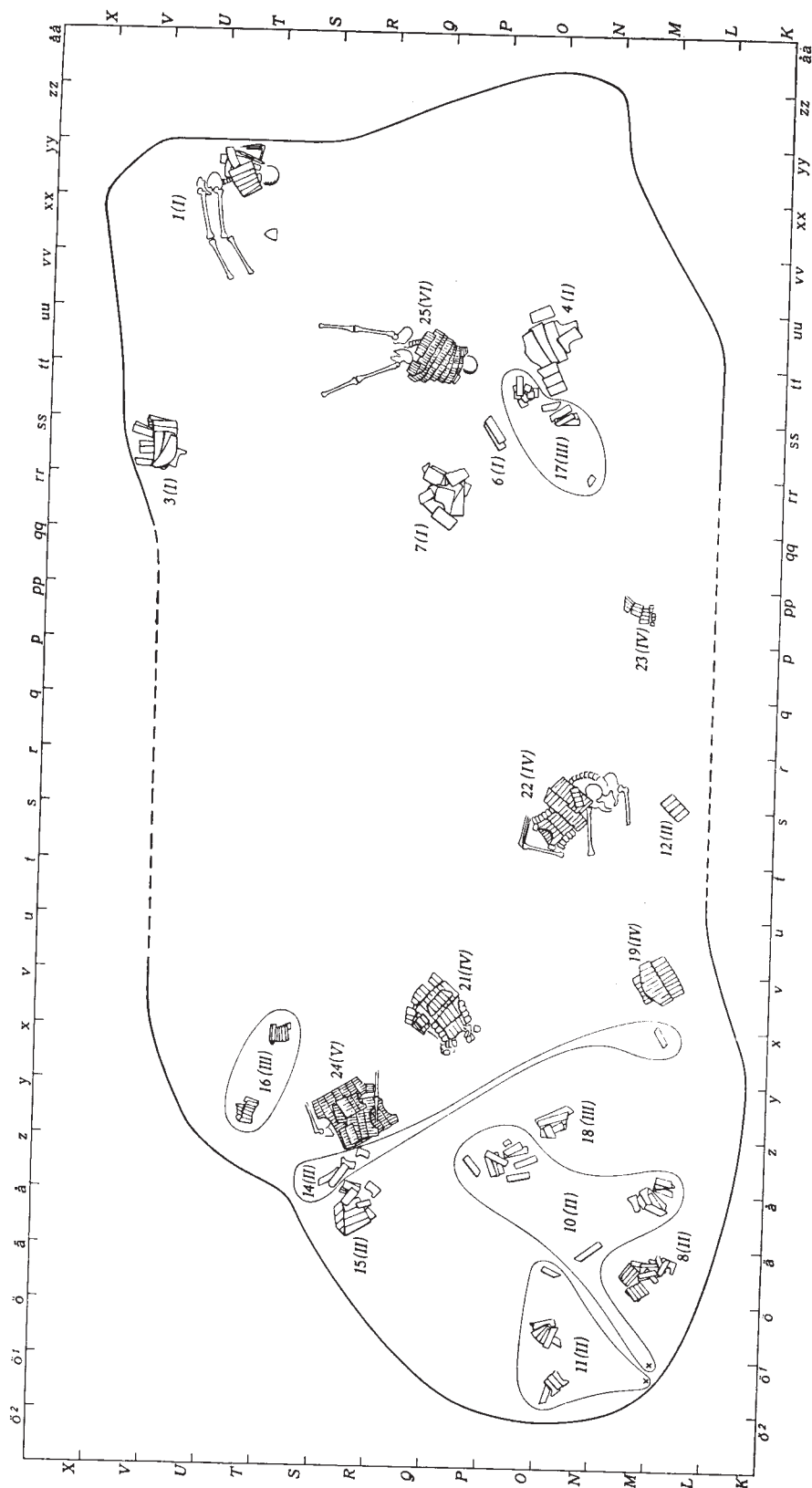


Fig. 77. Distribution of armour finds in Common Grave 2.
The number of each armour complex (in Arabic numerals) and its type (in Roman numerals in brackets).

found, and very few weapons. This is quite natural, since it was an easy matter to take them off the corpses. But if one takes into consideration that a good many armours and gauntlets must have been thrown into the grave empty, it is strange that not even any fragments of bigger weapons and shields accompanied the rest. The smaller weapons, such as knives, may have belonged to the dead warriors; others may have entered their bodies, for instance, arrow-heads, lance-heads, and iron spikes of maces, and, of course, knives as well. Only one weapon—if it is a weapon—cannot have accompanied the corpses in this way; two iron bars, held together by a ring, which might have been used by a peasant in the battle as a casual weapon.

With regard to the horse-shoes, one would, at first, be inclined to assume that these, too, belong to the category of objects which went into the graves with the soil used for filling, and that, therefore, they had been lost on the spot before. But their comparatively considerable number—three whole ones and three half ones, as well as a small fragment—make one hesitate to assume such a thing. It seems improbable that in a confined area, close to, and probably inside the walls of a nunnery, so many horse-shoes should have been lost. The assumption is also contradicted by the discovery of two of the shoes on top of one another; though no safe explanation of this position can be given. Perhaps one of the mounted men carried with him two spare horse-shoes tied together, and these afterwards went into the ground with the corpse. A similar explanation may also apply to the other horse-shoes. Some of them may also have been lying about on the battle-field and by chance accompanied the corpses when they were conveyed to the burial pit. That the warriors carried horse-shoes as a sort of mascot, is an explanation to which one does not wish to resort until everything else fails. Besides, the horse-shoe mascot, according to popular tradition, must always be firmly fixed.⁸⁸

Finally, there only remains for us to mention some sporadic objects of different kinds which may very well have been already in the soil indicating the proximity of human settlement before the laying out of the graves. These consist of a small prehistoric chessman made of an animal tooth, a tooled flint point from the Stone Age, some fragments of medieval pottery, some nails and fragments of glass, roofing-tiles and mortar. A padlock belonging to the finds from the 1912 excavations does not, perhaps, come from any one of the common graves but from the excavations carried out for the purpose of exposing the convent buildings. It should be made clear that we cannot always be certain that the finds from the years 1905, 1912 and 1924 (denoted by the letters A—D and an ensuing figure) may not be mixed up to some extent with finds from the convent area.

Above we have dealt with the various categories of the finds and will pass on to a closer study of them.

MAIL COIFS.

During the excavations we were very worried about the numerous mail coifs. They were usually so very much destroyed by rust, that, when uncovered, they looked like a

layer of rust-coloured coarse gravel, which disintegrated on being touched. In the cases where there were the slightest prospects of preserving them, they were soaked on the spot in paraffin wax and surrounded by gauze bandages, some of them in this way being salvaged at the Museum's laboratory, while others could not be saved even by this method. Occasionally coifs were also found which were so strong that no measures for reinforcing them had to be taken. The rings were always so firmly rusted together that the folds could not be straightened out. Amongst these coifs were some crania, encased in their iron shells, which were so expressive aesthetically that one can never forget them: there is something of the war demon about them—a violent force which would be far too exaggerated if it had been made by the hand of man.

As regards the number of coifs, several reasons make it impossible to give precise figures. Large quantities of fragments of mail were found during the earlier excavations, and the number of coifs of which they formed parts can only be guessed. It was also often impossible to decide if the lumps of mail formed parts of coifs or of some other garment of the same material, such as shirts, breeches or gauntlets. An estimate of the number appears to be something like this:

<i>Grave 1</i>	about 20
<i>Grave 2</i>	
From the 1912 excavation	about 19
From the 1924 finds	» 4
From the 1928—30 excavations, VIII	13
» » » » , IX	1
» » » » , X	4
» » » » , exactly localized	118 or about 159
<i>Grave 3</i>	6
	<hr/> Approximate total 185

The proportion between the number of coifs and the number of individuals in the three graves, is as follows:

Grave 1	7.5 %
Grave 2	19.5 %
Grave 3	5.0 %

The number of coifs which accompanied the dead into the grave is, therefore, proportionately much greater in grave 2 than in the other two graves. One may ask whether this difference may be due to the difference in the proportion of the number of individuals fit for military service in grave 2 in relation to the two other graves (see p. 159). If we estimate the number of coifs in proportion to the number of individuals fit for military service, we obtain the following figures:

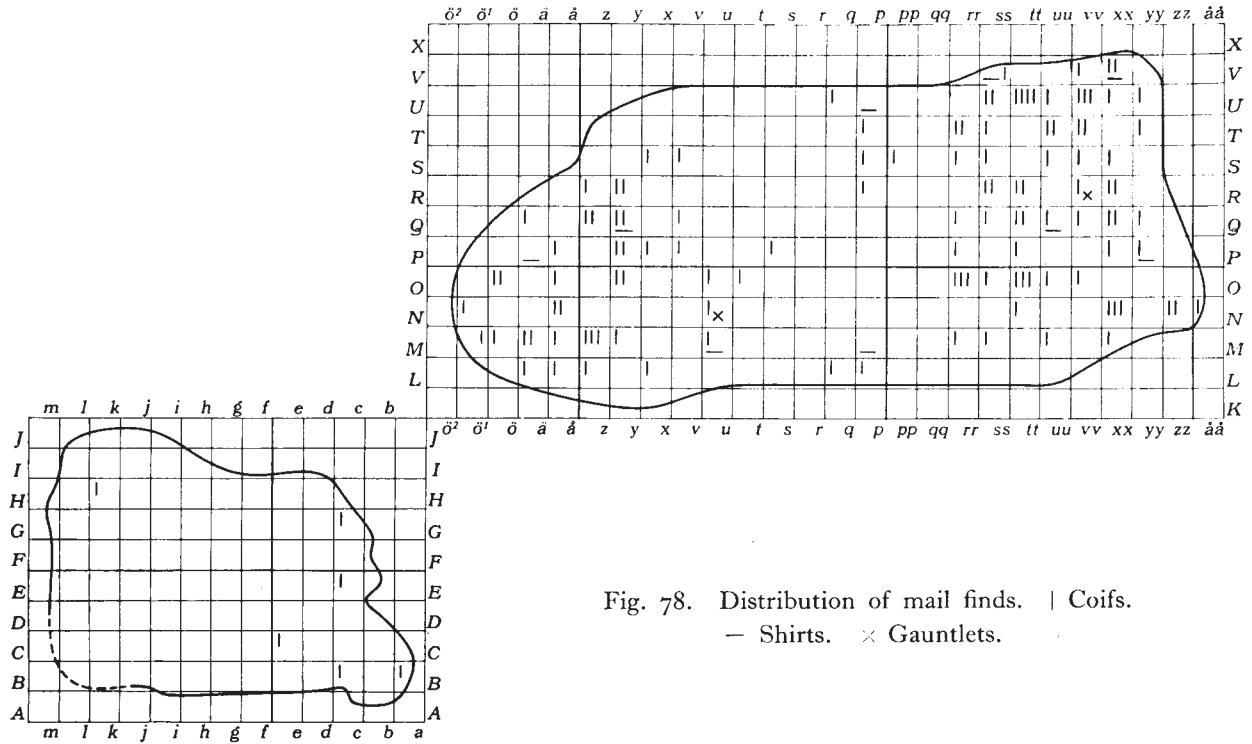
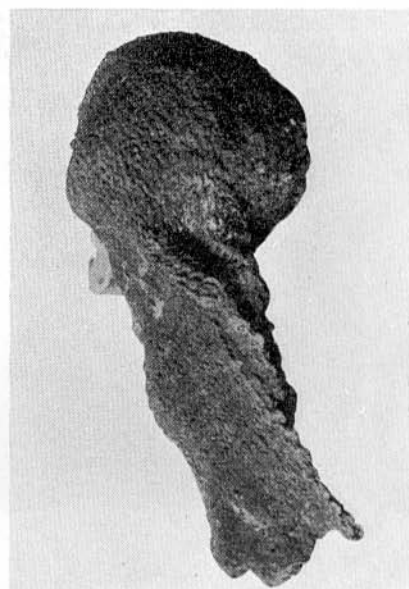
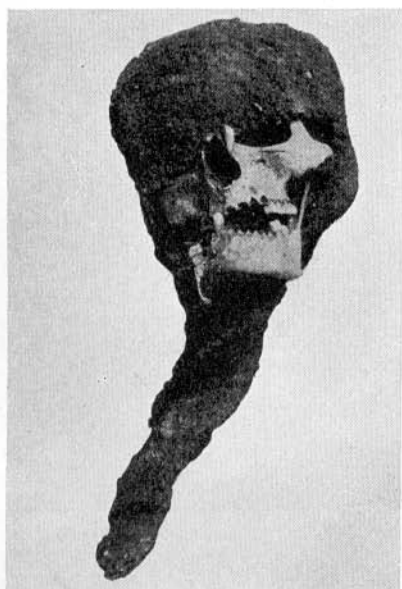


Fig. 78. Distribution of mail finds. | Coifs.
 - Shirts. x Gauntlets.

Grave 1	14.0	%
Grave 2	24.9	%
Grave 3	11.1	%

The proportion has then levelled itself out a little, but there is still a considerable preponderance in favour of grave 2, especially in comparison with grave 3. Expressed in another way, in grave 2 every fourth man fit for military service has been allowed to keep his coif, but in grave 3 only approximately every tenth man has worn his coif on being cast into the burial pit. This may be interpreted in two ways. If we assume that the number of coifs found on the whole is in proportion to the number of coifs worn in battle by those fit for military service, that part of the fallen warriors which was thrown into common grave 2, i.e. mainly Danes, must have been better equipped with coifs, and consequently, as a rule better equipped and armed than those who are lying in graves 1 and 3. But it is very uncertain whether this assumption can be considered as correct; it is also possible that more of those in graves 1 and 3 have been deprived of their coifs than in grave 2. This agrees with other observations regarding the hurry and carelessness with which the corpses were deposited in grave 2 (see p. 95). I therefore presume that the difference in the number of coifs is mainly due to these circumstances, which, of course, does not prevent the possibility that the better equipment of the Danish army may also have been a factor.

As regards the distribution of the localized finds, reference should be made to the plan (fig. 78). To this need only be added that of the six coifs in common grave 3, five belong to

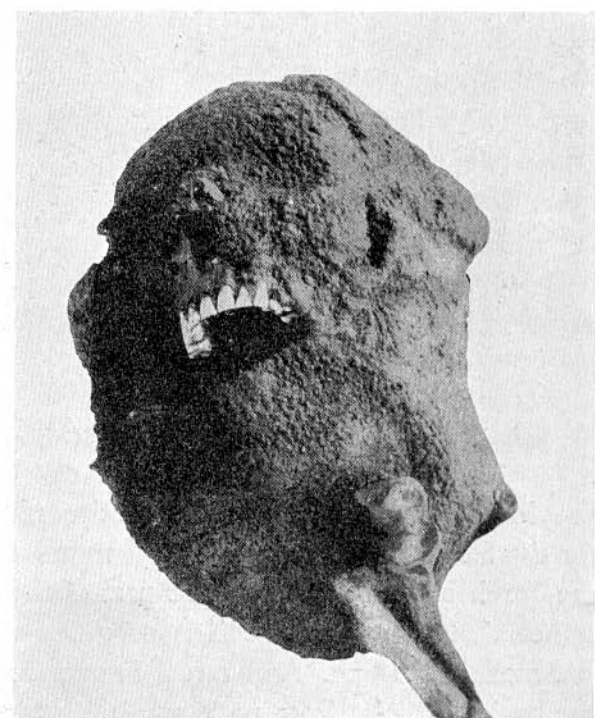


Figs. 79—81. Coif of mail.
Regn. no. *A 2*.



Figs. 82—85. Coifs of mail.

Fig. 82, regn. no. *Tuu* 6; 83—*Mö* 1; 84—*Svv* 5; 85—*Oss* 7.



Figs. 86—89. Coifs of mail.

Fig. 86, regn. no. *Oö 4*; 87—*Tuu 4*; 88—*VIII: 10*; 89—*Oå 1*.

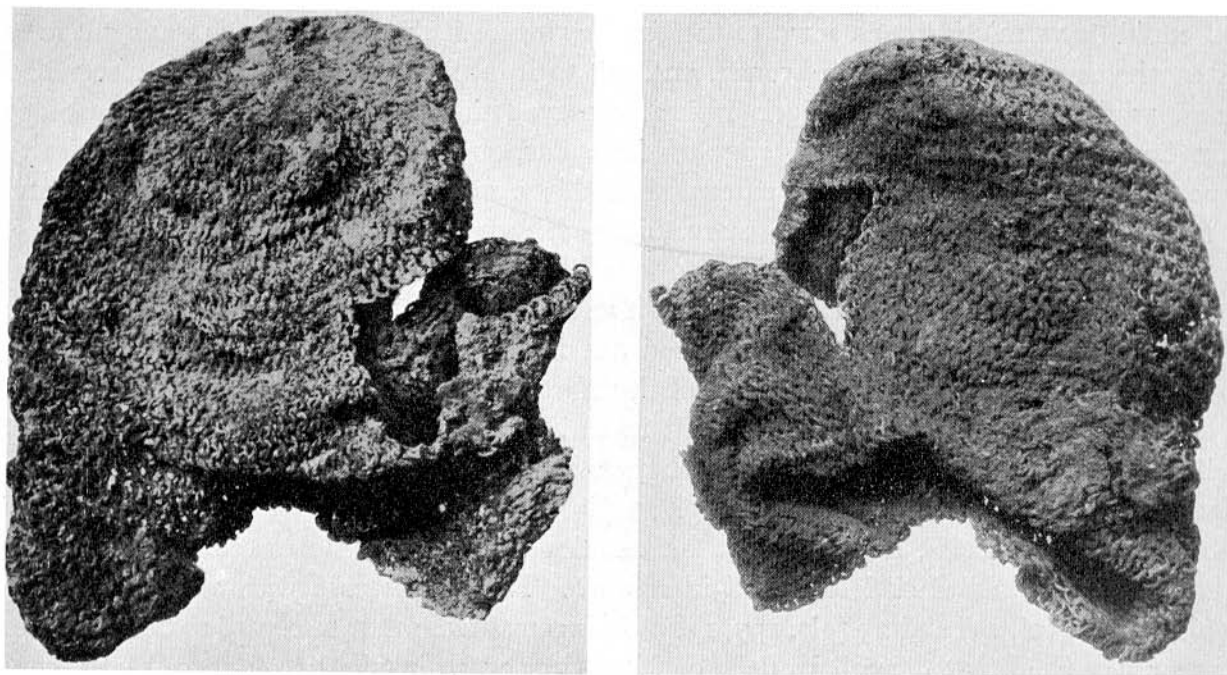
burial II and one to burial IV. In grave 2, the plan should illustrate an approximately even distribution over the common grave, if we consider that the forty-one finds from 1912 and 1924, and from the burials VIII—X, not noted in the squares, may be assumed to have come from the area in the centre apparently devoid of finds.

As far as could be ascertained all coifs are of the same type, wholly consisting of mail,



Fig. 90. Coif of mail. Regn. no. VII: 10.

provided at the bottom with a collar drooping down over the shoulders, and with the opening for the face straight at the top and rounded at the bottom, this opening being so small that the forehead, chin and greater part of the cheeks were protected. It is a peculiar circumstance that not a single coif is provided with a basinet which at this period was so very common in Europe. As far as I know, there are very few examples of loose coifs without the basinet on the Continent, while, on the other hand, it is more common for coifs made one with a shirt of mail to lack the steel basinet. In England and in the Nordic countries the type without basinet seems to have been more often in use⁸⁹, and it appears as if it had



Figs. 91, 92. Coif of mail (empty). Regn. no. *B XVIII*.

been retained longer in the North than elsewhere. The occurrence of only this type of head-guard in the Wisby graves helps to strengthen the impression of a certain backwardness which the armour finds also suggest in other ways (see pp. 244, 327), but it may also be that coifs of this kind were, as a rule, still worn by the rank and file, while the effigial material almost without exception makes us acquainted with the equipment and armour of knights and princes. Characteristically enough, on his tombstone in Roskilde Cathedral Duke Christopher of Denmark, who took part in the Battle of Wisby of 1361, and who died two years later, wears a coif with a modern basinet (fig. 107).

It is noticeable that in many cases certain parts of the coifs are made of bronze instead of iron rings, but only in the case of one coif could the pattern formed by these bronze rings be followed in its entirety. Unfortunately, this coif (*A 43*) is not amongst the best-preserved, but it is clear that the bronze rings are running three in breadth and form a circle whose diameter now appears to be about 20 cm. because of its present folds, but which originally must have been wider. The front part of this circle forms the upper edge of the opening for the face, and continues round the crown of the head. The same arrangement can also be traced on another coif and reminds one of the band which in a similar manner often surrounds the coif on contemporary effigies. This band very likely originally served to retain the coif in its place, so that it did not slide about the head in a disturbing way, but one can see that, at the same time, it served a decorative purpose, and was occasionally richly ornamented. Perhaps this circle of bronze rings is to be regarded as the simplified remains of this decorative band.⁹⁰ It may, however, also have served some practical purpose, if we consider that the inside lining or cloth skull-cap (without which no mail

coif could be worn) had been sewn to the bronze rings. It must have been of advantage to fasten the threads or strings to bronze, and not to iron, for any rust on the latter spoiled them, while any possible verdigris rather preserved them. On other coifs bronze rings have been noticed near the lower edge of the collar, and in some instances they seem to have formed a diamond-shaped pattern, but this cannot be maintained with certainty.

Many of the coifs are certainly preserved in such a way that their appearance is effective, but, because the folds are rusted fast into twisted positions, they cannot admit of detailed observation or study as to their construction and size. This is possible in only one case; a coif (*A 2*), which has its collar stretched out fairly straight (figs. 79—81). It is about 20 cm. long, measured from the chin, and therefore did not fall so very far over the chest. It can also be seen that the collar has a slit 10 cm. deep on the left side. Another extremely well preserved coif thrown empty into the grave (*B XVIII*⁹¹), seems to be still shorter, though no precise measurement can be given (figs. 91, 92).

As regards the coifs, it should also be mentioned that in some cases they have been found on the crania of skeletons clad in armour. This is the case with armour 1 (pl. 6), 3 (pl. 15: 1), 4 (pl. 23) and 25 (pls. 137, 138). It is remarkable that in regard to the two latter it was ascertained that the collar of the coif had been worn inside the reinforced coat, contrary to what contemporary effigies usually show. How the coifs were worn with armours 1 and 3 is not apparent from their position.

SHIRTS OF MAIL.

In some instances parts of mail of such dimensions occurred that they could not very well have been coifs. In common grave 1, two or three such finds were made (*B II*, *B XIX*, *B XX*; possibly the two latter pieces, though packed in different cases, belonged to one and the same find); and in common grave 2, ten, of which one from burial X was not localized to a square. In common grave 3, no piece of mail of such size was found. The plan (fig. 78) shows their extent in grave 2; the majority were found near the edges of the grave. We named these finds 'mail shirts', even if it could not be proved in each case that they really formed parts of such. For these large pieces were as a rule completely disintegrated, and even if they still held together on being uncovered, they had been thrown into the burial pit in such a fragmentary condition that they did not now show any details of interest. There were two exceptions to this, of which one is of a quite notable kind.

This shirt (*Vxx 6*) was found on a skeleton which was in a sitting position (fig. 93). The lower part of the shirt had been pulled up so that the pelvis and the five lowest vertebrae were exposed. The left arm lay extended obliquely downwards, the right upper arm likewise, while the lower arm was bent at an acute angle outwards. When it was uncovered it presented a very vivid picture of the shirt, and, thanks to meticulous preparation and bandaging (fig. 59), we succeeded in lifting this unique object and conveying it to the museum laboratory, where it has been preserved by filling the inner cavity with plaster of Paris, after which paraffin wax was melted into the mail fabric.⁹² The shirt itself is very short.



Fig. 93. Shirt of mail *in situ*. Regn. no. Vxx 6.

A measurement made on the front, from the neck-opening to the bottom edge, attempting as far as possible to follow the folds, gives only 31 cm. This means that it would only have extended to the pit of the stomach of a man of normal height; but probably it was really somewhat longer. The lower part of the sleeves fits more tightly than the upper part, this being especially noticeable in the left arm. This agrees very well with the mail shirt which is reputed to have belonged to Duke Leopold III of Austria, who fell in the Battle of Sempach, in 1386, and which is now in the collection of the Town Hall of Lucerne. The dating of this remarkable garment thus gets a significant confirmation.⁹³ The sleeves are continued into gauntlets (see below p. 230). Unfortunately, it cannot be decided with any certainty whether the shirt was provided with an attached coif. Through displacements in the grave during its settling, the cranium with its coif may have come to lie some distance from the shirt, and a couple of fragmentary coifs, one of which might have belonged, were found within the squares nearest to the one where the neck-opening was found. It should also be noted that the neck-opening when uncovered did not show an even edge, but an

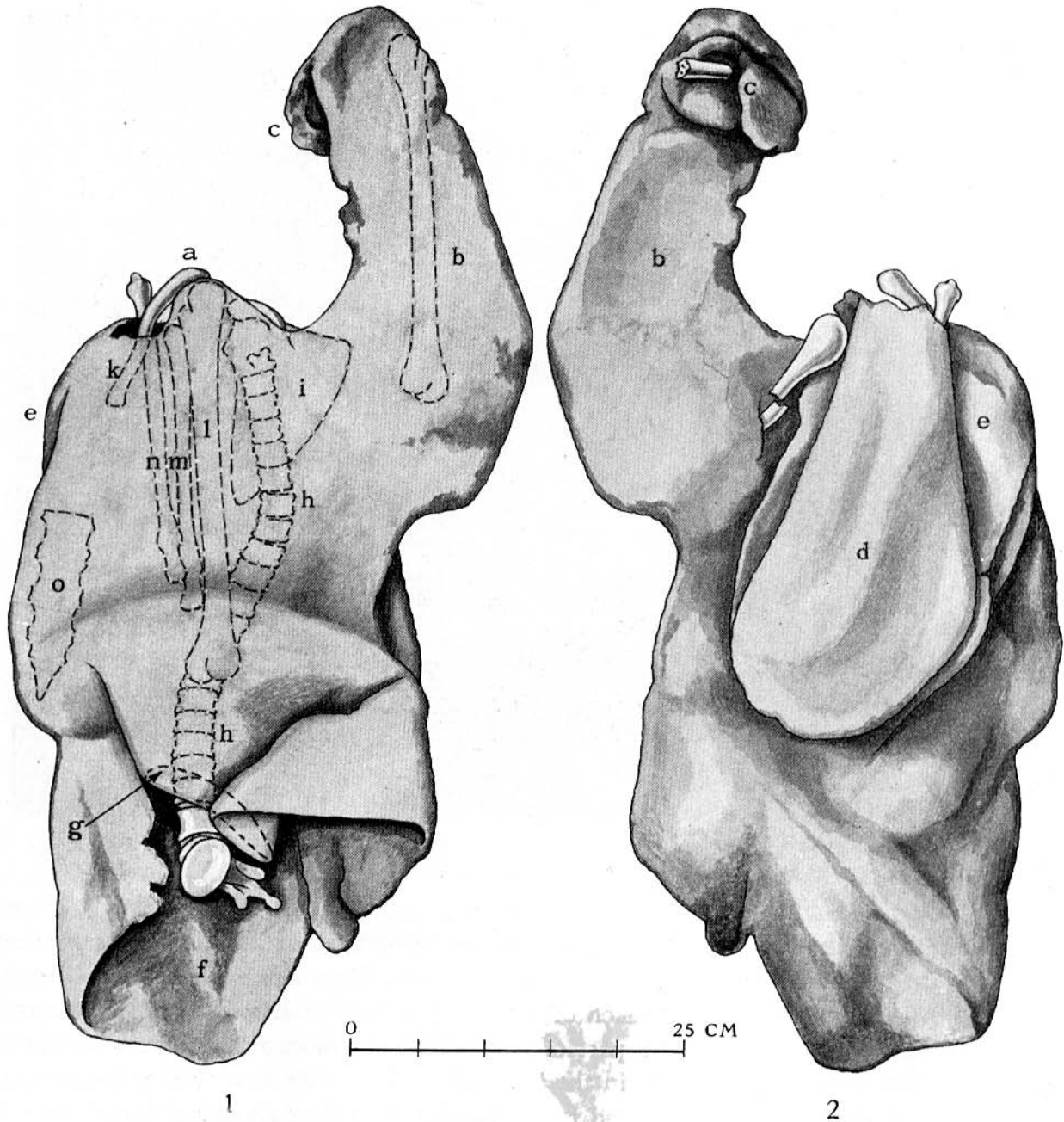


Fig. 94. Shirt of mail. Regn. no. *Vss 13*. Scale 1:5. Cf. pl. 17: 2.

1. From above, showing front and left side. 2. From below, showing back and right side.

(a). Neck-opening with right clavicle and shoulder-blade, partly protruding through it. (b). Left upper-arm (with humerus) stretched upwards. (c). Fragments of left forearm which pointed straight down into the grave. (d). Right forearm which lay doubled up below the back. (e). Right upper-arm and shoulder. (f). Lower opening of shirt with lumbar vertebrae protruding. (g). Part of bottom edge, turned in. (h). Backbone. (i). Right shoulder-blade with coracoid process protruding through neck-opening. (k). Right clavicle. (l). Right humerus. (m). Right radius and (n). ulna—inside the sleeve of right forearm (d), through the wrist-opening of which the lower part of the ulna protrudes. (o). Sternum.

uneven, broken one, this, however, cannot be considered reliable evidence, since it might have been damaged even if the collar did not continue into a coif. Some portions of the mail fabric consist of bronze rings, but it could not be seen what kind of pattern these had formed.⁹⁴

The other shirt (fig. 94), which was in such a condition that it could be more closely studied (*Vss 13*), lay directly below armour 3 (pl. 17: 2), with which it had, however, no connexion whatsoever. In this case, too, the shirt clothed a skeleton which showed that the man had been lying on his back in the grave. The bottom edge of the shirt could be followed fairly clearly, and two vertebrae protruded from the opening. The width at the bottom was estimated at 1.45 m., which is a considerable size. The lower part of the shirt appeared to have been twisted somewhat to the left. The left upper arm lay stretched straight up-

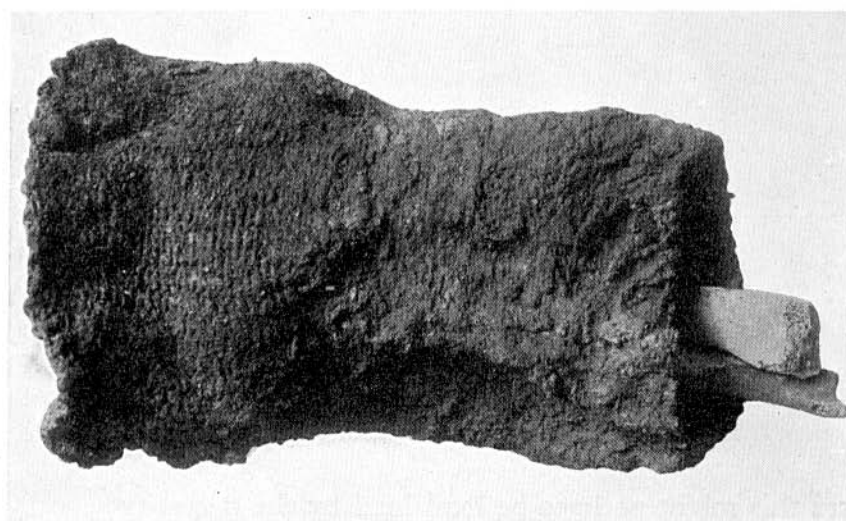
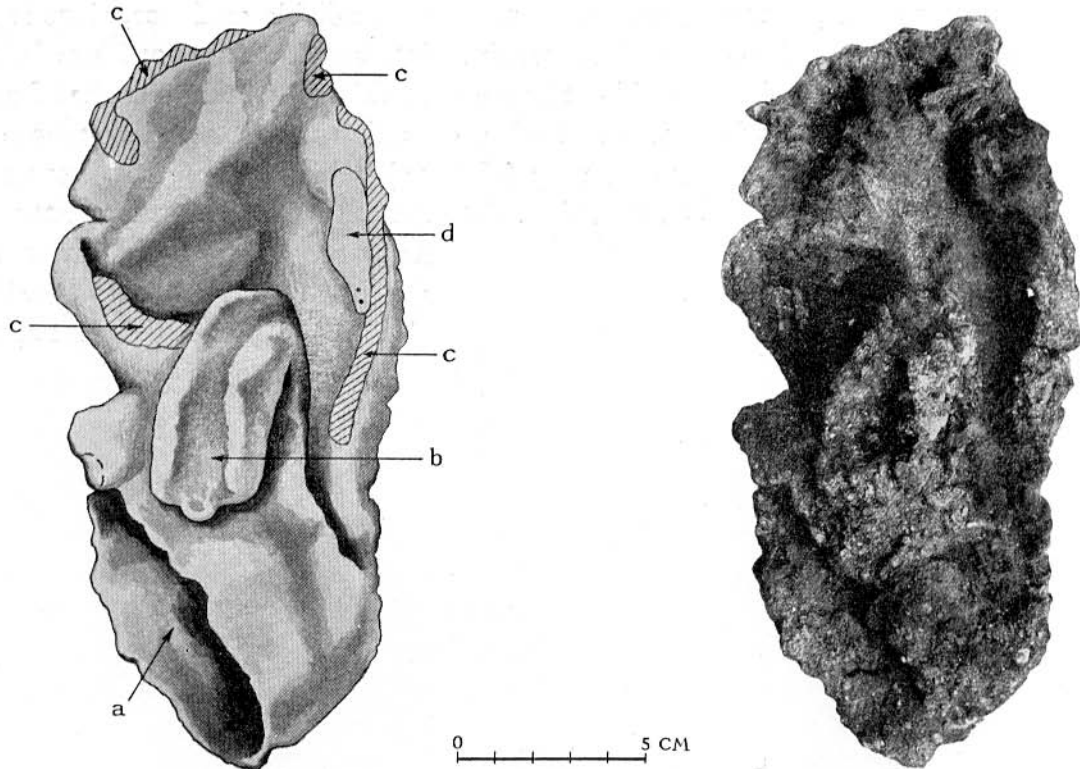


Fig. 95. Sleeve of mail. Scale about 1:3. Regn.no. A 38.

wards. The lower arm was totally destroyed. The right clavicle protruded through the neck-opening. After the upper side of the breast had been paraffined and reinforced, the whole could be turned over, and this was done without mishap. It was then found that the right arm lay doubled up below the back, with the hand beneath the right shoulder. The lower sleeve was not quite so tight as in the preceding shirt, but grew narrower towards the wrist. Whether gauntlets and coif had been attached cannot be decided with any certainty, although this is not likely. This shirt may have been rather longer than the preceding one; various measurements taken from a point at the top of the shoulder to the bottom edge, show 50—54 cm., and the distance from the arm-holes to the bottom edge is 35—36 cm. But these measurements indicate that this shirt also was very short. No bronze rings have been observed. The whole thing could be conveyed to the museum in a fairly undamaged condition. But unlike the previous shirt, this has not turned out to be an exhibit of any very great value.

Here it should be pointed out that a shirt has never been found worn with a coat of plates, though this, to judge from the contemporary effigies was the rule during the 14th century.



Figs. 96, 97. Mail gauntlet. Regn.no. *Nu 2*. (a). Opening at wrist. (b). Thumb turned down. (c). Bronze rings. (d). Leather fragments with two needle holes.

In some measure this might perhaps be explained by the necessity of the Gotlandic army to husband its resources. When every man had to join up, circumstances may have made it necessary for the armour and weapons to be divided amongst the largest possible number.

Further examples of mail are one loose sleeve (*A 38*, fig. 95) and parts of two others (*B XVIII*, *B XIX*), all of them covering the ulna and radius. It is possible that these are fragments of shirts, but in the former, it appears that the rows of links were finished off near the elbow. It is by no means unlikely that a cloth or leather surcoat was sometimes provided with sleeves, and perhaps also a collar and mail coif.⁹⁵ If it was meant to be worn beneath plate armour, the body required no further protection.

MAIL GAUNTLETS.

Finally, there have been found one, or possibly two, loose gauntlets of mail. The best preserved of these (*Nu 2*, figs. 96, 97), probably for the left hand, gives us a very good idea of the construction

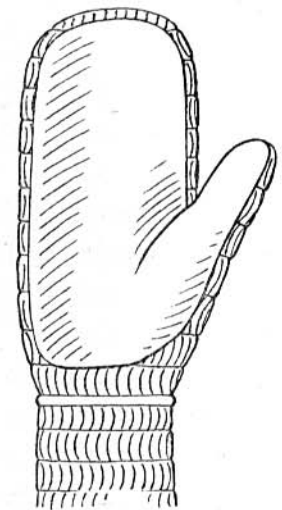


Fig. 98. Mail gauntlet on the sculptured figure of the Pfalzgraf Rudolf. Formerly on the Kaufhaus, Mainz.

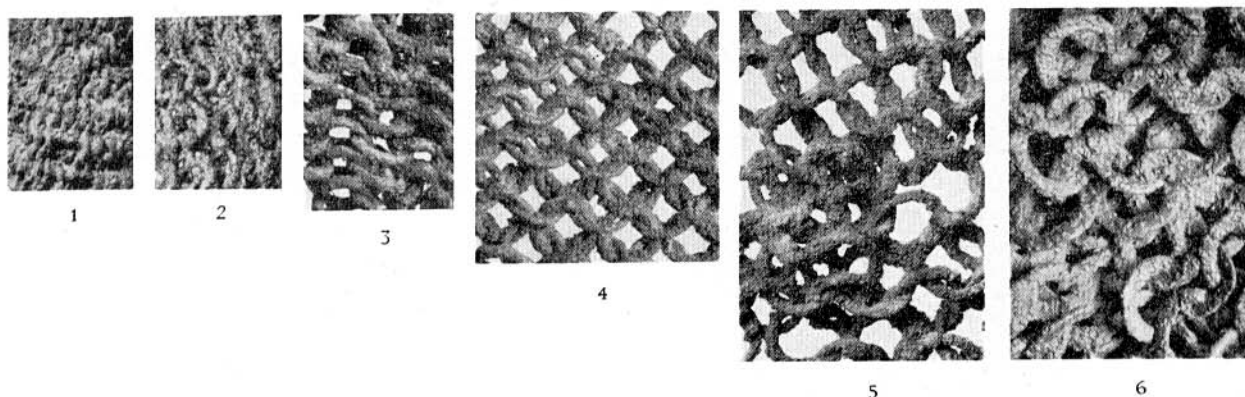


Fig. 99. Different types of iron mail. Scale 1:1.

of the gauntlet. The mail covered the whole outside of the hand, and continued round the wrist in a band from which the thumb grows. The edges round the palm of the gauntlet are made of bronze rings, with traces of leather on them; the palm of the hand had obviously been protected with leather, as is occasionally seen on contemporary effigies, e.g. the relief effigies of the Count Palatine on the Rhine (fig. 98) and the Archbishop of Cologne on the Kaufhaus at Mainz.⁹⁶ Whether the mail for the thumb was conical, so that the digit could be inserted into it, or whether it was lined on the inside as it is on the effigies, cannot be clearly distinguished. The greatest length is 21 cm., the greatest breadth right across the hand 13 cm.

MAIL TECHNIQUE.

The size of the rings varies a great deal in the different objects which are made of mail. The diameter of the majority is probably about 0.8—1 cm., but rings also occur from 0.4 cm. in diameter to 1.7 cm (fig. 99). Even in different parts of the same garment, rings of different sizes occur. The wire of which the rings are made, also varies greatly; the section is usually round, but even oval and greatly flattened sections (fig. 99:6) occur. The bronze rings especially are often made of very thin wire (fig. 100). As regards the method of manufacture, it is, unfortunately, only possible in exceptional cases to make any detailed

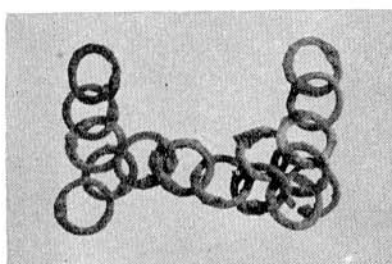


Fig. 100. Bronze mail.
Scale 1:1.

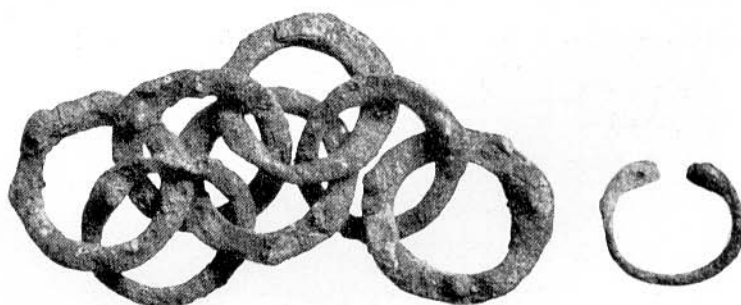


Fig. 101. Riveting on mail rings. On the left, iron; on the right, bronze. Scale 2:1.

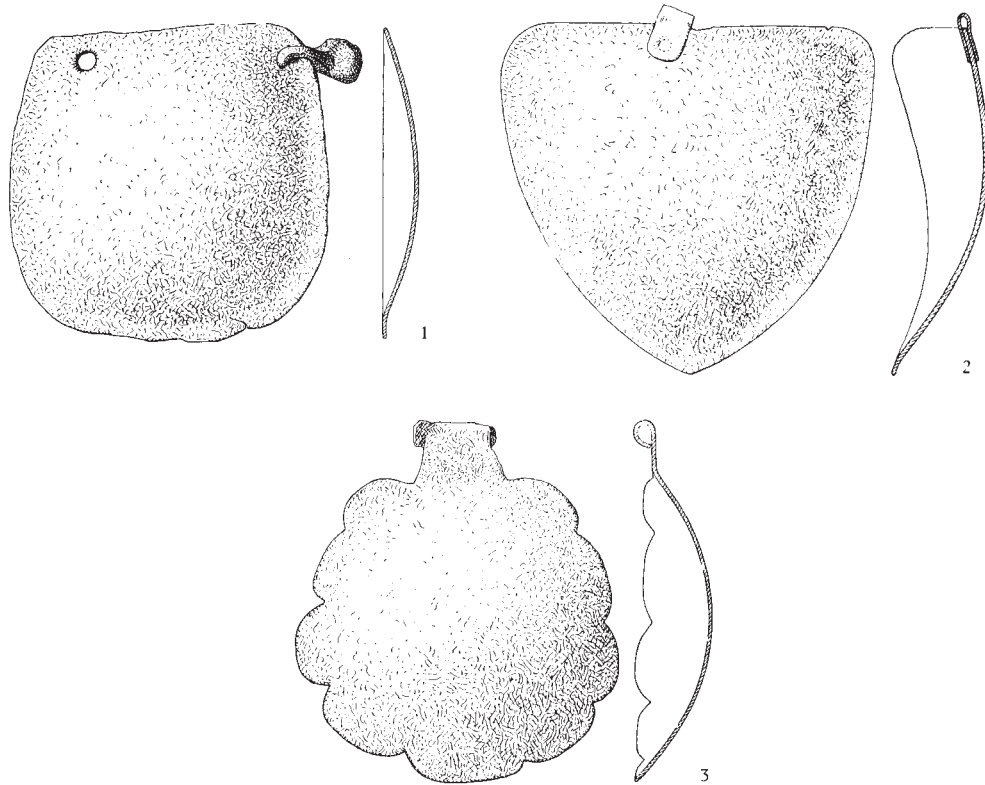


Fig. 102. Iron shoulder plates. Scale 1:3. (1) Regn.no. *Sv 25*; (2) *Pö 2*; (3) *Rx 1*.

observations, and then chiefly only for the bronze rings. The iron rings are coated with rust far too much to enable one as a rule to distinguish whether they are riveted, though riveting has been found both on bronze and iron rings (fig. 101). Probably the bronze rings were always riveted, while the riveting can very seldom be noticed on the iron rings. Whether the latter had been stamped out or welded together in one piece, cannot be observed directly, but, when the section of the rings is round, welding is most probable.⁹⁷

ARM AND LEG GUARD.

At the time of the Battle of Wisby we may, to judge from contemporary effigial material, consider that, as a rule, knightly equipment was supplemented by special guards

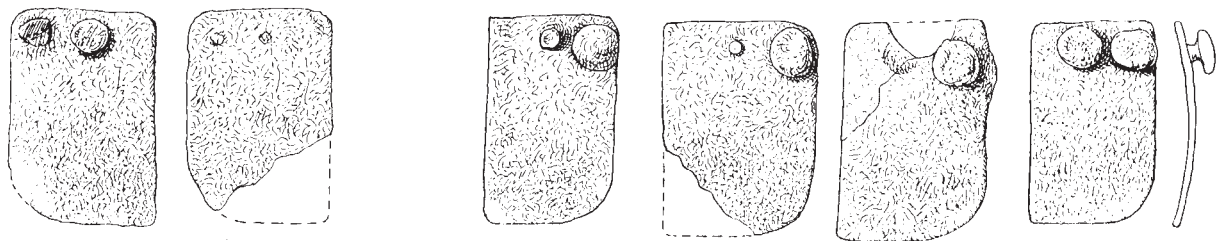


Fig. 103. Plates round arm-hole. Scale 1:2. (a) Regn.no. *Sxx 4*; (b) *Ryy 13*.

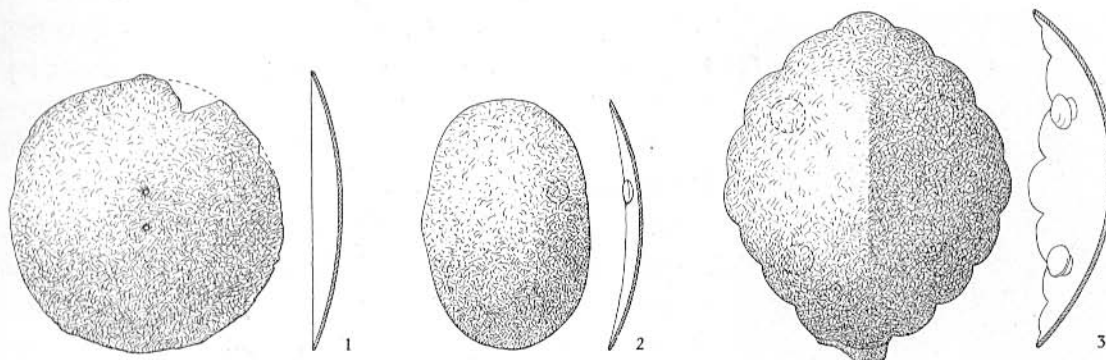


Fig. 104. Elbow or knee-plates. Scale 1:3. (1) Regn.no. *Qy 23*; (2) *B III*; (3) *V: 17*.

for arms and legs, consisting of elongated plates or strips for the upper and lower arm and the lower part of the legs. Shoulder, elbow and knee were also protected by domed guards of different kinds. In the description of the body armour two pairs of shoulder plates will be mentioned (figs. 367, 388), in conjunction with their armours (Nos. 1 and 25); three others have also been encountered, of which one (fig. 102: 1) is uncovered with a large complex of lamellae, (*Sv 25*, see below p. 412). It is clear that it belonged to the lamellar armour with the remnants of which it has been found, and its form also coincides with the semicircular shoulder plates which formed part of the lamellar armour 25, though it is somewhat more square. Even the fastening device is the same, consisting of two cramps with flattened ends (one now missing), which are passed through round holes near the upper edge of the plate. The device for attaching the others, which were found alone, has more the nature of a hinge. One of them, (*Pö 2*, fig. 102: 2), is scutiform, like those belonging to armour 1, but less pointed and more domed. The other, (*Rx 1*, fig. 102: 3), is, in its main shape, round but has nine scallops round the edge, which gives it a shell-like appearance. Similar shoulder guards, both semicircular and shell-shaped, are to be found in contemporary effigies (see below figs. 315, 324, 326, 327).⁹⁸

The small semicircular decorative plates which are set along the edges of the arm-holes on suits of armour 21, 22 and 24 may also be mentioned here. Six of these have been found separately, but close to one another, (*Ryy 13*, *Sxx 4*, fig. 103). But they differ from the others in not being semicircular but curved only at the corner which was free and visible,

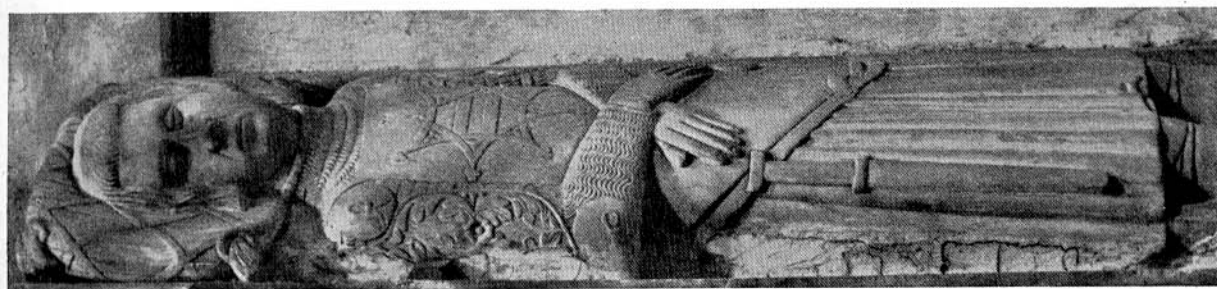


Fig. 105. Monumental effigy of Herrici Capice († 1360). In the Cathedral at Naples.



Fig. 106. Monumental effigy of a Knight of the De Lucy family, from Lesnes Abbey (Kent). Now in the Victoria and Albert Museum, London.

while the corner that was concealed beneath an adjacent plate is rectangular. The position of the rivets shows that they had not all been placed in sequence; four of them had been attached at one arm-hole and two at the other (or on the front and back of the same arm-hole).

Of a different character is a circular, faintly domed plate, (*Qy 23*, fig. 104: 1), with a diameter of 11 cm. and provided near its centre with two round holes. Such plates are often seen on 14th century effigies and also earlier, as a protection for the shoulder and elbow, and it is seen from the effigies that a thong or strap for fastening the plate had been drawn through the holes (figs. 105, 106). It was found with a shirt of mail, to which it has clearly been attached near the right elbow. From common grave 1 there is a similar, but oval, plate (*B III*, fig. 104: 2); but this is provided with rivets on the inside and no holes (length 10 cm., breadth 6.5 cm.). This should most probably be placed on the shoulder. A similar function was perhaps performed by a more domed and pointed oval plate, (*V: 17*, fig. 104: 3), with its edges developed into small, semicircular projections (length 14 cm., breadth 11 cm.). On the inside it is provided with four rather stout rivets, and the surface between them is partly covered by a layer of what may indubitably be taken to be leather. It has thus been riveted to a leather base. I have been unable to find any precise parallel in contemporary pictorial material, but it seems to me that it might very well have been used as a knee-cap. Such guards for the joints were already in use in the 13th century, and they formed parts of the earliest iron reinforcing

which was applied to the outside of the covering. Below, on p. 320, the part it played in the evolution of armour is explained.

Of the elongated arm-guards and greaves, no traces whatsoever have been found in the common graves. According to Gessler⁹⁹ it is probable that these were of cuirbouilli, and this is possible, especially earlier. Though such an assumption seems to be confirmed by the absence of these parts of armour in the Wisby finds, I believe nevertheless that those that were usual at this period, were made of iron.¹⁰⁰ It is possible that they were less common in the North than on the Continent and in England, and the very numerous occurrences of cuts on the legs support such an assumption. The scanty effigial material of the 14th century from the Nordic countries gives us very little chance to illustrate the question, but it should be pointed out that on his effigy at Roskilde, the Danish prince, Duke Christopher († 1363), has a broad, long plate on his upper arm and a small plate on the front of the shin (fig. 107); also finds from the end of the century show that they occurred at any rate

then. A long, ridged iron plate amongst the finds from the royal palace Alsnö Hus, not far from Stockholm, which was probably destroyed in the last decade of the 14th century¹⁰¹, might be interpreted as a greave (fig. 108). From there also comes a knee-cop of a form more typical of the latter part of the 14th century than the one from Wisby. A couple of tubular guards for the lower arm of approximately the same date have been found in the excavations at Boringholm, in Denmark (fig. 109)¹⁰²; each arm was protected by two tubular plates which were probably held together by straps. In one of these a large, semicircular projection is developed near the elbow, a remnant of the former free, round elbow-guard. A fragmentary plate of precisely the same type also exists from Arånäs Castle, in Sweden¹⁰³. It may be that the remarks concerning the coifs also apply to the protection of the limbs, viz. that the material found in the common graves shows by its character that the warriors buried here are simple soldiers, and that it does not represent knightly equipment. But on the other hand, we cannot get away from the fact that armour 7 at least must be regarded as a knightly armour (p. 229), and the total absence of arm-guard and greaves remains somewhat inexplicable.

ARMoured SHOES.

As with the gauntlets, the shoes were also armoured with iron plates during the 14th century, occasionally in the form of scales (fig. 330), but generally in strips extending across the foot (figs. 113, 114, 315). The armouring was applied sometimes to the outside of the leather and sometimes to the inside, to judge from the rivet-heads which are often visible on contemporary effigies (fig. 107).

No plates belonging with certainty to foot-wear, have been found in the common graves, but two groups of plates found together in grave 2, (*Pss 10*, fig. 110), might with considerable probability be explained as such. In each group there are five plates, all different but each one corresponding to one in the other group, so that, when reconstructed, the groups are symmetrical (fig. 111). In group *A* lay four plates, (*A 2—A 5*), clearly almost in their original position in relation to one another, and if they are laid out in the same sequence, they form a curved triangle with one of its long sides convex and the other long side concave, and with a straight base (fig. 112). The plates overlap so that the larger projects over the



Fig. 107. Monumental effigy of Duke Christopher of Denmark († 1363). In Roskilde Cathedral.

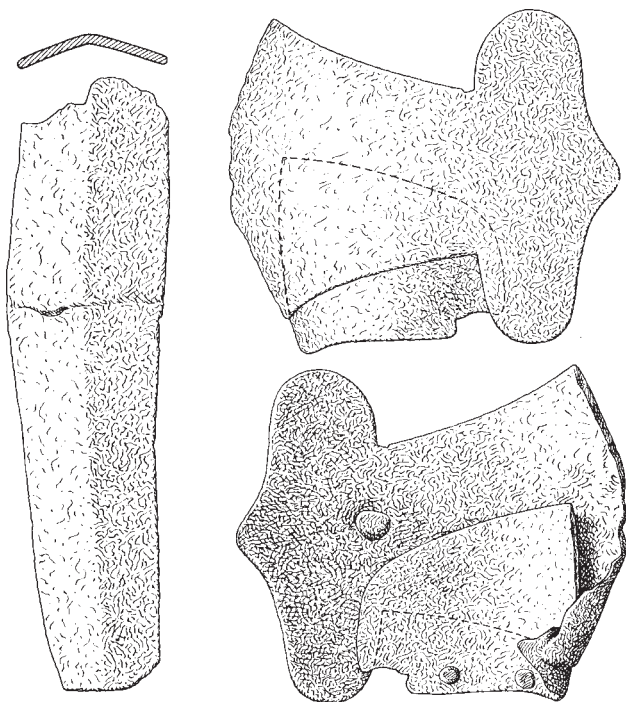


Fig. 108. Remains of greaves and knee-guard from Alsnö Hus, Sweden. Scale 1:3. National Museum of Antiquities, Stockholm.

smaller one next to it, and are provided with rivets on the upper, slightly convex side. The fifth plate in this group, (*A 1*), lay some little distance from the others, nearest the outer pointed plate; it is rectangular and, in contrast to the others, is provided with rivets on the concave side. Its position in relation to the group cannot be determined.

Of the plates in group *B* the three largest, (*B 3—B 5*), lay in their proper sequence but on top of each other, while the smallest pointed plate, (*B 2*), lay in a disturbed position a little distance away. The rectangular plate which corresponds to *A 1*, (*Pss 7*), had been found previously at a higher level near the others. An iron lamella (*B 1*) picked up near group *B*, very likely does not belong to this complex. Both groups lay in direct contact with bones of the foot.

It is difficult to find any other explanation for these two groups of plates than that they formed the armouring for shoes, even if it must be acknowledged that they are flatter than one would have expected. This may, perhaps, be explained by their having been subjected to pressure in the grave which has made them flatter than they were originally; this has happened in several cases, for instance, with the armour plates *Pss 14*, (armour 6), picked up in the same vicinity. It is also possible that plates applied to the inside of the shoe were flatter than those on the outside, which are our only material for comparison. As far as I am aware, only one original armoured shoe from the 14th century is preserved. This belongs to a child's armour, from the Cathedral at Chartres¹⁰⁴, (now in the museum there), and comprises a brigandine, arm-guard, gauntlets and greaves. The shoe consists of four transverse plates, about 2 cm. broad, one approximately triangular for the point of the foot, about 7 cm. long, and a strongly arched plate at the instep (fig. 113). Between this and the transverse plates there were probably another two or three transverse plates which have now been lost. All the plates were articulated with rivets and attached to the outside of the leather. The armoured shoes we see on contemporary effigies have generally several cross-pieces and a small plate at the point. Sometimes they display the same ridge along the back as the Chartres shoes, sometimes they do not, but show instead quite a strong arching of another form, which is elucidated by fig. 114. The curvature is as a rule not so pronouncedly conical as on our plates, but fig. 115 shows a leather shoe from the end of the century, whose shape is very similar.

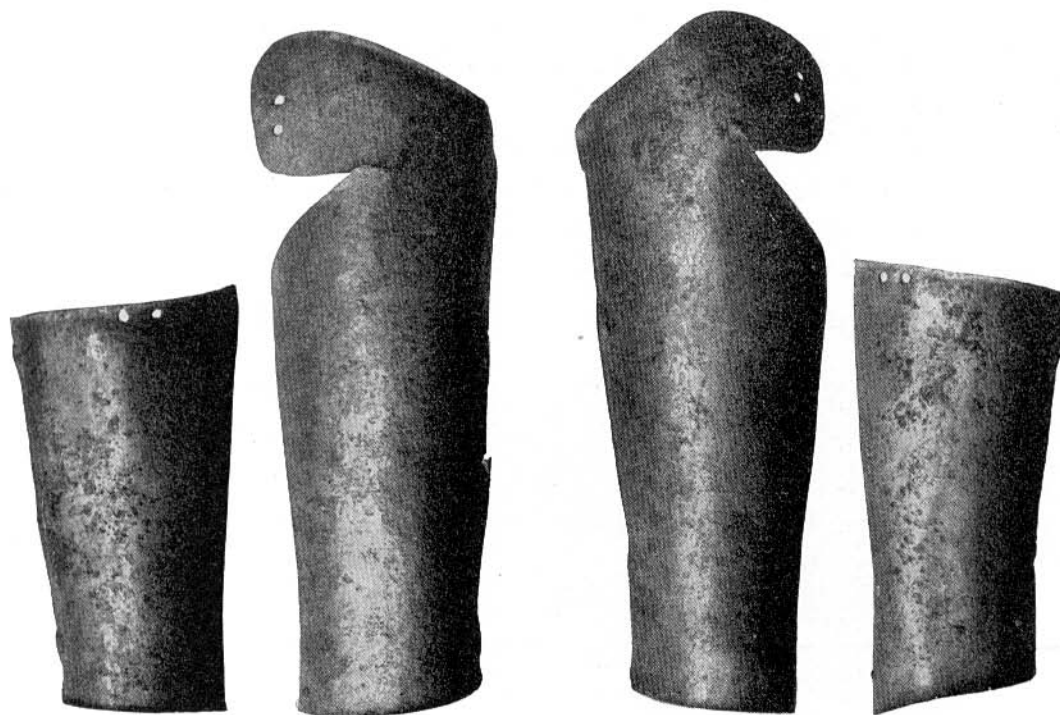


Fig. 109. Arm guard from Boringholm, Denmark. Scale 1:3. National Museum, Copenhagen.

Some other scattered plates perhaps form parts of shoe armouring. A small, almost semicircular, arched plate, (*Or* (V), fig. 116: 3), with rivets on the concave side formed, perhaps, the point of an armoured shoe, with the armouring on the outside, having a much blunter shape than the preceding one; it was also found with the bones of a foot. Two plates, (*Nvv* 2, fig. 116: 1, 2), found together, are somewhat similar in shape to some of those which form part of the groups just dealt with, *Pss* 10, but oddly enough, one of them has rivets on the convex side and the other on the concave one. But there were also two plates (*A* 1, *Pss* 7) in those groups with rivets on the concave side. Finally, in description No. 27 (p. 408, fig. 393: a—g, 42—44) some further plates are mentioned, which may be remnants of foot-gear.

BUCKLES.

Some of the buckles found in the graves belong to the armours, gauntlets and spurs, but the bulk of them certainly belonged to wearing apparel. This is perfectly clear from their position, for in several cases they were found in pairs, lying in or close to the pelvis (figs. 117, 118, pl. 25: *Q*, *R*, pl. 110: 1, 2). This could be very clearly observed in some skeletons in common grave 3 (burial I), which had been laid down in a more orderly way than the other corpses, and where the position is therefore more instructive. Unfortunately, their function in this position cannot be determined with certainty. They have probably served

to hold together a belt round the waist, but they might also have served to hold up the hose, the garment which was a sort of cross between trousers and stockings and which formed a part of medieval costume.¹⁰⁵

We see from the table below¹⁰⁶ that the preponderating quantity of buckles has been found in common grave 2, and even if the size of the graves is taken into consideration the proportion in this grave greatly exceeds that of the others. The ensuing summary states the relation between the number of buckles and the number of individuals in the graves.

	Number of buckles	% of number of individuals
Grave 1	86	32.1
» 2	473	59.3
» 3	31	26.1

Table of Buckles.

	Common Grave 1	Common Grave 2										Common Grave 3				Grand total		
		1912	1924	Exactly localised	V	VI	VII	VIII	IX	X	Unlocalised	Total	I	II	III		IV	
Round, iron (fig. 120: 1—10)	53	47	1	207	2	1		12	2	7	7	286	3	8		4	15	354
Round, bronze (fig. 120: 11—17)	13	3		20				1		4	1	29	1			4	5	47
Round, wood (fig. 120: 18)				1								1						1
Square, iron (fig. 120: 23—29)	3	2		17				2				21						24
Square, bronze (fig. 120: 30)			1	1	1							3						3
Double-square, iron (fig. 120: 31)													1				1	1
Semicircular, iron (fig. 120: 32—63)	16	10		82		1		2	3	1	2	101	1	5		3	9	126
Semicircular, bronze (fig. 120: 64)		1		1								2						2
Double-oval, iron (fig. 120: 65)	1																	1
U-shaped, iron (fig. 120: 66—69)				2						1		3	1				1	4
With mounts, iron (fig. 120: 70)				10	1							11						11
With mounts, bronze (fig. 120: 71)		1										1						1
Miscellaneous fragments			3	10	1			1				15						15
Total	86	64	5	351	5	2		18	5	13	10	473	7	13		11	31	590

If we assume—which is, however, not quite correct, since many armours were provided with several buckles—that these buckles may be allotted in pairs to the individuals, and that each pair of buckles denotes a corpse buried fully dressed, this would mean that in grave 3 every eighth, in grave 1 every sixth and in grave 2 more than every fourth man had been buried fully dressed. It is remarkable that these proportions very nearly coincide with those we obtained before for the distribution of mail coifs. Since, however, most of the buckles do not belong to the fighting equipment, but probably to the civilian dress which every man, young or old, had worn, it is unwise to draw any conclusions from this



Fig. 110. Parts of iron shoes(?) *in situ*. Regn.no. Pss 10.

concerning the greater or lesser effectiveness of the equipment of the different categories of men distributed over the different graves. The difference in the quantity of finds can then only confirm the conclusion at which we have arrived already for many other reasons: that the burial took place with far greater haste and less care with regard to grave 2 than in the case of the two other graves.

As to the shape, simple, round iron buckles (fig. 120: 1—17) predominate by over half of the number found. The size varies between 2.3 cm. and 6.4 cm. in diameter. In one instance, an iron buckle is provided with a bronze tongue (fig. 120: 5); another has at the base of the tongue a semicircular bronze mount which had been attached to the strap by small rivets (fig. 120: 7). The round buckles occur also in bronze (fig. 120: 11—17), though in fewer numbers (forty-seven), thirteen of them having iron tongues (fig. 120: 14—16). The bronze buckles often are better finished with a fashioned frame or profile at the

spot where the tongue is bent round the frame. As a rule, the frame is made of solid metal, but in three buckles the frame is concave so that it has the shape of a half tube (fig. 120: 14). In one instance, it consists of two such half tubes laid with their concave sides towards each other (fig. 120: 15). The diameter varies between 2 cm. and 5.2 cm, the majority being of the larger size. Unique of its kind is a round buckle made of beautifully turned pear-tree wood, with an iron tongue (fig. 120: 18). On several of the round buckles, especially those made of bronze, greater or smaller portions of leather are preserved (fig. 120: 19—22). In one case (fig. 120: 22) it is clear that the tongue had been tied to the frame by a narrow leather thong.

Square iron buckles (fig. 120: 23—29) are less numerous (twenty-four), and still fewer are made of bronze (three). The latter (fig. 120: 30) are quite small and measure about 1.5 × 1.5 cm.; one of them belongs to gauntlet 3. The iron buckles are both square and oblong, and of different sizes, from about 2 cm. square up to a breadth of 5.8 cm. Occasionally that part of the frame against which the point of the tongue rests, is surrounded by a tubular piece of sheet iron (fig. 120: 29). Several of the smaller ones occur on armour 24 and gauntlet 2. In one specimen a rectangular iron buckle occurs, divided into two parts by a cross-bar, around which the tongue of bronze is bent (fig. 120: 31).

In the table, I have summarized under the general heading "semicircular" the different semicircular, horseshoe-shaped and oval buckles, which are a transition from one type to the other, and which next to the round ones, are most numerously represented (fig. 120: 32—64). As to size, they vary from below 2 cm. to over 6 cm. in width and occur both with broad and short bases in proportion to the height. Only two are of bronze, one of these (fig. 120: 64) being the most beautiful buckle amongst the finds, with a groove to fit the tongue on the base. A similar groove also occurs on one of the iron buckles (fig. 120: 61). A double-oval buckle (fig. 120: 65) may be compared with these types and, as in the double-square one, the tongue is fastened to a bar in the middle.

A separate and special group form those buckles which I have, somewhat loosely, termed "U-shaped" (fig. 120: 66—

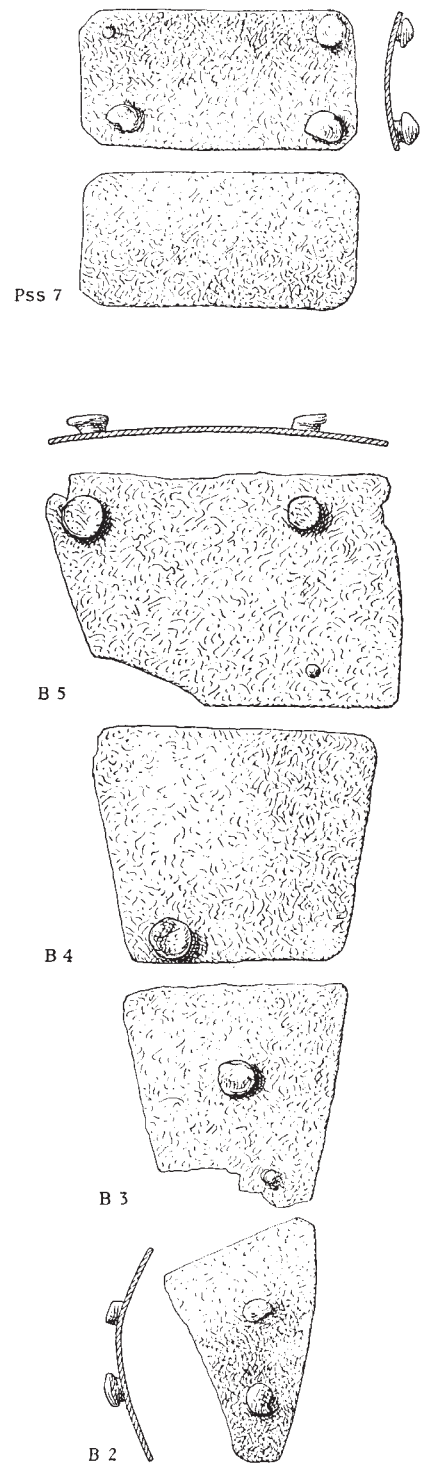


Fig. 111 a. Parts of iron shoes(?).
Group B. Scale 1:2. Regn.no. Pss 10
(Pss 7).

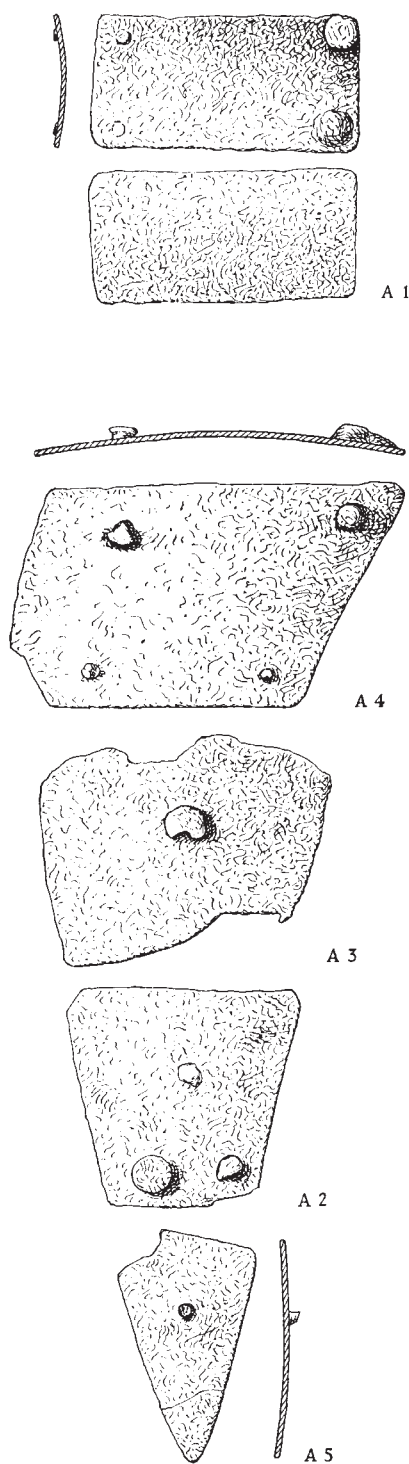


Fig. 111 b. Parts of iron shoes(?).
Group A. Scale 1:2. Regn.no.
Pss 10.

69). These consist of an open square with straight or round corners; a bar is riveted to their free ends and forms the fourth side of the frame. In one case the tongue is fastened to this bar, in two cases to the opposite side of the frame. The fourth specimen of this type is fragmentary. These buckles are rather large (6.5×5 cm. to 5.1×4.3 cm.).

Finally, I have summarized as a separate group a number of dissimilar buckles, which are only alike in that they are joined to a metal mount which had been riveted to the strap or to some other base (fig. 120: 70, 71). Several of these belong to the spurs, to which we shall revert (figs. 129, 130). Three specimens of larger size form part of armour 21 (pl. 102: 115, 116, 123). One, (*Oå* 3), was found riveted to two lamellae of an armour (fig. 402: 6). Perhaps such buckles were originally attached to the side-openings of lamellar armour. A further two (fig. 120: 70, fig. 402: 7), and perhaps fragments of a fourth buckle, agree with the latter in size and appearance. A small bronze buckle, (*A* 35), belongs also to this group (fig. 120: 71).

STRAP MOUNTS.

With one of the U-shaped buckles (*X*: 1, fig. 120: 66) in common grave 2 were also found sixteen button-shaped, round bronze mounts, 1.6—1.8 cm. in diameter (figs. 121, 122: 1, 2). In the centre of each there is a rivet shank (2 mm. long), which is riveted to an irregularly cut, thin bronze-washer of about the same size as the buttons. It is probable that these buttons were attached to the buckle-strap as ornamentation. Seventeen more mounts were found in another part of the same grave, (*V*: 20), which are so similar to the former that they may have belonged to the same strap (fig. 122: 3, 4). Some of these are caked together by verdigris in such a way that it is clear that they were placed in a zigzag line on the strap, and rather close to one another. Of another type are three small bronze mounts which were found fastened together with the bronze mount of a strap (*Nz* 9, fig. 123). They consist of rivets placed in pairs, about 6 mm. in diameter, riveted to an iron bar, 2 cm. long.¹⁰⁷ The strap mount consists of a rectangular piece of sheet iron doubled round the end of the strap, and of the

same width as the bars. It had been fastened to the strap with a rivet. A similar, but larger strap mount of sheet iron (fig. 124) was found near the skeleton *I: 27* (common grave 3) with the double-square buckle (fig. 120: 31) mentioned above (fig. 125).

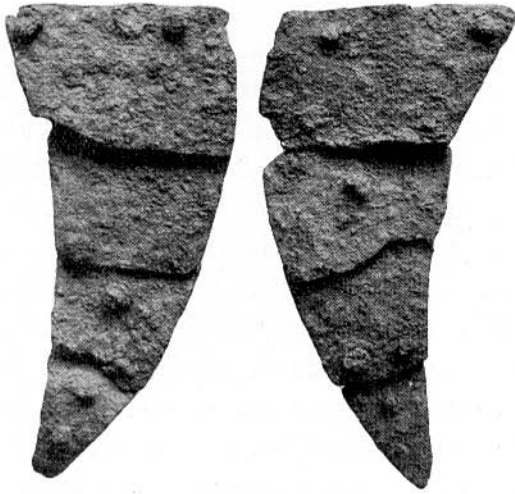


Fig. 112. Parts of iron shoes(?) fig. 111 in reconstructed position. Scale 1:3.

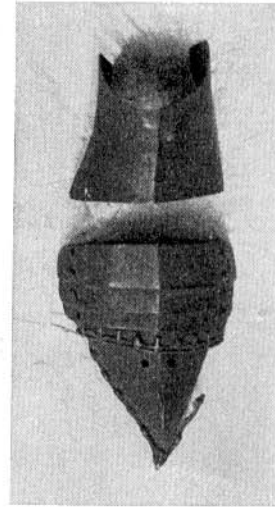


Fig. 113. Iron shoe, right foot, belonging to child's armour. In Chartres Museum. Scale 1:3.

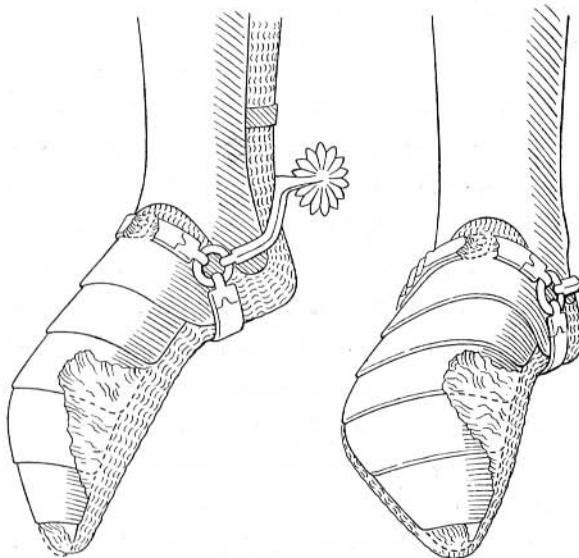


Fig. 114. Right iron shoe on effigy from Lesnes Abbey (fig. 106).



Fig. 115. Leather shoe, left foot; from Boringholm. In National Museum, Copenhagen.

SPURS.

Three whole or nearly whole, and two or three fragments of spurs have been found, all of them in common grave 2. They all show the strongly bent shape which is characteristic of the period.¹⁰⁸ One of them, (*Lâ 1*), a spur for the left foot, which, when uncovered, was

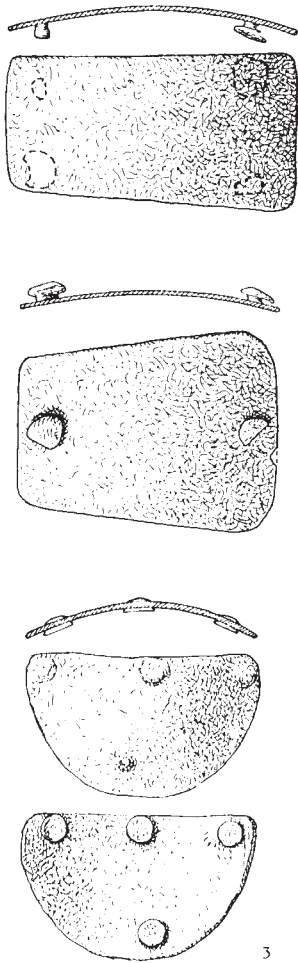


Fig. 116. Parts of iron shoes(?). Scale 1:2. (1, 2) Regn.no. *Nvv* 2; (3) *Or* (*V*).

still in position on the foot (figs. 127, 128), was remarkably well preserved, and shows in an interesting way the different buckles and mounts belonging to it (fig. 129). The strap under the arch of the foot had been fastened to mounts *c* and *d*, while the strap that had been fastened to the mount *b* was on the upper side of the foot and held fast by buckle *a*. The holes in this strap have been lined with small metal eyes, of which one (*a* 2) is still in position on the buckle, the tongue passing through it, while another (*A* 4) was found not far away. The end of the strap was intended to be passed through an oval iron loop, attached to the base of buckle *a*. A small button-shaped rivet mount (*a* 1) is rusted to this, and four more (*A* 1—3, *B* 1) have been found close by; they obviously belonged to the end of the strap passed through the loop on the buckle, either as ornamentation or perhaps for the purpose of helping to keep the end of the strap in the loop. One of the other spurs (*Lz* 4, fig. 130: 2) was found, too, with bones of the foot, though not so perfectly in position as the former.

HORSE-SHOES.

The horse-shoes display simple shapes, with six holes for the nails and with the ends bent down into a small heel. The finds number seven, three in grave 1, three in grave 2, and one in grave 3, the last being a very small fragment.

As is seen from fig. 131, one (6) is larger than the others and approaches what one might call normal size, while the remaining five are extraordinarily small. The size of these agrees precisely with the hoofs of the small breed of horses which have always existed in Gotland.¹⁰⁹ One might be tempted from this to conclude that the small shoes belonged to Gotlandic horses, and to accept this as further proof that the Gotlanders were to some extent mounted in the battle. But it must be taken into consideration that sundry medieval horse-shoes of small size have been found also within Swedish and Danish areas outside Gotland¹¹⁰, and that very little research has been done on medieval breeds of horses in the North.¹¹¹ At any rate, it might be doubted if the Danish army used small and consequently weak horses for its heavily armed warriors; it is more likely that if any horses were brought for the campaign, these were large and powerful. We may therefore consider it as probable that the small horse-shoes belonged to Gotlandic horses, and from previous remarks (p. 98) regarding the way in which the horse-shoes probably entered the ground, they perhaps prove that some of the Gotlanders were mounted.



Fig. 117. Two buckles *in situ* in common grave 3: I.
Regn.no. I: 18.

fore, is extraordinarily uniform in graves 1 and 2, while the total absence of finds in grave 3 once more emphasizes its exceptional position. I have already pointed out that the majority of arrow-heads, probably all of them, got into the grave in the bodies of the dead. Several times this could be noticed positively, especially in two cases where the arrow-heads were still left in the upper end of a tibia (fig. 167), and in the buccal cavity (fig. 181). All the arrow-heads are of the type which were used with cross-bows, provided with sockets¹¹², and with square cross-section of the blade, generally not very sharp (fig. 134). The length varies between 6 cm. and 9 cm. On one arrow-head, (*Pvv 10*), there still remained a piece of the broken-off wooden shaft, 4.5 cm. long, preserved by the constant moisture at the bottom of the grave in which it lay (fig. 133).

Similar to arrow-heads are four iron spikes with tangs (fig. 135), all from common grave 2. The length varies between 4.4 cm. and 6 cm., and the cross-section is square. One may imagine them fixed as a sharp point to a pike or a staff, but it is more probable that they were attached to a mace or similar weapon.

There is a single spear-head amongst the finds, (*Qå 1*, fig. 137: 1), but its form rather suggests a hunting than a war-spear. The length, including the tang, is 22 cm., and the

ARROW- AND SPEAR-HEADS.

As has already been stated, the warriors' weapons are almost entirely represented by the arrow-heads. Thirty-eight of these have been found; their distribution in the three common graves is shown in the subjoined table, which also states the quantity of finds in proportion to the individuals in each respective grave:

Grave 1	8	3.0 %
» 2	30	3.8 %
» 3	0	—

The proportional distribution, there-

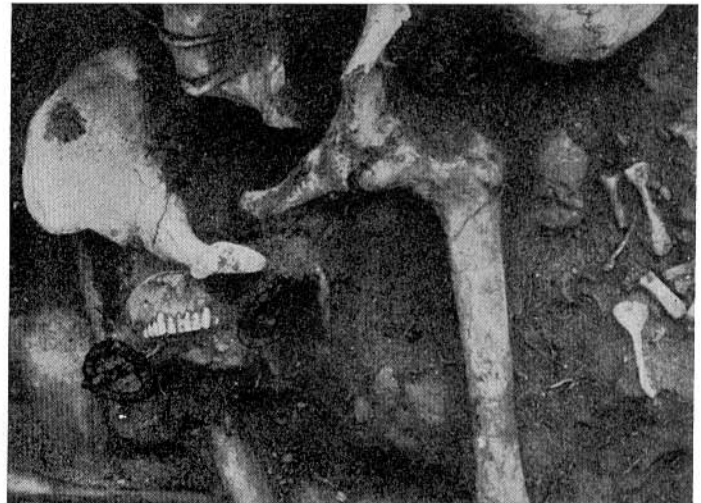


Fig. 118. Two buckles *in situ* in common grave 3: II.
Cf. fig. 120: 3. Regn.no. *Ec 6*.

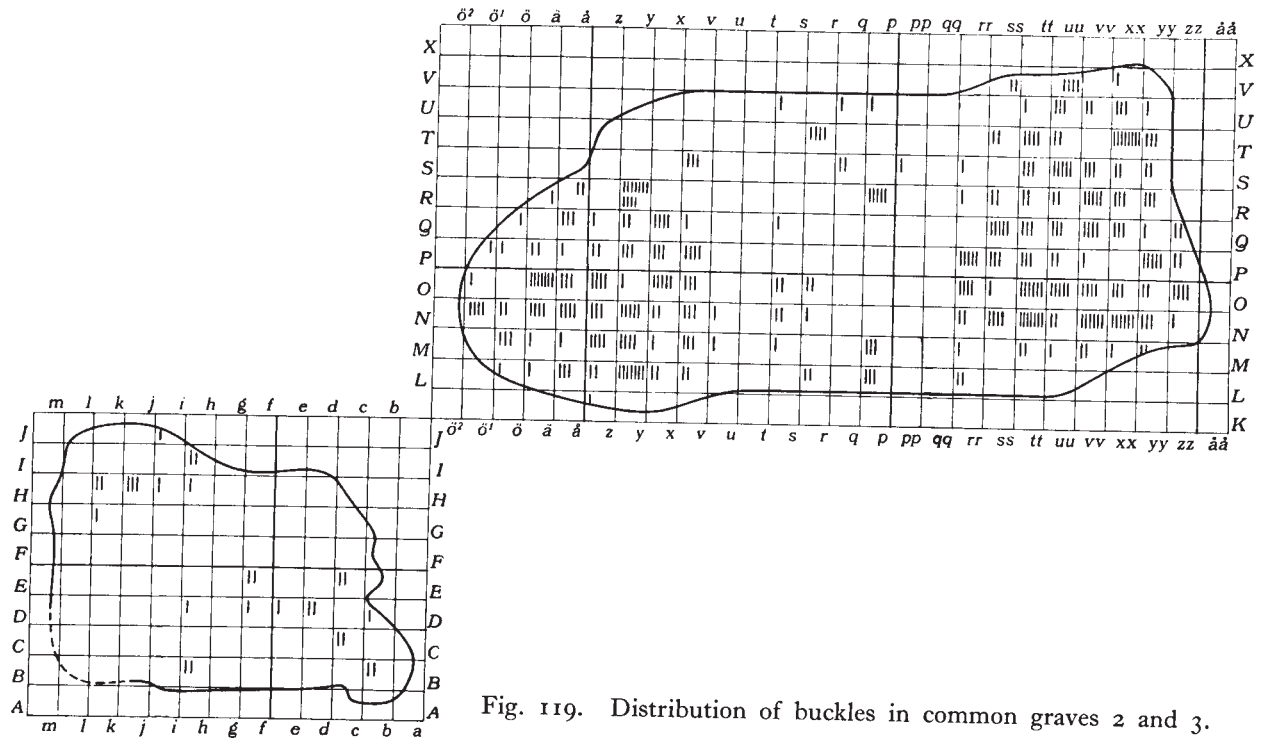


Fig. 119. Distribution of buckles in common graves 2 and 3.

cross-section is rhomboidal. An iron bar, 23.5 cm. long, with square cross-section tapering at one end, (*VI: I8*, fig. 137: 2), formed perhaps the point of some kind of spear or pike, though the tang is broken off.

KNIVES.

To a certain extent one may also include knives as weapons. Four of these have been found (fig. 136), all in common grave 2, three of them being small working-knives (2—4), while the fourth (1) has more the character of a hunting-knife. Only one of the four, (*Qz 6*, fig. 136: 2), is whole, with a length, including the tang, of 13.7 cm. It has a straight back and the edge turns up towards the point. Another, (*C 2*, fig. 136: 4), has almost the whole blade broken off. Near the base of the tang an iron ring is rusted fast, which had surrounded the lower part of the handle. The whole tang of the third knife, (*A 17*, fig. 136: 3), is pre-

Fig. 120. (1) Regn.no. *X: 7*; (2)—*Mz 10*; (3)—*Ec 6* (cf. fig. 118 *in situ*); (4)—*VII: 12*; (5)—*My 17*; (6)—*BI*; (7)—*Nö 14*; (8)—*Oxx 1*; (9)—*X: 4*; (10)—*Dd 8*; (11)—*VIII: 26*; (12)—*B XVII*; (13)—*B XVII*; (14)—*Ox 31*; (15)—*Oy 41*; (16)—*Py 7*; (17)—*BI*; (18)—*My 19*; (19)—*B IV*; (20)—*B IV*; (21)—*Pz 18*; (22)—grave 3: 1; (23)—*Mä 9*; (24)—*B XVII*; (25)—*Oz 7*; (26)—*V: 104*; (27)—*Qö 8*; (28)—*B XV*; (29)—*VIII: 4*; (30)—*C 2*; (31)—*I: 27* (cf. fig. 125: b *in situ*); (32)—*Nyy 9*; (33)—*Nv 6*; (34)—*Pss 14: 2*; (35)—*BI*; (36)—*Nz 8*; (37)—*Ij 74*; (38)—*I: 27* (cf. fig. 125: c *in situ*); (39)—*Ntt 11*; (40)—*Ovv 11*; (41)—*Uuu 15*; (42)—*Mu 8*; (43)—*Oä 6*; (44)—*Ly 21*; (45)—*Fe 1*; (46)—*X: 8*; (47)—*Py 7*; (48)—grave 3; (49)—*Oö 4*; (50)—*Nä 4*; (51)—*Lä 1* (cf. fig. 127 *in situ*); (52)—*B XVII*; (53)—*Stt*; (54)—*Db 1*; (55)—*VII: 13*; (56)—*Kz 7*; (57)—*X: 9*; (58)—*Vuu 5*; (59)—*Bb 7*; (60)—*Mv 4*; (61)—*Ly 13*; (62)—grave 2; (63)—*B II*; (64)—*Rä 8: 1* (cf. pl. 71 *in situ*); (65)—*B XIX*; (66)—*X: 1: 17* (cf. fig. 121 *in situ*); (67)—*Lö 6*; (68)—*Qvv*; (69)—grave 3: 1; (70)—*Ov 15*; (71)—*A 35*. No. 18 of wood with iron tongue; 11—17, 19, 20, 22, 30, 64, 71 of bronze (14—16 with iron tongue); all the others of iron (5, 31 with bronze tongue, 7 with bronze mount); 19—22 with remnants of leather straps.

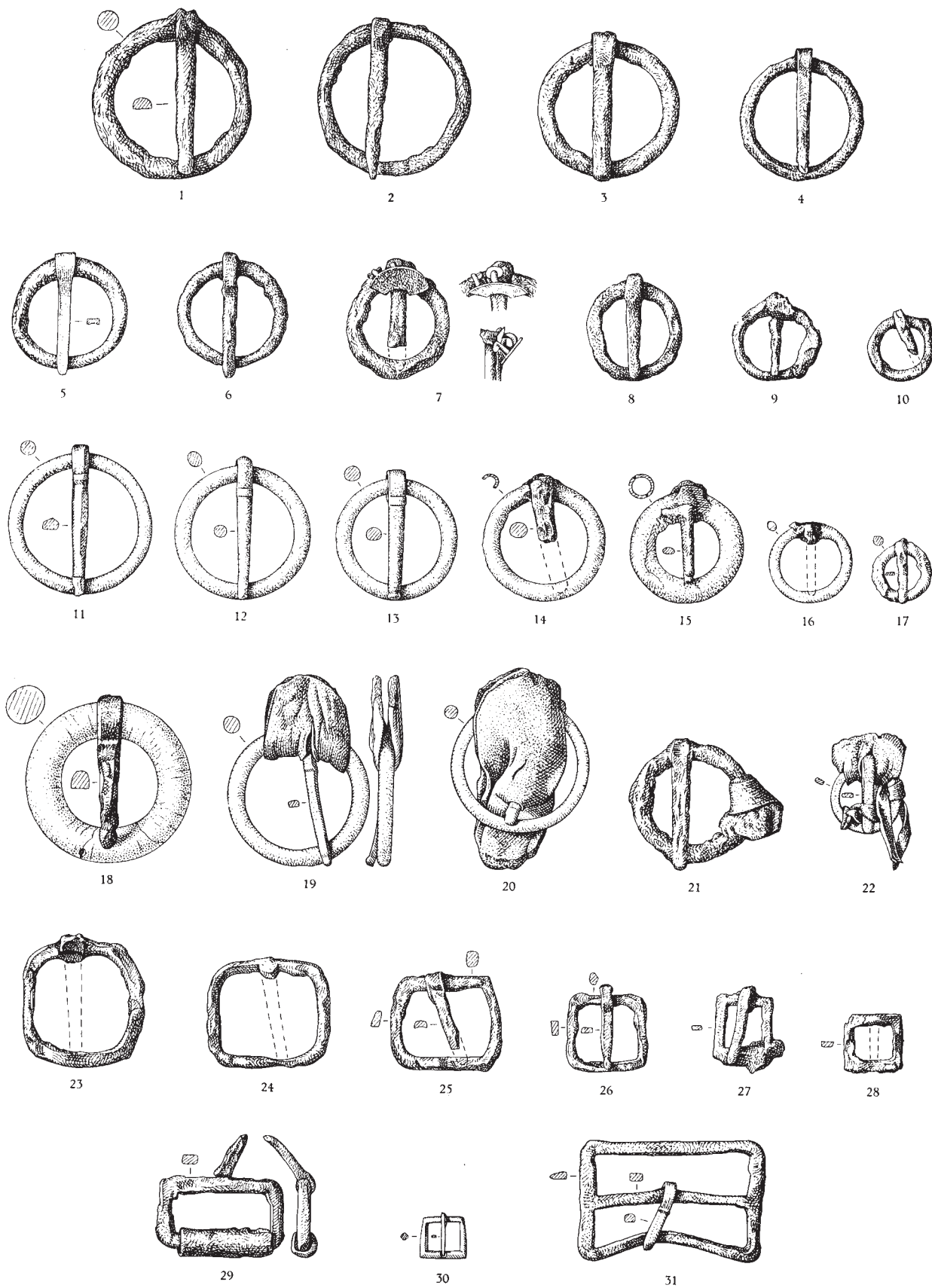


Fig. 120: 1—31. Buckles (see p. 125). Scale 1:2.

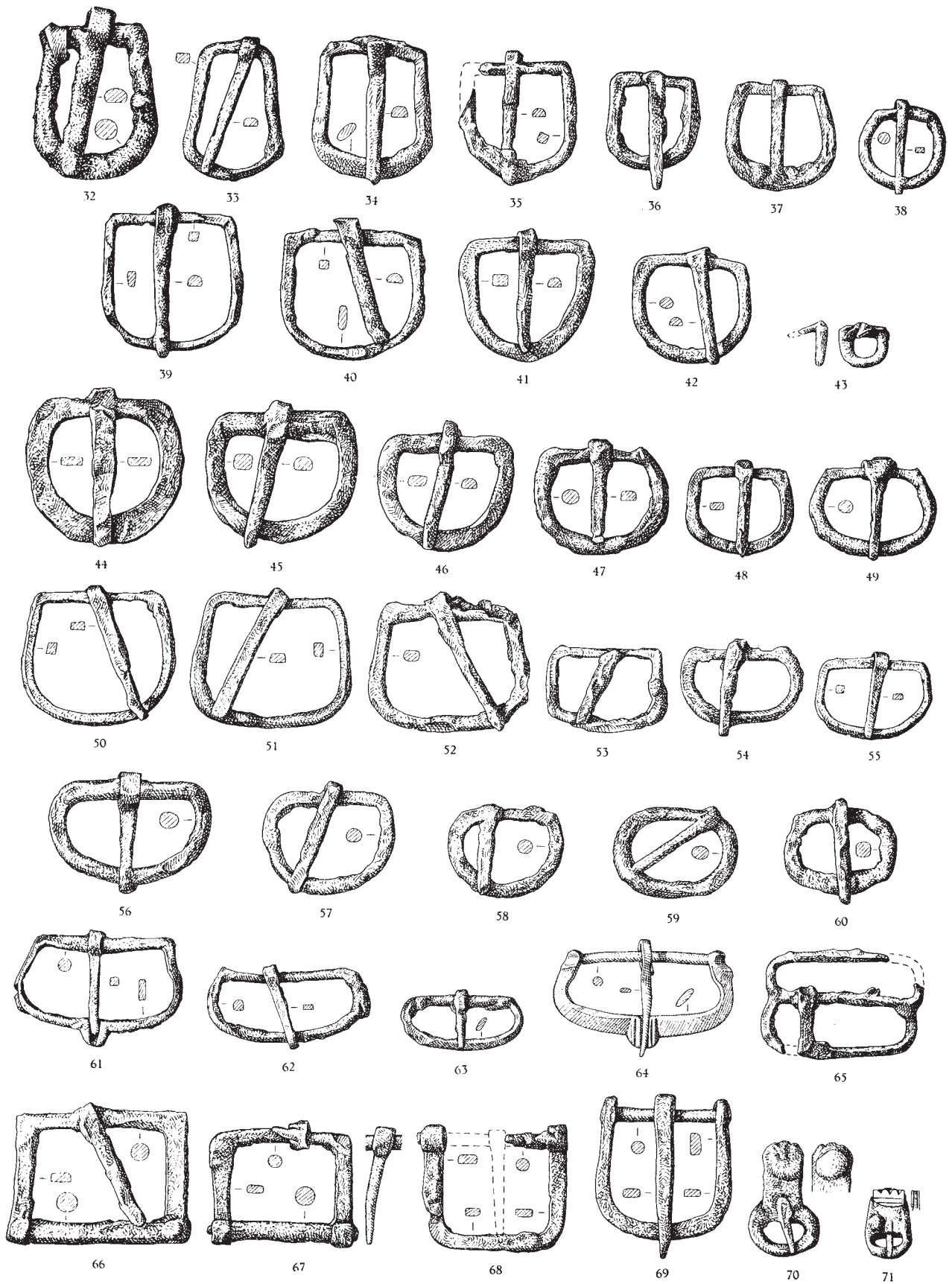


Fig. 120: 32—71. Buckles (see p. 125). Scale 1:2.



Fig. 121. Button-shaped strap mounts and buckle fig. 120: 66 *in situ*. Regn.no. X: 1.

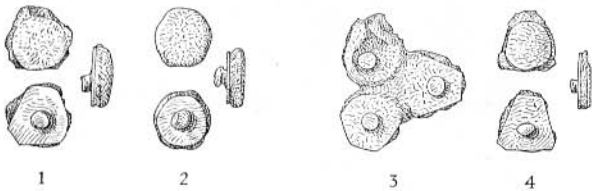


Fig. 122. Button-shaped strap mounts, bronze. Scale 1:2. (1, 2) Regn.no. X: 1; (3, 4)—V: 20.

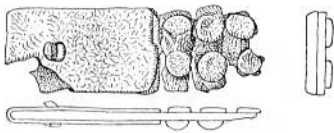


Fig. 123. Strap mounts, iron. Scale 1:2. Regn.no. Nz 9.

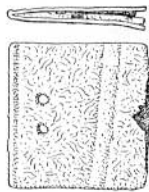


Fig. 124. Strap mount, iron. Scale 1:2. Regn.no. I: 27. (Cf. fig. 125 *in situ*.)



Fig. 125. Skeleton with strap mount fig. 124 (a) and buckles fig. 120: 31 (b) and 120: 38 (c) *in situ*. Regn.no I: 27.

served. Its handle is round and of bone, 9 cm. long, and at the upper end provided with a nicely fashioned button (fig. 145). The hunting-knife, (*Ryy* 3, fig. 141), is, from an artistic point of view, the most valuable find that has come to light in the common graves. It is provided with a bone handle, heptagonal in cross-section, which at the base is surrounded by an ornamental silver mount. The cutting edge forms a straight line with the handle, while the back of both blade and handle is curved, so that the knife is spindle-shaped. The

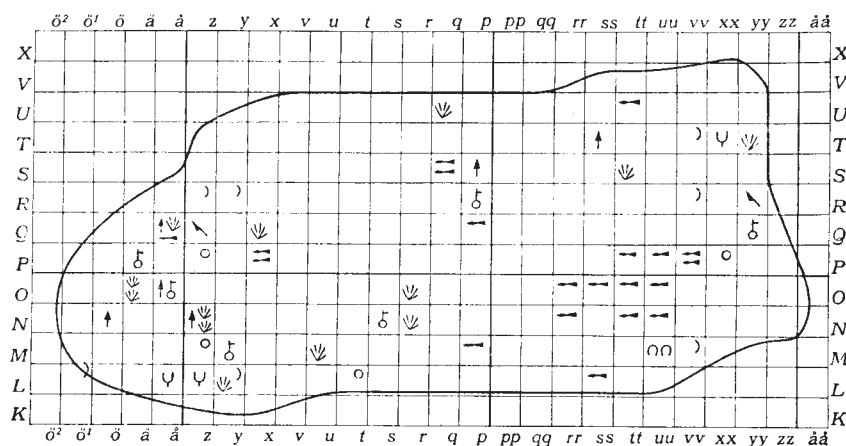


Fig. 126. Distribution of miscellaneous small finds in common grave 2.

- | | | |
|-------------------------------|----------------|--------------|
| → Arrow-heads with socket. | ○ Horse-shoes. |) Pottery. |
| ↑ Spikes and pikes with tang. | \ Knives. | ⌞ Gauntlets. |
| ∪ Spurs. | δ Keys. | ○ Coins. |

back of the point is cut off obliquely, while the handle terminates in a point where a now vanished mount, certainly of silver and probably terminating in a button, had been attached with a small silver rivet, which still remains. The preserved silver mount (figs. 142—144) is engraved on its three broader sides with fabulous animals of a type which was particularly popular as an ornamental motive at this period. In the treasure trove from Dune, in Gotland, which was certainly deposited in the year 1361, there are several objects with similar ornamentation, including mounts for two knives, though of a smaller type than the one found in this grave.¹¹³ The object probably emanated from the workshop of a Wisby goldsmith. The quality of the knife is not so much in the decorated mount as in the fine form as a whole. A fragmentary mount of silver leaf, with traces of gilding (*VIII*: 5, figs. 138—140) may be mentioned here; it probably belonged to the sheath of a knife or dagger. It has a turned-down edge, about 4 mm. wide on both sides, with a small rivet still remaining. The surface displays rather peculiar, chased ornamentation with plant motives, of which I know no Nordic counterpart; on the edges is a zigzag line. In connection with these ornamented objects may also be mentioned two fragments made of sheet iron, (*A* 32, figs. 146, 147), with simple geometrical patterns formed by punched dots. We have no means of divining their original use.

MISCELLANEOUS OBJECTS.

It is curious that several keys have been found with the skeletons, seven in common grave 2 and one in common grave 1. They are partly of the ordinary type with a bit, (five), and partly of fetter-lock construction, i.e. intended for padlocks (three). The former (fig. 148) vary in size from 4.7 to 9.9 cm., of the latter (fig. 149) one is very fragmentary, while

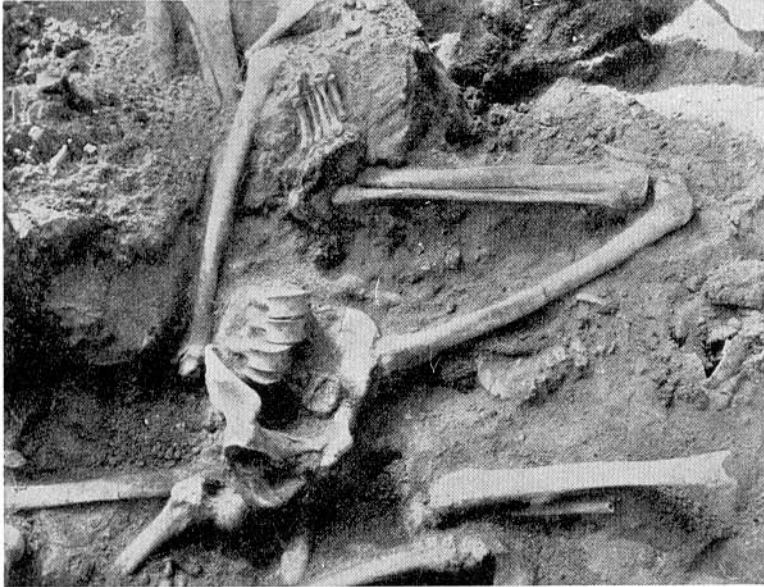


Fig. 127. Spur *in situ*. Regn.no. Lå 1. (Note the buckle, fig. 120: 51, in the pelvis).

be dated to this period or are older. The only interest they possess here is that their occurrence in the graves constitutes a *terminus ante quem* for the types of pottery they represent. In conjunction with the opening up of burial I (common grave 3) nine pot-shards were found, of which one is of Rhineland grey stoneware (so called Siegburg-ware), with yellow glaze and horizontal fluting on the outside (fig. 151: 11). The others (fig. 151: 12—15) were of native red ware, the majority with glaze of the same colour inside; one shard (fig. 151: 15) had green glaze both inside and out. One of the fragments (fig. 151: 12) constitutes the foot of a vessel, probably a semi-spherical pot on three feet, a form that survived after the Middle Ages. From common grave 2 we have eleven shards (fig. 151: 1—10). Two of these, found in 1912 and 1924 respectively, are parts of the same vessel (fig. 151: 1), a jar with straight, faintly sloping sides and a flat, round bottom with a diameter of about 10 cm. It is of pink stoneware with light greenish-yellow glaze on the inside. The

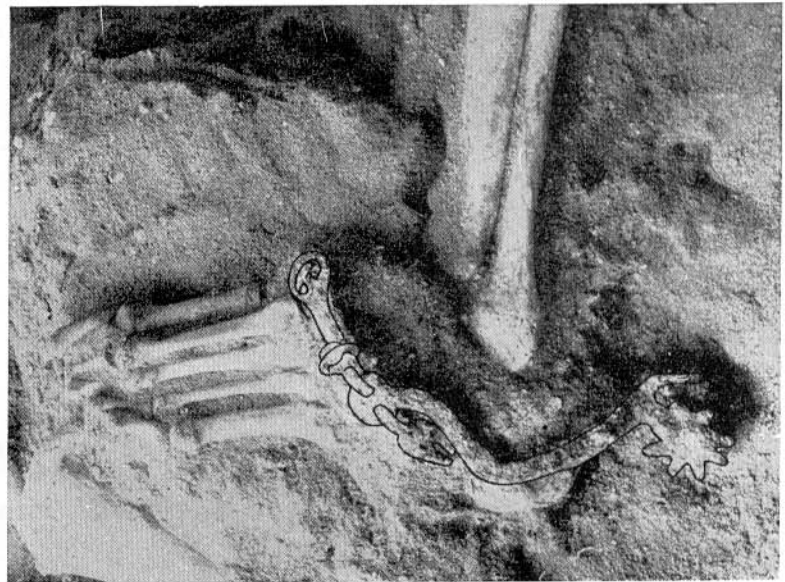


Fig. 128. Detail of fig. 127.

the two whole ones are respectively 9 cm. and 9.3 cm. long. All are made of iron. Also a fetter-lock (fig. 150) was among the finds from the 1912 excavations of common grave 2 (A 32). Its construction in principle is that the key is inserted into one end of a cylinder; this actuates a spring releasing the mechanism which here is missing.

The twenty fragments of pottery found in the graves (fig. 151) have hardly anything to do with the buried corpses. They probably got into the graves with the soil used for filling, and it is uncertain whether they are to

fragments of red pottery (fig. 151:2—5) are all glazed on the outside in brown (2—4) or green (5). One of these is a portion of the bottom edge (fig. 151:2) shaped in waves by rough finger prints, clearly a provincial imitation of Rhineland stoneware. Another is a part of a handle (fig. 151:3), its shape reminding one of the above pot. A third, again, shows ornamentation on the outside with raised scales (fig. 151:5) formed in the greenish-blue glaze; the inside is also glazed, but without any colour. A similar scale ornamentation is to be seen on another shard of harder and more greyish clay (fig. 151:6); the glaze is green and streaked with brown as on another shard of the same ware, which is also glazed on the inside (fig. 151:7). This ornamentation and glazing is typical of the goods which are now commonly looked upon as imported into Scandinavia from England. Three fragments (fig. 151:8—10) are made of grey unglazed stoneware, two of them (9, 10) with shallow horizontal fluting on the outside which is greyish-black in colour. This is ordinary household ware, very common in Swedish medieval finds.¹¹⁴ There is no pottery from common grave 1.

It only remains to mention some sporadic objects of various kinds. Immediately on top of armour 4, a peculiar tool (*Ott 4:1*, fig. 157) was found, whose function or purpose cannot be explained. This consists of two iron bars, 28.7 cm. and 27.6 cm. long, respectively, both bent into a loop at one end and united with one another by means of a loose ring running through the loops. They might conceivably have formed the articulated portion of a mace, the rest of which was made of wood in the shape of a flail¹¹⁵, if both bars were not without nailholes or other devices with which the parts made of wood could be fastened to them. That the tool could be used as a weapon in its present form is not very feasible, because the two bars are of equal length. If one held one part in order to strike with the other, it would fall back on the hand after striking the blow, which is very unpractical. I am therefore forced to refrain from giving any explanation of it.

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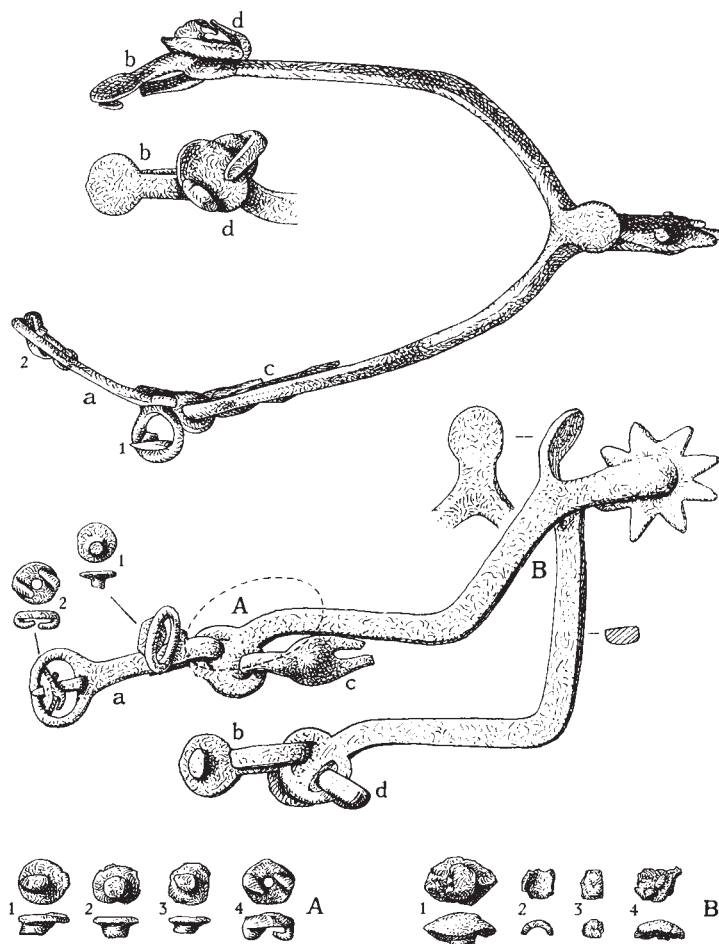


Fig. 129. Spur. Scale 1:2. Regn.no. Lå 1. (Cf. figs. 127, 128 *in situ*.) The letters A and B near the spur show where the small mounts and fragments (A, B) were found.

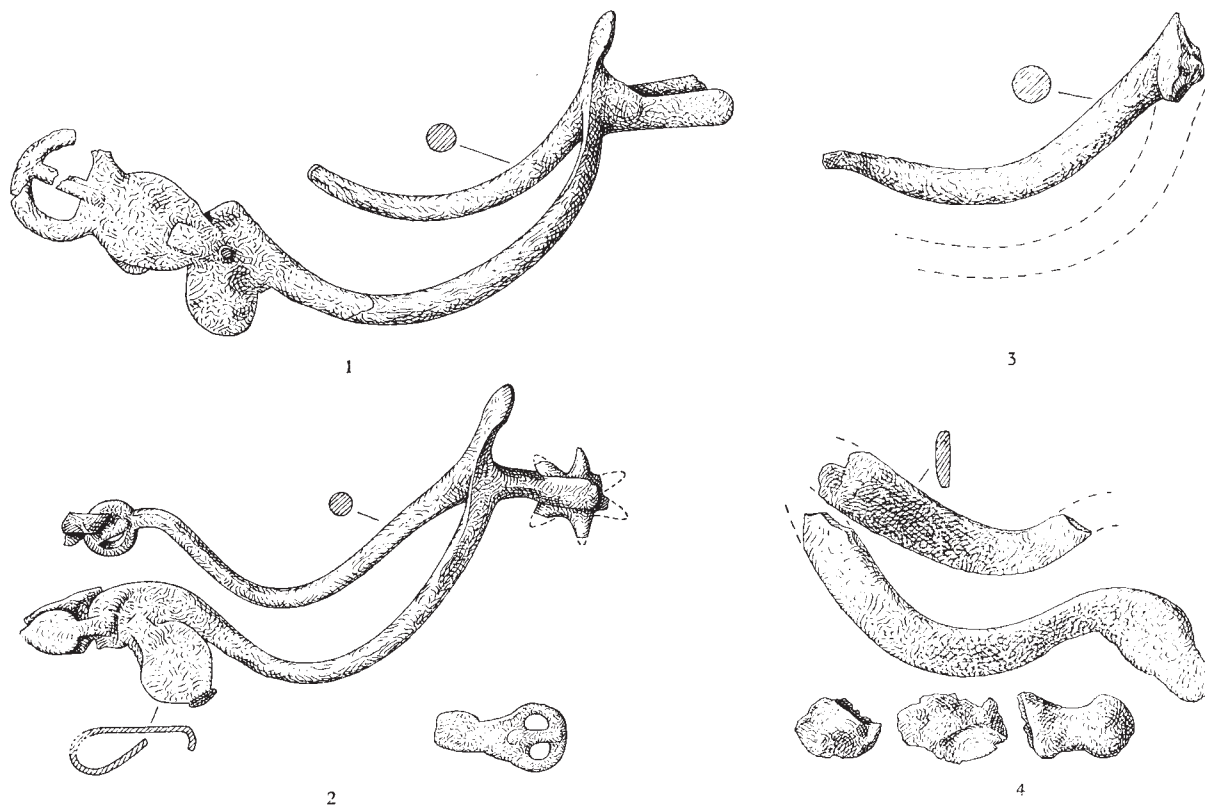


Fig. 130. Spurs. Scale 1:2. (1) Regn.no. *Txx 15*; (2)—*Lz 4*; (3)—*C 3*; (4)—*V*.

That only one piece of jewellery, which was certainly worn by one of the fallen, was found, is, of course, less astonishing than that such an object was allowed to get into the grave. It consists of a silver-ring, (*Ry 1*, fig. 153), and was found still on the skeleton's finger. The name IOHANNES is engraved in ornamental capital letters on the flat exterior.

A 9.2 cm. long bronze needle, (*VII: 1*, fig. 152), with a flattened, pierced head, found in common grave 2, square *Orr*, may very likely, as has already been pointed out, be a relic of the conventual occupation of the spot, and likewise a hemispheric spindle-whorl of stone, (*My 20*, fig. 154) (diam. 2.4 cm.). Finally a few objects came to light which remind us that the history of the place goes back to still earlier times, of which the neighbouring ancient burial ground also bears witness. Two simple, round glass beads, one green and one brown, (*B II*, fig. 158: 2, 3), are of the kind which occurs in finds from the Viking Period, and may safely be dated to that time. One cannot be certain about the date of a square bead with facets, made of rock crystal, (*A 26*, fig. 158: 1); I am unable to discover any direct parallel to it from any dated find, but since rock crystal beads with facets are common from the Viking Period, it is very probable that this, too, belongs to that time, though there is nothing to prevent it from dating from the Middle Ages. To the Viking Period can certainly be attributed a chessman made of a horse's tooth, (*VIII: 1*, fig. 155), square at the base but spherical at the top, such as have been found in several places in male tombs

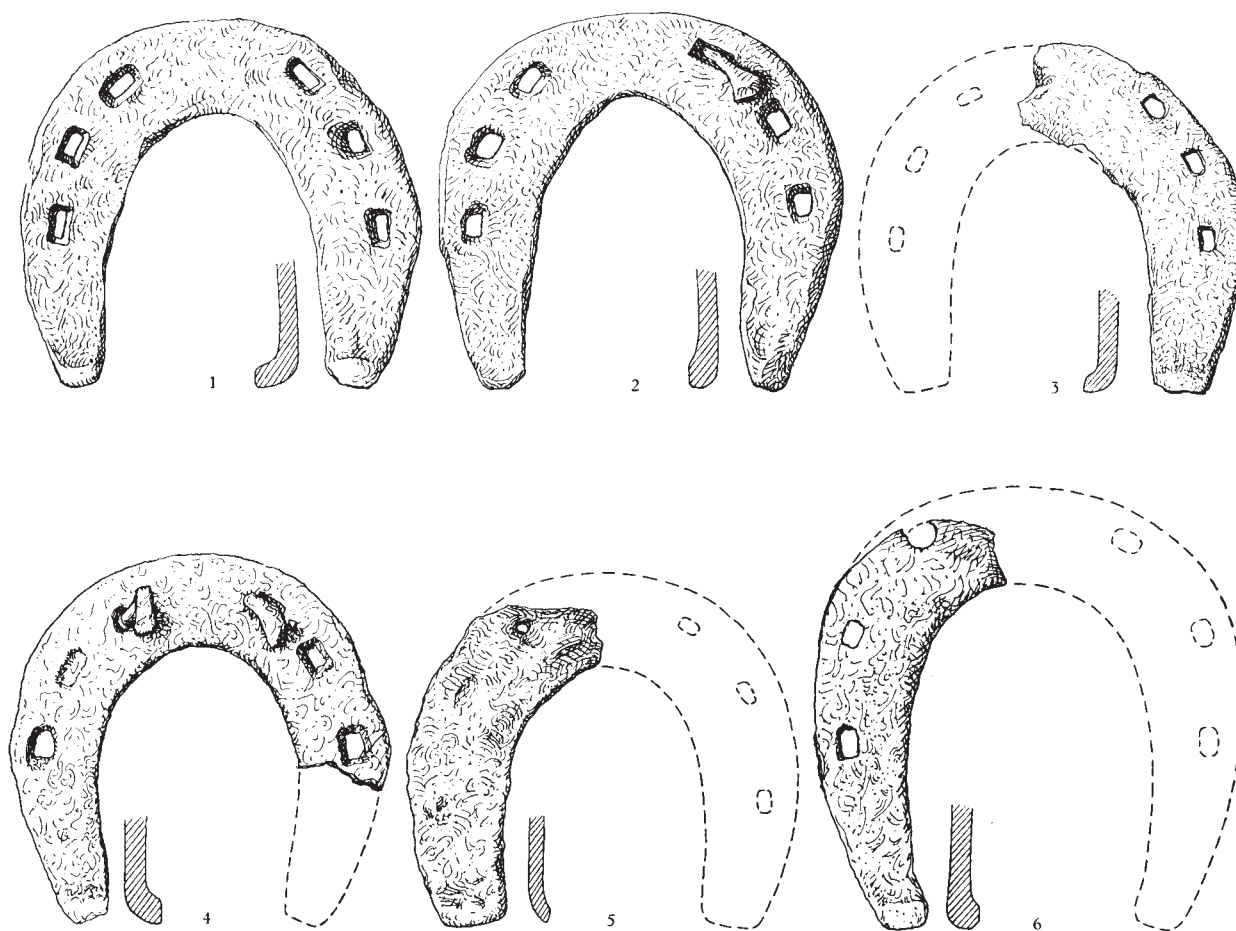


Fig. 131. Horse-shoes. Scale 1:2. (1, 2) Regn.no. *Muu* 3; (3)—*X*: 3; (4—6)—*B XX*.

from the Viking Period. A trifling find, made of flint (*Pö* 1, fig. 156), a broken-off point, perhaps an arrow-head or the point of a dagger, dates right back to the Stone Age. This lay in the filling-in soil at a depth of 1 1/2 metres, and of course like all the other older objects got into the grave in the filling-in soil.

COIN FINDS.

The coins, all from common grave 2, form quite a separate group. In an archaeological find, the coins usually possess great importance for its dating, but in this case we need not utilize them for such a purpose, because the find itself is dated far more definitely than one could establish by coins. In fact, the reverse is rather the case here, the find dating the coins, and thus giving them a unique position as a fixed chronological point within Swedish numismatic material.¹¹⁶ This is connected with the character of the Swedish coin series during the earlier Middle Ages. After a brief period of minting in the 11th century, coining in Sweden was not resumed until the latter half of the 12th century. In the course of 200

years, however, right up to the time of the reign of Albrekt of Mecklenburg (1364—1389), only small coins were struck, chiefly bracteates, which only in exceptional instances bear inscriptions that permit of a direct determination of the time to which they belong. Under such circumstances, it is explicable that the finds from the Wisby graves form an extremely



Fig. 132. Two horse-shoes *in situ*. Regn.no. *Muu* 3. (Cf. fig. 131: 1, 2.)

Fig. 133. (To the right.) Arrow-head with part of shaft. Scale 1:2. Regn.no. *Pvv* 10.

important support for the chronological system which otherwise has to be built up mainly on the type combinations in the hoards. This is particularly so since one may assume that these coins which were in the possession of the warriors taking part in the battle and buried with them were all in circulation at the time. Contrary to what is usually the case, we should, therefore, be entitled to estimate an extremely narrow limit of time for the finds as a whole, which makes the dating of the separate coins still more precise. Another theoretical pos-

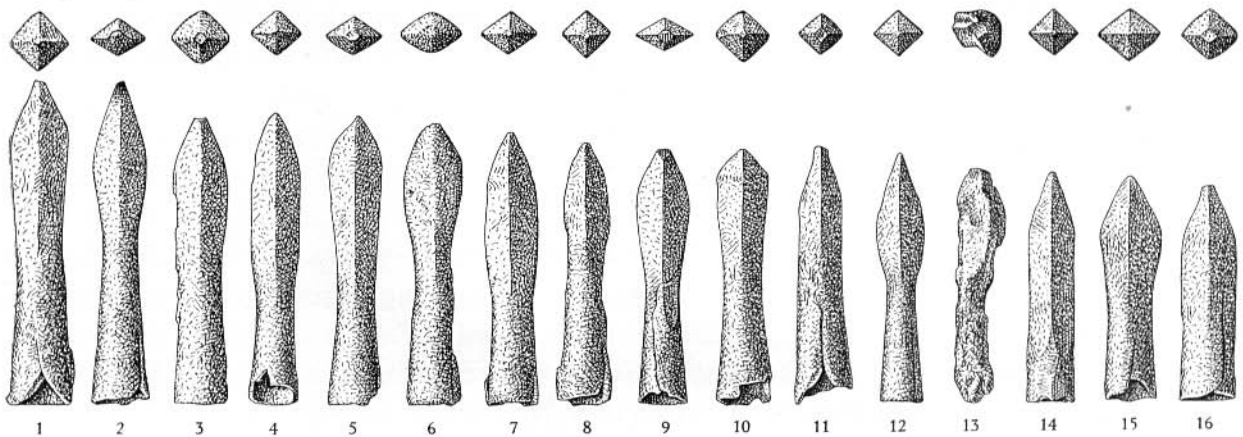


Fig. 134. Iron arrow-heads. Scale 1:2. (1) Regn.no. *Nuu* 2; (2)—*V*: 2; (3)—*VI*: 42; (4)—*Nrr* 13; (5)—*Oss* 4; (6)—*Ntt* 15; (7)—*B I*; (8)—*Utt* 8; (9)—*B IV*; (10)—*B IV*; (11)—*Pvv* 7; (12)—*Qä* 26; (13)—*Lss* 4; (14)—*B I*; (15)—*B I*; (16)—*A* 38.

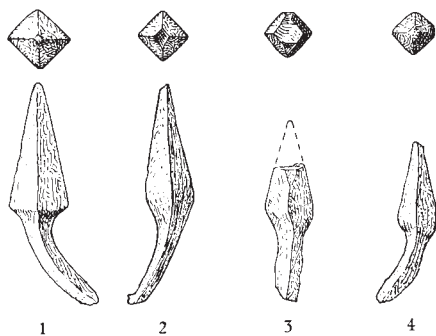


Fig. 135. Iron spikes with tang. Scale 1:2. (1) Regn.no. *Nz 1*; (2)—*Tss 22*; (3)—*Oå 19*; (4)—*Nö 6*.

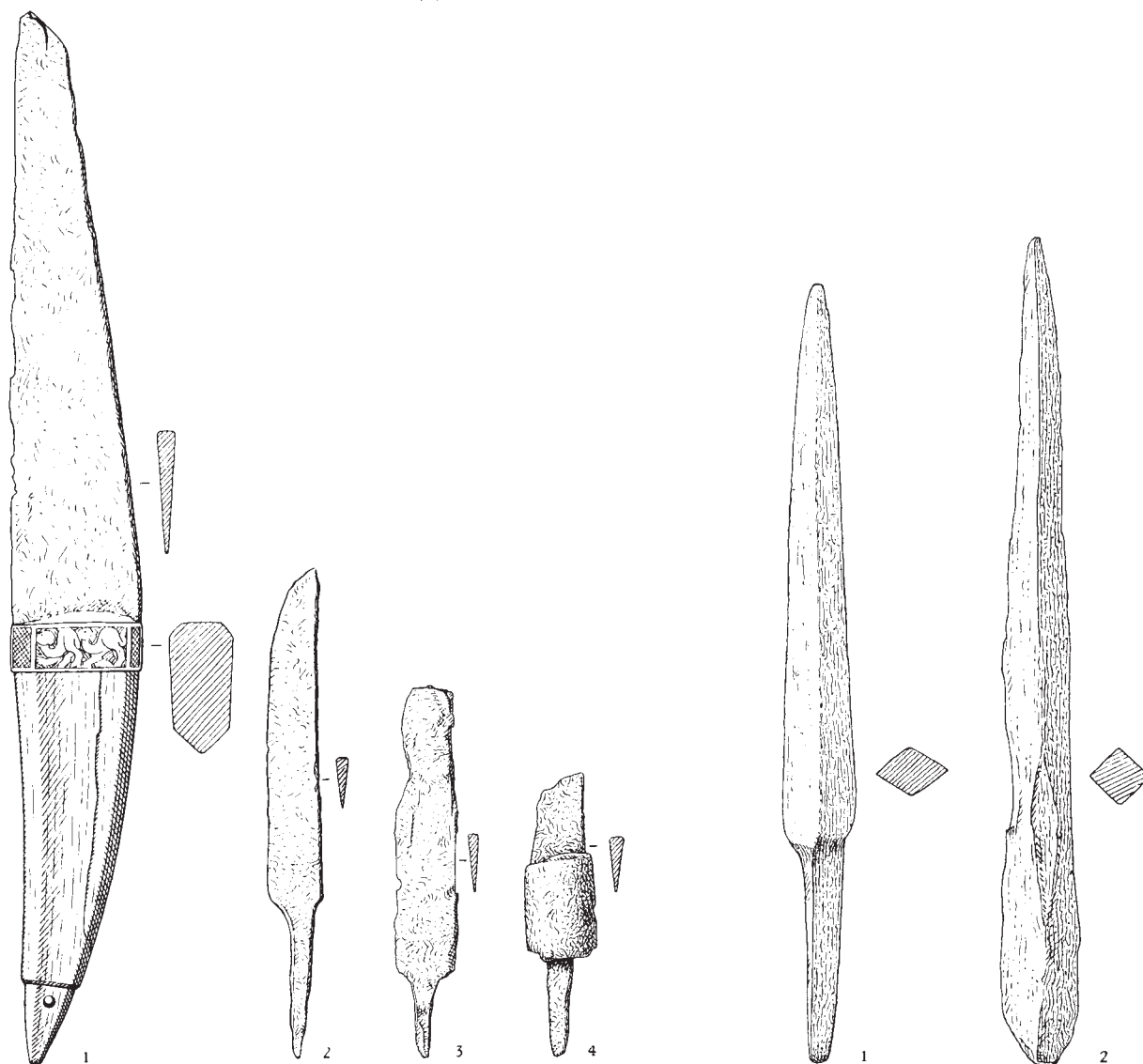
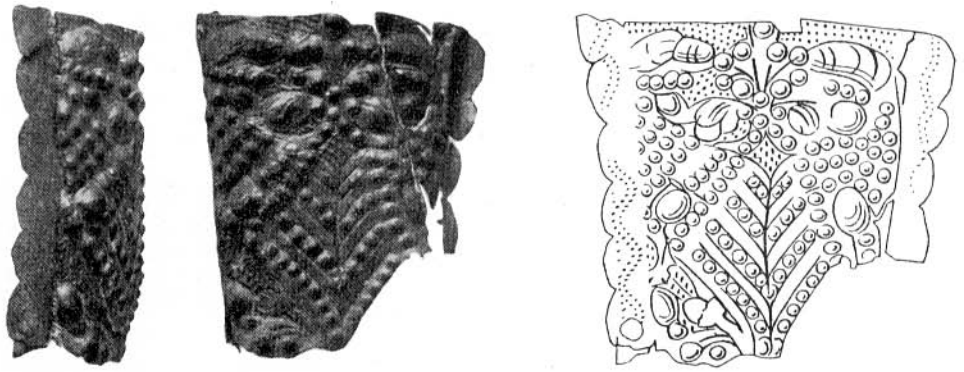


Fig. 136. Iron knives. Scale 1:2. (1) Regn.no. *Ryy 3*; (2)—*Qz 6*; (3)—*A 17*; (4)—*C 2*.

Fig. 137. Iron pike-heads. Scale 1:2. (1) Regn.no. *Qå 1*; (2)—*VI: 18*.



Fig. 141. Hunting-knife. Scale 2:3. Regn.no. Ryy 3.



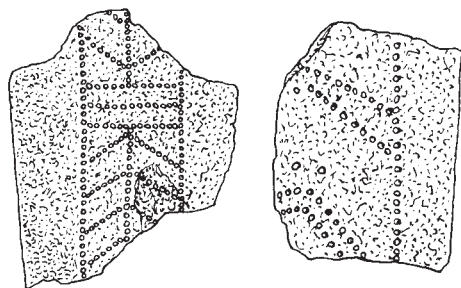
Figs. 138—140. Silver mount for sheath(?). Scale 1:1. Regn.no. VIII: 5.



Figs. 142—144. Silver mount on hunting-knife, fig. 141. Scale 1:1.



Fig. 145. Bone knife-handle. Scale 1:1. Regn.no. A 17.



Figs. 146, 147. Punched decoration on sheet-iron. Scale 3:4. Regn.no. *A 32*.

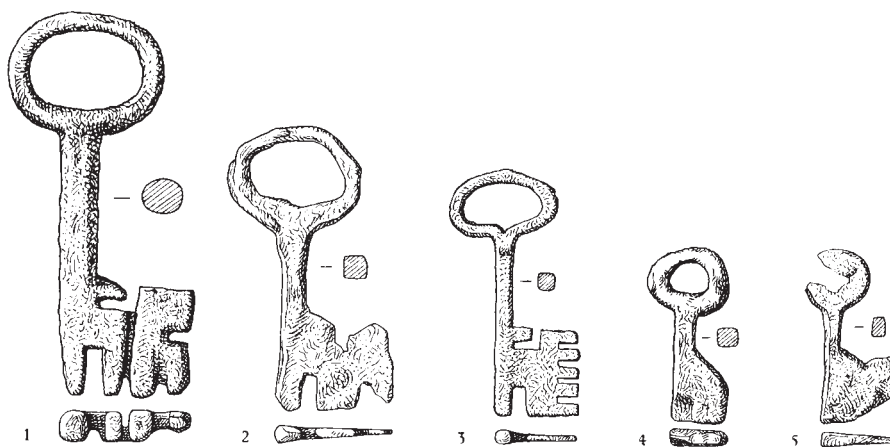


Fig. 148. Iron keys with bits. Scale 1:2. (1) Regn.no. *C 4*; (2)—*Pä 4*; (3)—*V: 102*; (4)—*Qyy 4*; (5) *Qå 38*.

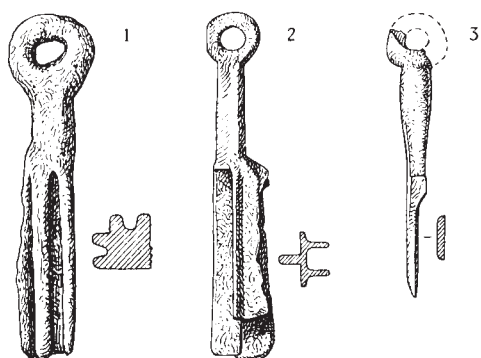


Fig. 149. Iron fether-lock keys. Scale 1:2.
(1) Regn.no. *VI: 45*; (2)—*B XVII*;
(3)—*My 30*.

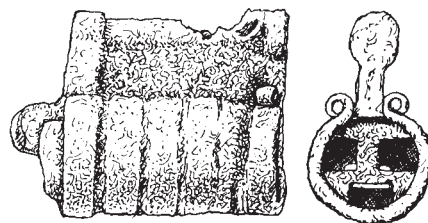


Fig. 150. Iron fether-lock. Scale 1:2.
Regn.no. *A 32*.



Fig. 151. Pottery. Scale 2:3. (1) Regn.no. *A 36, C 5*; (2) —*Ly 33*; (3)—*VIII: 7*; (4)—*Rz 19*; (5)—*Tvv I*; (6)—*Rvv I*; (7)—*Mvv I*; (8)—*V*; (9)—*Lö¹ 4*; (10)—*Ry II*; (11)—grave 3; (12—15)—grave 3: I.



Fig. 152. Bronze sewing needle.
Scale 3:4. Regn.no. VII:1.



Fig. 153. Silver finger-ring. Scale 1:1.
Regn.no. Ry 1.

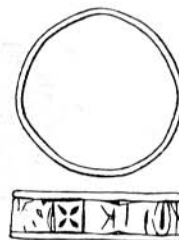


Fig. 154. Stone spindle-whorl. Scale 1:1. Regn.no. My 20.



Fig. 155. Chessman made from horse's tooth. Scale 1:1. Regn.no. VIII:1.



Fig. 156. Flint point from the Stone Age. Scale 1:1. Regn.no. Pö 1.

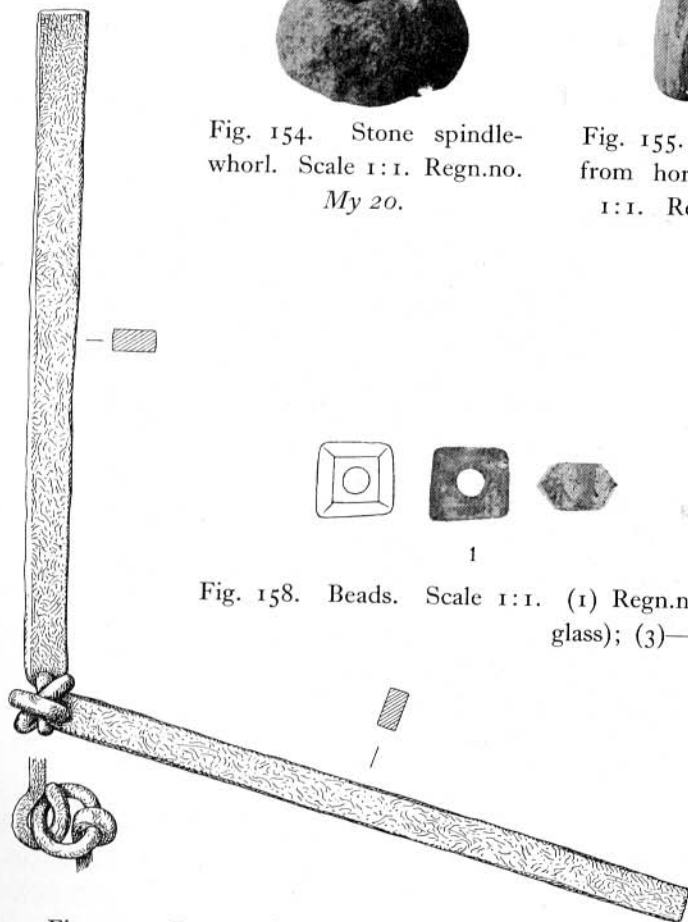


Fig. 157. Iron tool. Scale 1:3. Regn.no. Ott 4:1.



Fig. 158. Beads. Scale 1:1. (1) Regn.no. A 26 (rock crystal); (2)—B II (reddish-brown glass); (3)—B II (green glass).



Fig. 159. Coin find No. I *in situ*. Scale about 3:5. Regn.no. Mz 3.

sibility with regard to the way in which the coins found their way into the soil, namely that they had been dropped by those who buried the dead or previously lost on the spot, and had come amongst the corpses with the soil with which the grave was filled, can only apply if a coin has been found by itself, which is only the case with one of the coins.

The number of the finds is five, consisting of 385, 17, 8, 7 and one coin respectively. The biggest find of coins (find I) had been carried by its owner in a leather pouch, the lower part of which is preserved by the verdigris that had formed from the copper in the coins. The pouch, (fig. 159), consists of two pieces of leather, cut in a semicircle at the bottom and sewn together along the edges. How the upper part of the pouch was made, cannot now be seen, since this part has completely decayed, but it had probably been provided all round with a series of slits through which one or more straps had been passed, similar to a leather pouch, (fig. 160), found in Stockholm.

The coins in the three minor finds of 7, 8 and 17 respectively, were all lying with their flat sides against each other so that the coins formed a stack. Round the largest of these there was a coating of verdigris with perfectly distinct fabric structure, for which reason these coins seem to have been tied or sewn into the clothing.



Fig. 160. Medieval leather pouch from Stockholm. Scale 1:3. National Museum of Antiquities, Stockholm.

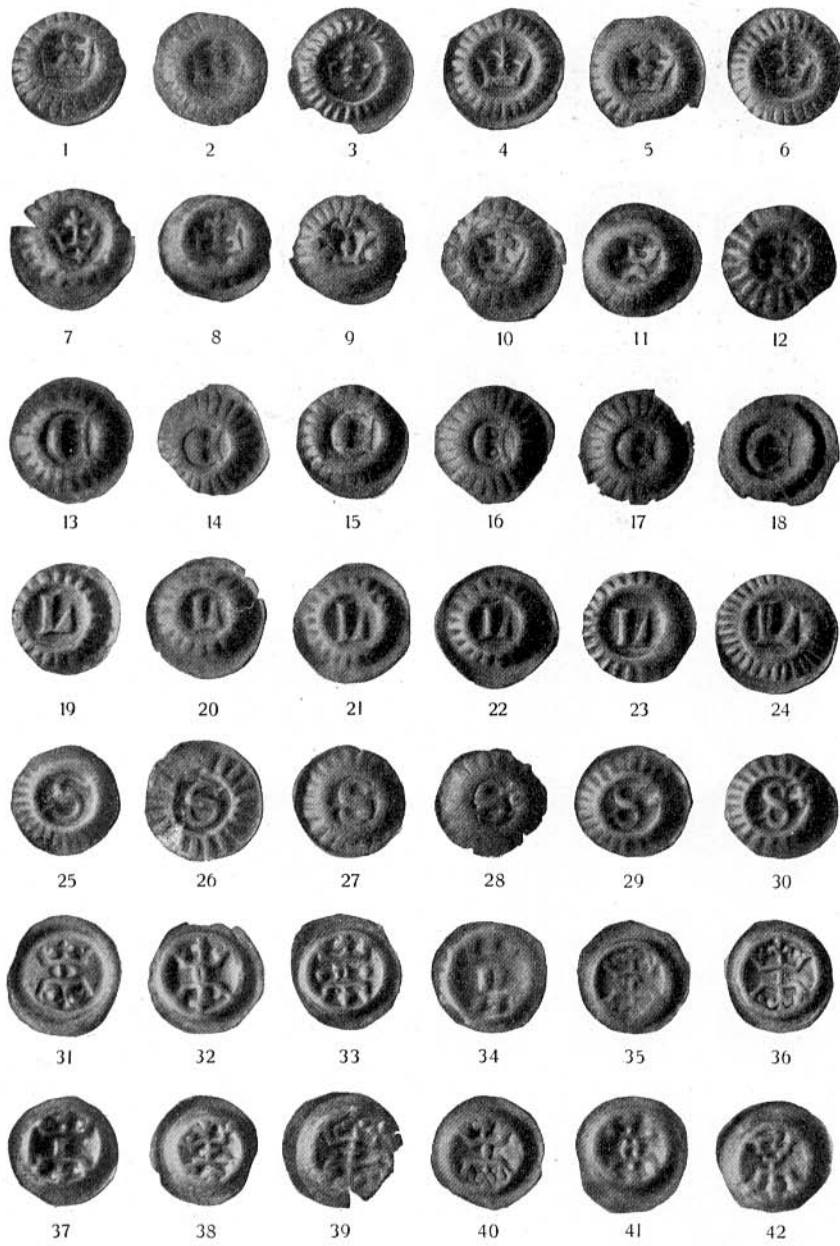


Fig. 161. Coins from find I. Scale 1:1.

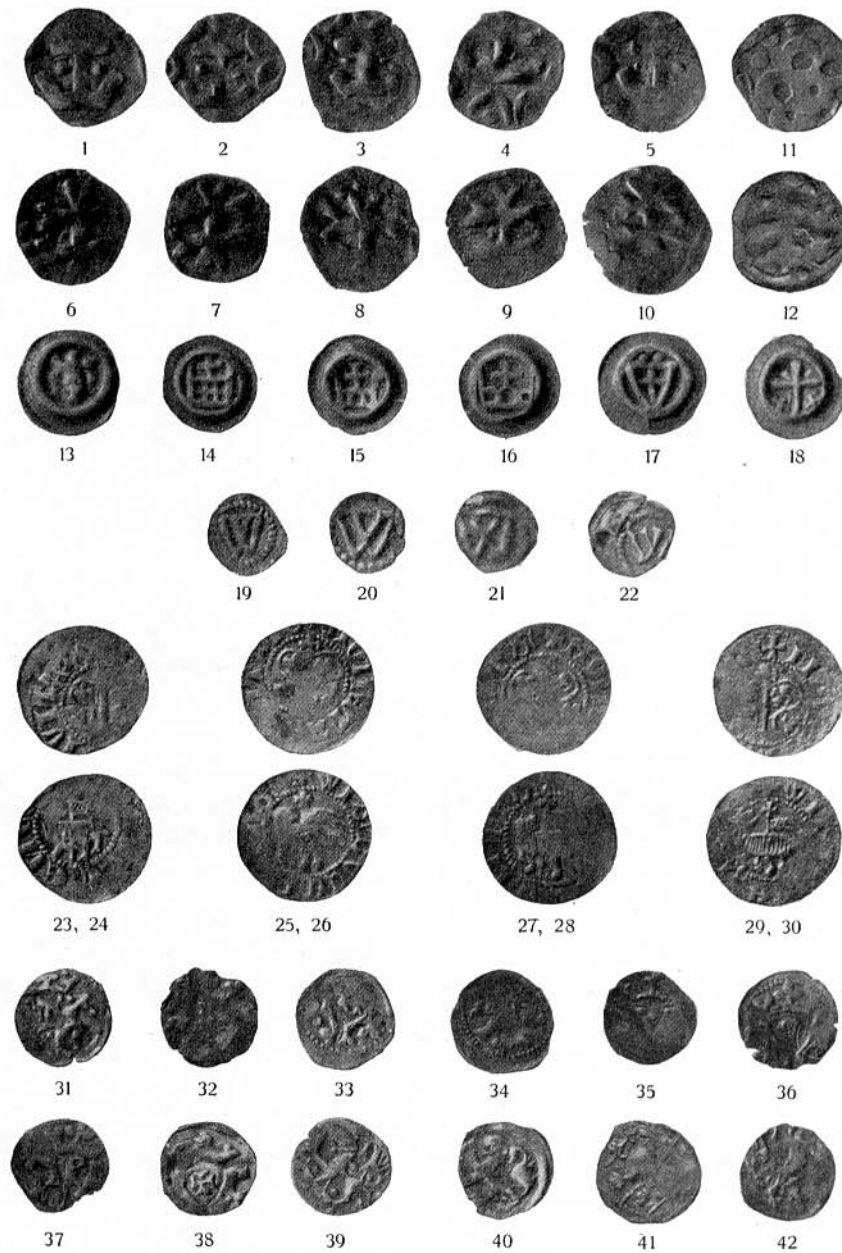


Fig. 162. Coins from find I (1—18), II (19—26, 31—33, 39, 40, 42), III (34—36, 41), IV (27, 28, 37, 38), V (29, 30). Scale 1:1.

FIND I.

(385 coins. Regn.no. Mz 3. Found in 1929.)

SWEDEN (245 coins).

GROUP XX¹¹⁷ (170 coins).

- 1—35. *Bracteates*. Crown of varying shape within aureole (fig. 161: 1—6). Weight 0.31 gr. (10)¹¹⁸ 35
36. *Bracteate*. Like preceding, but below the crown a pentagonal star (fig. 161: 7) 1
- 37—41. *Bracteates*. Like preceding, but below crown two pellets (fig. 161: 8). Weight 0.46 gr. 5
42. *Bracteate*. Like preceding, but a pellet on each side of the crown and one on the stalk of the central leaf (fig. 161: 9) 1
43. *Bracteate*. Like preceding but below the crown a crescent with points upwards (fig. 161: 10) 1
44. *Bracteate*. Like preceding but crescent with points downwards (fig. 161: 11). Weight 0.34 gr. 1
- 45—50. *Bracteates*. Like preceding but crown and crescent connected by a short vertical line (fig. 161: 12). Weight 0.42 gr. 6
- 51—75. *Bracteates*. E within aureole. Proportion of letter and size varying (fig. 161: 13—15). Weight 0.32 gr. (10) 25
- 76—79. *Bracteates*. Like preceding but within the letter, on both sides of cross-stroke, a pellet (fig. 161: 16). Weight 0.36 gr. 4
80. *Bracteate*. Like preceding but only one (?) pellet located above cross-stroke (fig. 161: 17) 1
81. *Bracteate*. Like 51—75 but inside left, yoke-shaped part of the letter a vertical stroke (fig. 161: 18). Weight 0.31 gr. 1
- 82—131. *Bracteates*. L within aureole (fig. 161: 19—23). Weight 0.37 gr. (10) 50
- 132—133. *Bracteates*. Like preceding but main staple of letter doubled (fig. 161: 24). Weight 0.39 gr. (2) 2
- 134—155. *Bracteates*. S within aureole. Shape of letter greatly varying (fig. 161: 25—27). Weight 0.31 gr. (10) 22
- 156—159. *Bracteates*. Like preceding but on one side of letter a pellet (fig. 161: 28, 29). Weight 0.30 gr. (2) 4
160. *Bracteate*. Like preceding but on one side of the letter a cross (fig. 161: 30). Weight 0.33 gr. 1
- 161—170. *Bracteates*. Aureole, otherwise indefinable 10

GROUP XXI (74 coins).

- 171—183. *Bracteates*. Two opposed crowns of varying shape within smooth circle. Between the crowns the letter O (fig. 161: 31, 32). Weight 0.27 gr. (5) 13
- 184—191. *Bracteates*. Like preceding but between the crowns the letter n between two pellets (fig. 161: 33). Weight 0.35 gr. (2) 8
- 192—197. *Bracteates*. Like preceding but without pellets (fig. 161: 34). Weight 0.38 gr. (5) 6
- 198—208. *Bracteates*. Like preceding but between the crowns the letter T (fig. 161: 35, 36). Weight 0.28 gr. (5) 11
- 209—210. *Bracteates*. Like preceding but between the crowns the letter B (fig. 161: 37). Weight 0.25 gr. (2) 2
- 211—227. *Bracteates*. Like preceding but between the crowns a cross (fig. 161: 38, 39). Weight 0.29 gr. (10) 17
228. *Bracteate*. Like preceding but between the crowns a vertical stroke (fig. 161: 40). Weight 0.22 gr. 1
229. *Bracteate*. Like preceding but between the crowns the sign (-) (fig. 161: 41). Weight 0.22 gr. 1
230. *Bracteate*. Like preceding but between the crowns the sign † (= T?) (fig. 161: 42). Weight 0.23 gr. 1
- 231—244. *Bracteates*. Like preceding but the sign between the crowns illegible 14

GROUP XXII (1 coin).

245. *Bracteate*. Crowned human head from the front within smooth circle (fig. 162: 13). Weight 0.30 gr. 1

DENMARK (126 coins).

- 246—370. *Obverse*. Anchoral sign surrounded by two pellets within a circle of eight crescents with outwardly turned points, each one with a pellet in centre (fig. 162: 1—5). *Reverse*. Patriarchal cross with all six ends of arms of cross cleft within an edge of pellets (fig. 162: 6—10). Hauberg¹¹⁹: Lund 1332—1360, No. 16. Weight 0.94 gr. (60) 125
371. *Obverse*. Sexifoliate rose within edge of pellets (fig. 162: 11). *Reverse*. Lily within edge of pellets (fig. 162: 12). Hauberg: Erik Menved (1286—1319). N. Jutland No. 9. Weight 1.08 gr. 1

TEUTONIC ORDER (6 coins).

372. *Bracteate*. Crown within smooth circle. Ring of crown represented by three horizontal lines crossed by two vertical ones.

- Centre leaf of crown has the shape of a cross (fig. 162: 14). Vossberg¹²⁰ III: 85. Weight 0.13 gr. I
373. *Bracteate*. Like preceding but ring of crown represented by only two horizontal lines (fig. 162: 15). Vossberg III: 16. Weight 0.16 gr. I
374. *Bracteate*. Like preceding but upper horizontal line on crown terminating in one (three?) points (fig. 162: 16). Weight 0.15 gr. I
- 375—376. *Bracteates*. Pointed shield with cross within smooth circle. Above shield three pellets (fig. 162: 17). Vossberg II: 18. Weight 0.15 gr. 2
377. *Bracteate*. Latin cross within smooth circle. On both sides of base of cross close to circle at edge a smaller cross and in each angle above cross-arm a pellet-like ray (fig. 162: 18). Vossberg II: 40 var. I

INDEFINABLE (8 coins).

- 378—385. *Bracteates* 8

FIND II.

(17 coins. Regn.no. *Lt I*. Found in 1929.)

GOTLAND. WISBY. (11 coins.)

1. *Bracteate*. W with the upper ends of the four staples united by a line within an obliquely striated edge (fig. 162: 19). Weight 0.11 gr. I
2. *Bracteate*. Same as preceding but within a beaded edge (fig. 162: 20). Weight 0.09 gr. I
3. *Bracteate*. Same as preceding but within smooth edge. Weight 0.12 gr. I
4. *Bracteate*. W with short stroke above the letter within a smooth edge (fig. 162: 21). Weight 0.12 gr. I
5. *Bracteate*. W within beaded edge (fig. 162: 22). Weight 0.09 gr. I
- 6—8. *Bracteates*. Like preceding but within smooth edge. Weight 0.09 gr. 3
9. *Bracteate*. Like preceding (?). Weight 0.09 gr. I
10. *Obverse*. Lily with cross (?). Outer and inner beaded edge. Inscription: + M — — — — CIVITATS (fig. 162: 23). *Reverse*: Lamb with flag to right. Inner beaded edge. Inscription: — — SBVCENC — — (fig. 162: 24). Weight 0.97 gr. I
11. *Obverse*. Lily with fleur. Inner obliquely striated edge. Inscription: + MONETA C — — ITATS (fig. 162: 25). *Reverse*. Lamb

with flag to right. Inner obliquely striated edge. Inscription: + WISBVCE — — IS (fig. 162: 26). Weight 1.19 gr. I

SWEDEN.

GROUP XIX (6 coins).

12. *Obverse*. Lion to right within smooth edge. *Reverse*. A (?) between three opposed crowns. Weight 0.30 gr. I
13. *Obverse*. Lion to right. *Reverse*. B between three opposed crowns (fig. 162: 32). Weight 0.30 gr. I
14. *Obverse*. Illegible. *Reverse*. E between three opposed crowns within beaded edge (fig. 162: 33). Weight 0.43 gr. I
15. *Obverse*. Lion to left (fig. 162: 42). *Reverse*. Cross between three opposed crowns. Weight 0.43 gr. I
16. *Obverse*. Lion to right over two oblique bars. Pellets in field (fig. 162: 39). *Reverse*. Tower between three opposed crowns. Pellets in field (fig. 162: 31). Weight 0.40 gr. I
17. *Obverse*. Lion to right within smooth edge (fig. 162: 40). *Reverse*. Illegible. Weight 0.35 gr. I

FIND III.

(8 coins. Regn.no. *VIII*: 8. Found in 1930.)

SWEDEN.

GROUP XIX (8 coins).

1. *Obverse*. Lion to right over oblique bars within beaded edge (fig. 162: 41). *Reverse*. Reversed R (?) between three opposed crowns within beaded edge (fig. 162: 34). Weight 0.32 gr. I
2. *Obverse*. Illegible. *Reverse*. V with pellet between three opposed crowns (fig. 162: 35). Weight 0.54 gr. I
3. *Obverse*. Lion to left. *Reverse*. Cross between three opposed crowns. Weight 0.47 gr. I
4. *Obverse*. Lion to right. *Reverse*. Like preceding (?). Weight 0.38 gr. I
5. *Obverse*. Lion to right over oblique bars (?) within beaded edge. *Reverse*. Rose between three opposed crowns within beaded edge (fig. 162: 36). Weight 0.39 gr. I
6. *Obverse*. Lion to right over oblique bars within smooth edge. *Reverse*. Tower between three opposed crowns within smooth edge. Weight 0.45 gr. I

7. *Obverse*. Lion to right. *Reverse*. Three opposed crowns within beaded edge. Weight 0.45 gr. I
8. *Obverse*. Lion to left within beaded edge. Pellets in field. *Reverse*. Three opposed crowns. Pellets in field between and over the crowns. Weight 0.47 gr. I

FIND IV.

(7 coins. Regn.no. Pxx 9. Found in 1930.)

GOTLAND. WISBY (1 coin).

1. *Obverse*. Lily with fleur. Inner obliquely striated edge. Inscription: + MON — — — — — — — — — — TS (fig. 162: 27). *Reverse*. Lamb with flag to right. Inner obliquely striated edge. Circumscription + — — — — — CENCIS (fig. 162: 28). Weight 0.98gr. I

SWEDEN (6 coins).

GROUP XIX (6 coins).

2. *Obverse*. Lion to right over oblique bars within smooth edge. *Reverse*. A(?) between three opposed crowns within smooth edge. Weight 0.12 gr. I

3. *Obverse*. Like preceding. *Reverse*. P between three opposed crowns (fig. 162: 37). Weight 0.20 gr. I
4. *Obverse*. Lion to right over oblique bars within beaded edge. Pellets in field? *Reverse*. S(?) between three opposed crowns. Pellets in field. Weight 0.21 gr. I
5. *Obverse*. Illegible. *Reverse*. Cross between three opposed crowns within smooth edge (fig. 162: 38). Weight 0.23 gr. I
6. *Obverse*. Lion to left within smooth edge. *Reverse*. Like preceding(?) within smooth edge. Weight 0.32 gr. I
7. *Obverse*. Lion to right(?) within smooth edge. *Reverse*. Like preceding(?) within smooth edge. Weight 0.17 gr. I

FIND V.

(1 coin. Regn.no. Pz 8. Found in 1929.)

GOTLAND. WISBY (1 coin).

1. *Obverse*. Lily with fleur. Outer and inner beaded edge. Inscription: + M — — — (fig. 162: 29). *Reverse*. Lamb with flag to right. Inner beaded edge. Inscription: + WI — — (fig. 162: 30). Weight 0.65 gr. I

On making a summary survey of the contents of the coin finds it strikes one at once that none of the types of coins which form Find I are to be found in Finds II—V, while the latter are all similar in character, being composed of Wisby coins and the Swedish coins of group XIX; in two finds these are mixed, but in the other two each sort occurs separately. Find I is dominated by the Danish so-called civil war coins (246—371) which amount to 33 % of the entire find, and which all except one, (371), bear the same mark. From this one can conclude without much hesitation that the owners of finds II—V were Gotlanders, but the owner of find I a Dane. It should be especially pointed out that the debased civil war coins were hardly accepted as currency outside Denmark.

The remaining two thirds of find I consist exclusively of bracteates, the majority of them Swedish, viz. 44 % of group XX and 19 % of group XXI, and one specimen of group XXII. Of the remainder, six were struck for the Teutonic Order and eight are indefinable.

The finds II—V, on the other hand, consist altogether of four double-sided Wisby coins, nine bracteates struck in Wisby, and twenty double-sided coins from the Swedish mainland, belonging to group XIX. The coins which compose finds II—V are just what one would expect to find in the pocket of a Gotlander in the year 1361. Of course, one would have thought that the coins struck in Wisby would dominate in number; that the opposite is the case, may, however, be due to chance, and should hardly lead to any extravagant speculations. The double-sided Wisby coins were first struck in the middle of the 14th

century, and were copied from the Witten coins of the German Hanseatic towns, which were introduced about the year 1340. But the age of the small Wisby bracteates, on the other hand, is more uncertain. The prominent Danish numismatist, P. Hauberg, who has made a special investigation¹²¹ of the Wisby coins, considered that they belonged to the period after about 1430. The present finds show, however, that they had existed at least from the middle of the 14th century, and it is by no means unlikely that they are a good deal older still. The Swedish coins from group XIX certainly belong to the latter part of King Magnus Eriksson's reign. In his important work on Swedish medieval coinage, Hans Hildebrand has wished to identify these with a coinage that was first struck after the 22nd February, 1354¹²², while I have considered it more probable that it was introduced earlier, let us say about 1340.¹²³

Of the Swedish coins in find I, both group XX and group XXI have previously been attributed to Sweden and Norway. But it might now be agreed that they are all of Swedish origin and belong to the last years of the reign of Magnus Eriksson. As to their dating, I have, judging from their occurrence amongst the coin finds and their quality, suggested that group XX be dated to the time after the 22nd February, 1354, and that group XXI be identified with a debased issue of coins in 1356, withdrawn in 1363. Group XXII embraces many different varieties of the effigy with a frontal crowned head which was struck in Sweden right up to the 16th century. It has previously been considered that this type was not introduced until the time of Magnus Eriksson's successor, Albrekt of Mecklenburg, but this find shows that in any case, it was struck prior to 1361, and probably not long before this year, to judge from the fact that it is here represented by only one specimen.

Treasure trove with coins of groups XX and XXI have come to light in Sweden in fairly large numbers. The finds known to me of this kind are introduced on the map, fig. 163. Of these, the finds from Skänninge and Skövde display a later character than the others, in that they also contain coins of the later group XXIII (crowned letter). The finds from Landskrona and Eldsberga on the other hand, agree in a striking manner in their composition with our find I; even the proportions of the various types are almost identical. These circumstances are so striking that they entitle us to assume that the owner of the find No. I, who fell in the battle of Wisby, was a man who came from that part of the country where the last mentioned finds have been discovered. This part of the country belonged to Denmark since a short time, after having been in the possession of the Swedish king for a couple of decades.¹²⁴ Obviously Swedish and Danish coins were in circulation at this period in a fairly constant proportion—probably relative to the size of the issue of the different types—which is reflected in the three finds which must have been deposited almost contemporarily. It has been suggested¹²⁵ that the coins in group XX belong to a coinage localized to this part of the country, and this idea is very attractive; the topographical distribution of sporadic finds, which is more reliable evidence of the locality of a coinage than the hoard, seems to point in the same direction. Though no systematic investigation into this has been carried out, the sporadic finds of group XX seem to be concentrated in south-western Sweden.

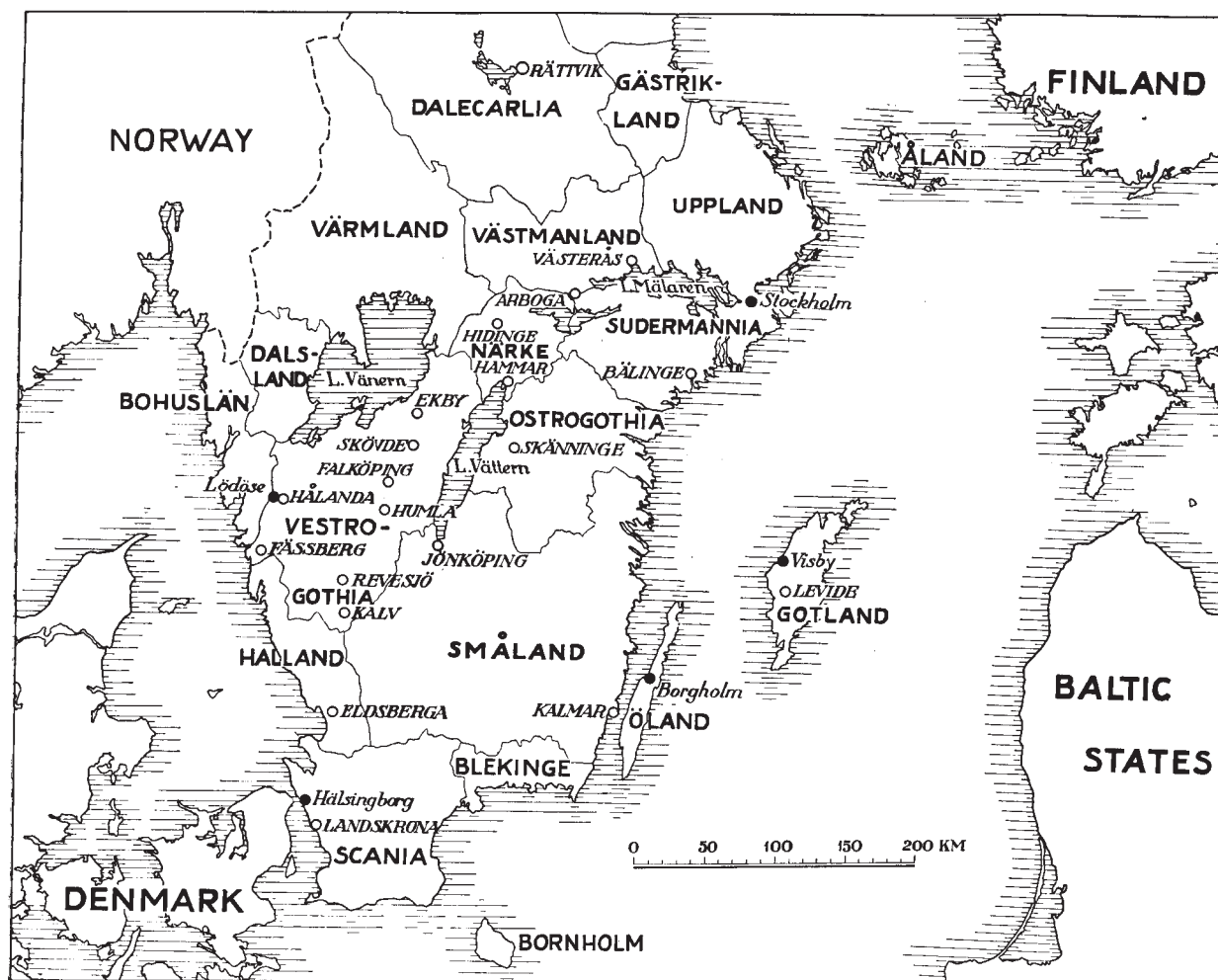


Fig. 163. Map of Southern and Central Sweden. ○ Coin finds from the period about 1360—1365.

If we study the spread of the hoards set out on the map, and then ignore the two later finds, we shall find that these mark the scope of warlike operations in Sweden between 1360 and 1365. It is a well-known fact that the burial of treasure in the soil is largely caused by imminent risk of war. Of the coin finds discussed here, the one from Levide certainly belongs to those treasures which were hidden by the Gotlandic peasantry from the Danish host in the summer of 1361, as already pointed out by Hildebrand in the publication of the find.¹²⁶ The Kalmar find, too, should probably be dated to the same year, when the Danish fleet passed the Kalmar Straits and occupied the Island of Öland. Otherwise it might have been deposited in 1363, but from a numismatic point of view it gives the impression of being earlier. In the spring of the year 1362, a Hanseatic fleet operated in the Öresund Straits, when Hålsingborg was besieged, and the Landskrona find may reasonably be dated to this period. The Edsberga find was probably concealed in the soil a year or so later when Halland was devastated by both Swedish and Danish armies. On that occasion the latter

held the area right up to the border of Vestrogothia; and Revesjö, from which we also have a coin find, is situated not far from this. Besides this, there is a find with Danish civil war copper coins from the parish of Kalv, just south of Revesjö. Even in 1366 Danish armies were devastating western Småland and southern Vestrogothia. The bulk of the finds stretch from the mouth of the Göta River through Vestrogothia and Närke, along to Västerås, and it was along this very road that Magnus Eriksson and his son Håkon marched in the late winter of 1365 with a united western Swedish, Danish and Norwegian army that had probably been collected at Lödöse (in whose immediate vicinity Hålanda is located); on the 27th February this army was at Arboga, and on the 3rd March was defeated by King Albrekt at Gataskog, to the east of Västerås. Only the finds from Rättvik and Bälinge are outside the areas directly affected by the war, and also the Skänninge find, though this, as has been pointed out, is much later and need not be taken into consideration here.

These finds have, of course, very little new to tell us about the historical course of events. Our knowledge of this must be based first and foremost upon the written sources. The connection here established between the finds and the military operations is chiefly valuable in placing the finds in chronological order, and in so doing they form a more valuable source for numismatic research.

CHAPTER IV.

THE SKELETONS.

By Bo E. Ingelmark.

As has already been pointed out in Chapter II, the corpses of the warriors lay in disorder in the burial pits, except in a small superficial part of common grave 3 and the superficial layer of common grave 4. For those parts of the material which were recovered before 1928, and where the positions of the bones were not noted, it was impossible to reassemble the various parts belonging to the same skeleton. During the excavation seasons of 1928—30 the whole burial field was divided into areas of 0.5 m. square and photographs were taken repeatedly during the excavations, so that it was possible to follow a large number of the various parts of the skeletons downwards also, and these were given the same numbers as the squares in which they were found. With this material, then, it should be possible, at least to some extent, to reconstruct the different skeletons. But this has not been done, except in a few instances, because the results would probably not have justified the enormous work which this reconstruction would have entailed owing to the magnitude of the material.

The material excavated under the leadership of Dr. O. V. Wennersten in 1905, was partly transferred to the Anatomical Institute at Uppsala, where it was very meticulously dealt with by Professor E. Clason, who was then director of the Institute. He rendered an account of his labours in a work which was published posthumously in 1925. A large part of the material from the excavation seasons of 1905 and later was packed in cases and placed in one of the store-rooms of the National Museum of Antiquities in Stockholm. Most of the cases containing the material from 1928—30 were marked with the year of excavation and the number of the squares from which the bones had come. Most of the bones were marked, and some small fragments were collected in bags which were given the numbers of the square from which they had been collected. A small part of the material consisting of the more conspicuous pathological cases and the bones, which, to a greater or less degree, were enclosed in parts of armour, were unpacked and stored in the Museum. The bulk of the material was sent to the Anatomical Institute at Uppsala during the months of May and June, 1937, where a preliminary inspection took place. On this occasion all measurable

This chapter is to be a communication from the Anatomical Institute of the University of Uppsala. Director: Professor David Edv. Holmdahl, M. D.

tubular bones (intended for determining the length of the body), all loose epiphyses, diaphyses with loosened epiphyses and bones with still open epiphysery borders, where, however, no loosening of the epiphyses had occurred (for determining the age); all parts showing pathological changes or battle injuries as well as all crania, basis occipit. and atlases (for continuing a previous investigation of atlas assimilations and occipital manifestations) were set aside. Further, all detached heads of the femur (for the determination of the number of individuals), as well as all whole and parts of lower maxillae, which were to serve in determining the distribution of age amongst the material, were counted.

The remainder of the material was replaced in their respective cases, except the very smallest fragments of bone which could not be identified and were therefore of no scientific interest. It is intended to take these back to Wisby and bury them in the place where the common graves are situated.

The purpose of the investigation was to obtain an idea of the number of individuals who had been buried in the different common graves, their sex, age, morbid changes and injuries from battle, and their approximate height.

DETERMINATION OF THE NUMBER OF INDIVIDUALS.

For determining the number of individuals it is necessary to find a suitable part of a bone of great strength, with distinct difference between right and left, and of sufficient size, so that it will be easily noticed during the excavations. The part of a bone which best fulfils these conditions is the caput femoris, and therefore I used this for the determination. When all whole femora with caput intact, and all separate capita femoris from the different common graves were counted, the figures in table 1 were obtained.

Tab. 1. *Right and left heads of femur found in the different common graves.*

	Number right.	Number left.	Number right-left.	Percentage right of total number.	Number right+left.	Percentage of total number.
Common grave 1	256	237	19	51,95	493	23,40
» » 2	669	710	-41	48,51	1379	65,45
» » 3	119	116	3	50,64	235	11,75
» » 1+2+3	1044	1063	-19	49,55	2107	100,00

As is seen from this table, in all three common graves the number of right and left capita femoris is unequal. This must mean that the material is not complete, as one need not consider the occurrence of individuals who have lost the heads of either of their femurs, or with any mixing up of the material from the different common graves, because these were lying comparatively far apart, and the material from the different common graves had always been kept strictly separate. I am unable to find a definite explanation for this unequal distribution. One might think that the caput femoris of the left side had a greater chance

of being preserved, because the left femur is somewhat larger and stronger than the right one. It may also be possible that, in refilling the graves, some bones from earlier burials on the same site were added.

The greater number of heads of the femur from common graves 1 and 3 belong to the right side, but from common grave 2 to the left side, and in all three cases the difference is, at the most, 2 % of the total number. For the whole material the difference is 0.45 %. In every common grave the number of individuals must, however, have been at least as great as the number of capita femoris belonging to that side of which most were found, that is:

For common grave 1.	256
» » » 2.	710, and
» » » 3.	119

being a total of 1,085.

MATHEMATICAL DETERMINATION OF THE SMALLEST NUMBER OF INDIVIDUALS BURIED IN THE RESPECTIVE COMMON GRAVES.

If it is assumed that the heads of the femur have become detached quite at random (which seems to have been most probable), it is possible to determine, from the difference in the number of right and left heads of the femur found in the different common graves, the smallest number of individuals in each one. For on this presumption the difference between right and left must be less than 3 σ and by this means it is possible to obtain the desired minimum.

The following designations are used:

- Number of left heads of the femur found = L .
 - » » right heads of the femur found = R .
 - » » buried corpses = x .
- Proportion of destroyed femurs = p .

$$p = \frac{2x - (R + L)}{2x};$$

Proportion of preserved femurs = $1 - p$.

$$1 - p = \frac{R + L}{2x};$$

The estimated number of destroyed right and left heads of the femur =

$$px \pm x \sqrt{\frac{p(1-p)}{x}};$$

The estimated difference = D .

$$D = 0 \pm x \sqrt{2 \frac{p(1-p)}{x}};$$

The maximum difference = $D_{\max.}$.

$$D_{\max.} = \pm 3x \sqrt{2 \frac{p(1-p)}{x}};$$

$D_{\max.}$ for common graves 1, 2, and 3 is 19, 41, and 3 respectively. If these values are inserted in the last equation above, in which, then, all factors except x are known, it is possible to solve the equation and obtain the minimum number of individuals buried in the different common graves. The numbers in question are as follows:

Common grave	1	268	individuals
»	»	2	798 »
»	»	3	119 »

Therefore, the total number of men in the three common graves is 1,185. Taking into consideration the fact that at least one common grave has previously been destroyed and at least one not yet excavated, the legendary statement that 1,800 warriors were killed in the battle does not seem exaggerated.*

DISTRIBUTION OF SEXES.

The determination of sex in a skeleton is, if we ignore the cranium, a very difficult matter, because we have only minute, very variable details to judge by. In the part of the Korsbetningen material investigated by him, Professor Clason found nine pelvises which he considered were probably female. His material included a hundred and fifty-three right and a hundred and fifty-five left heads of the femur, i.e. the number of individuals was one hundred and fifty-five. The proportion of females would thus be 5 %, which, if the same percentage held good for the whole Korsbetningen material, would mean that sixty-three women fell in the battle. But even this number would be too small, for account must be taken of the fact that a large number of pelvises are in such a condition that their sex cannot be determined. On examining the material, however, I have not found anything which indicates with complete certainty that any women took part in the battle or were buried with the warriors.

* Professor Gunnar Dahlberg, M. D., Uppsala, and Dr. Hjalmar Sjövall, Lund, have been so kind as to carry out the mathematical determination of the probable number of individuals in the respective common graves, for which I express my respectful and sincere gratitude.

DISTRIBUTION OF AGE.

In determining the distribution of age amongst the individuals I have made use of two different methods. The first consists in counting all lower maxillae and dividing them into the following three groups:

1. Lower maxillae without any third molar and without any senile changes.
2. Lower maxillae with third molar but without senile changes.
3. Lower maxillae with distinct senile changes.

This method is rather rough and only serves to supply approximate statement of the distribution of ages. Group 1 would include individuals of twenty-one years of age or less, though this limit is very vague, because these teeth may appear between the ages of eighteen and thirty, and are sometimes altogether absent. It is a distinguishing characteristic of a civilized being that the third molar appears later and is more often lacking than in more primitive races. Martin (1914) states that the third molar is lacking in 12 % of modern Europeans but only very seldom in Australian aborigines. In order to try to reduce this source of error I have counted the lower maxillae as belonging to group 2 even if a third molar has only broken through the alveolar process on one side, and even if this has taken place so imperfectly that it is only just discernible and has obviously not broken through the gums at all during lifetime. As in this instance it concerns material six hundred years old, when the teeth were less affected by the influence of civilization than now, and as I have only included in the youthful group individuals who lack the third molar in the lower maxilla altogether, I think it may be assumed with considerable probability that the error will be fairly slight.

In the oldest group, lower maxillae have been included which to a greater or less extent lacked teeth and where atrophy of the alveolar process was rather prominent. One may, therefore, assume that these individuals were at least over fifty-five years old.

Owing to the fact that the material has been subjected to considerable violence during the time it has been in the earth, a considerable number of the lower maxillae are broken. In dealing with the material I have therefore divided the fragments of lower maxillae into three groups: whole lower maxillae, right halves, and left halves. Minor fragments of lower maxillae have not been used for the determination of age. Each one of these three groups was then divided into three subdivisions, viz. lower maxillae where one third molar had broken through but where no senile changes had occurred, those where no third molar had broken through, and those with distinct senile changes.

For determining the number of individuals in each group, I added the number of whole lower maxillae to the number of halves belonging to the side which was greater in each common grave. Here, too, one obtains an approximate figure for the number of individuals, though the larger number of halves is naturally less than the original total, owing to the distinction of some in the soil. This, however, is compensated somewhat by the fact that no doubt two halves belonging together sometimes occur, only one of which has a

third molar. This will consequently raise the number of individuals belonging to the youngest group a certain amount.

Tab. 2. Lower jaws and parts of such divided according to the age of the individuals.

	Right half of mandible.			Whole mandible.			Left half of mandible.			Total number of individuals.				Percentage of total number.			
	a	b	c	a	b	c	a	b	c	a	b	c	a+b+c	a	b	c	a+b+c
Common grave 1	6	31	7	25	89	33	9	30	3	34	120	40	194	17,5	61,9	20,6	22,4
" " 2.	29	101	25	83	302	42	15	93	15	112	403	67	582	19,2	69,2	11,7	67,3
" " 3.	3	5	5	18	41	11	9	3	1	27	46	16	89	30,3	51,7	18,0	10,3
Total	38	137	37	126	432	86	33	126	19	173	569	123	865	20,0	65,8	14,2	100,0

a = lower jaws without senile changes in which no third molar has broken through.

b = "

c = " " with distinct senile changes.

Table 2 shows the number of whole and parts of lower maxillae belonging to the respective groups and common graves. It is seen from the table that only about 75 % of the number of individuals found by counting the heads of the femur are represented by lower maxillae which could be identified to such an extent that they were of use for the determination of the number of individuals. The relative number of individuals in the different common graves computed from lower maxillae and heads of the femur shows complete agreement.

The distribution of age among the different common graves shows a considerable variation. Common grave 3 differs most from the two others, chiefly in its large percentage of young men (30 %). Common graves 1 and 3 also show a considerably greater number of elderly men than common grave 2. This means that common grave 2 consisted mostly of men fit for war (70 %), whereas common grave 1 contained only 60 % and common grave 3 only 50 % of such. This indubitably speaks in favour of the army having been composed of the entire male population in the neighbourhood of Wisby. Further very strong evidence of this fact will be found when we examine the pathological changes and injuries received prior to the battle.

In order to obtain a somewhat more accurate idea of the distribution of age, all young bones were set apart when the material was examined. These bones consisted of wholly loosened epiphyses, diaphyses with loosened epiphyses, and diaphyses with epiphyses left in position but with a more or less open epiphysary border, so that it was possible to separate the diaphyses and epiphyses from each other with very little force. In principle, there is no difference between these different kinds of youthful bones. In order to gain a survey of the material, table 3 was drawn up. All epiphysary borders on the long tubular bones were observed, and each one of these was noted as right or left in one of the two main groups "youngest or only open epiphysary border" and "older open epiphysary border apart from younger". Each one of these groups was then divided into three subdivisions, viz. "loosened

Tab. 3. Table showing the number of separate epiphyses and diaphyses with broken off epiphyses, and of open epiphysary borders of the long tubular bones, the pelvis, and the heel.

No.	Limit of the epiphysis of the:	Time of ossification according to:		Estimated maximum age in years.	Common grave 1.																				
		Raubert-Kopsch 1934.	Keibel-Mall 1910.		Right.						Left.														
					Youngest or only open epiphysis.			Older open epiphysis excepting the younger ones.			Min. number of individuals.	Youngest or only open epiphysis.			Older open epiphysis excepting the younger ones.			Min. number of individuals.	Minimum number of individuals.						
					a	b	c	a	b	c		a	b	c	a	b	c								
1	Capitulum radii	17-18 years	17-21 years	18			3	3					6	1	2	3							5	6	
2	Epicondylus radialis	14 "	16-17 "	16																				0	0
3	Olecranon	17 "	17 "	17			2						2		2								2	2	
4	Acetabulum	16-17 "	Puberty	16																			0	0	
5	Tuber calcanei	15-16 "	15-21 years	16			1	1					2		1	1							2	2	
6	Trochlea humeri	16-17 "	16-17 "	17																			0	0	
7	Epicondylus ulnaris	20 "	18 "	18			2						2		2								2	2	
8	Trochanter major	18 "	18 "	18			3	2	2		3	10	5				2	6					5	5	
9	Trochanter minor	18 "	17 "	17			1	4	9				13									10	13		
10	Caput femoris	18 "	18-19 "	18			15?	2	2		5	8	10?	15?	2			6				9	10?		
11	Distal part of the tibia . . .	18-19 "	16-19 "	18			5	3	6				9	7	6	6						13	13		
12	" " " " radius	20 "	21 "	20				4	3				2	7	7	3						10	10		
13	" " " " ulna	20 "	18-20 "	20				4	6				10		3	3						6	10		
14	Caput humeri	20 "	20-25 "	22			17	13	15				2	30	10	11		2	16			30	30		
15	Distal part of the fibula . . .	20 years or less	20-22 "	22					1				1		2							1	1		
16	Proximal part of the tibia . .	21-22 years	19-24 "	22			9	3	4		1	4	12	8	3	2		2	5	11		12	12		
17	Distal part of the femur . . .	20 "	20-24 "	22			17	3	9				7	20	18			3	3	21		21	21		
18	Proximal part of the fibula	about 25 "	22-24 "	24																		0	0		
Total					60	46	61	0	9	33	129	51	39	43	0	4	22	90	135						

No.	Common grave 2.												Common grave 3.																										
	Right.						Left.						Minimum number of individuals.	Right.						Left.						Minimum number of individuals.	Common grave 1+2+3. Total number of individuals.												
	Youngest or only open epiphysis.			Older open epiphysis excepting the younger ones.			Min. number of individuals.	Youngest or only open epiphysis.			Older open epiphysis excepting the younger ones.			Min. number of individuals.	Youngest or only open epiphysis.			Older open epiphysis excepting the younger ones.			Min. number of individuals.																		
	a	b	c	a	b	c		a	b	c	a	b			c	a	b	c	a	b		c																	
1																																							
2	4	1	2			5		1	3			4	5													4	4					15	4						
3																										4	4					4	4						
4								1	1			1	1													3	3					6	6						
5			1			1			2			2	2													1	1					2	2						
6												0	0													0	0					0	0						
7						2		1	3			4	4													1	1					8	8						
8	3	7				10	4	3	3			16	7	10													4	1					5	5					
9			12	1	12	12		1	15			16	16													11	11					40	40						
10	10?	6	3	1	12	16?	19?	5	2	2	14	14	16	16?	3	2							11	11	16?	1	1							37	37				
11	4	10	5			17	4	6	10			16	17	3	1	5							6	3	2									36	36				
12	2	3	8			2	11	3	7			2	10	11	1	3							2	4										31	31				
13		1	7			8	1	3	3			6	8			5							1	5										25	25				
14	31	18	31			2	49	30	31			4	46	49	7	2							4	9	8	2	7		1	5	10	10	89	89					
15			1			1										1							3	3										5	5				
16	13	5	5	1	5	18	9	1	5	2	7	10	18	1		4							2	4	4		5		1	3	5	5	35	35					
17	33	9	16			4	42	30	12	11	7	42	42	9	3	2							1	9	12		3		10	11	12	75	75						
18			2			1																												2	2				
Total				103	60	95	0	3	38	194	87	52	97	0	4	50	180	203	29	15	55	0	3	44	83	35	12	62	0	2	46	92	95	435					

a = Detached epiphysis or part thereof. b = Visible limit of the epiphysis but without its being detached.
 c = Diaphysis with detached epiphysis.

epiphysis", "diaphysis with visible epiphysary border but not loosened epiphysis", and "diaphysis with loosened epiphysis". By this division of the material into these main groups the risk of counting the older epiphysary borders twice was eliminated. It was therefore possible, in respect of right or left bones, to get an idea of the number of individuals to which the collected epiphyses and diaphyses, as the case might be, corresponded, if to the group "diaphysis with visible epiphysary border but without loosened epiphysis" were added the number of parts of the skeleton belonging to the group "loosened epiphysis" or "diaphysis with loosened epiphysis", depending upon which of these two latter groups showed the largest number. Naturally, the figures obtained will be too low as there is every reason to assume that both loosened epiphyses and diaphyses with loosened epiphyses had equal chances of disappearing. The number of bones on the right or left side, according to which figure is the largest, is regarded as the definite figure for the number of individuals represented by the parts showing an open epiphysary border. Therefore, in this case also, a certain error occurs, making the total number of men too small.

As the loosened epiphyses of the head of the femur could not be assigned to the right or left side with certainty, these were simply added together and half the total number was allotted to each side.

In the examination of the material the parts of the skeletons from the different common graves were kept strictly apart, so that we are fully justified in adding together the number of individuals for the respective epiphysary borders belonging to the different common graves in order to obtain the total number of individuals in the material collected. (See last column table 3.)

It is evident that, in the determination of the number of individuals for the different epiphysary borders, an approximation has twice been made. Consequently, the total number of individuals deduced is no doubt considerably smaller than was really the case. But this is to a certain degree compensated by the fact that a considerable part of the young bones were so brittle that they fell to pieces while lying in the earth, so that the proximal and distal fragment of the same bone have been counted separately in determining the number of individuals who are represented by the parts showing open epiphysary borders. In those cases where it could be proved with certainty that two parts belonged to the same juvenile bone, these have, of course, been counted as a whole tubular bone, by which means errors have been avoided. This error is not inconsiderable, as is apparent from the fact that in the measuring of the different long tubular bones carried out for determining the length of the body, 565 femurs, 498 tibiae, 62 fibulae, 497 humeris, 375 radiis, and 307 ulnae could be measured. As is seen, the greatest error in this respect would be due to the great brittleness of the fibulae. But this does not matter very much, because out of the whole material only seven fibulae could be found whose epiphyses were open, although this number should have been comparatively large in relation to the other bones, the epiphysary borders of which are closed earlier than those of the fibula. This is explained by the fact that in most cases the fibula has been so destroyed that it has been impossible to identify differences in it.

Finally, one may say, with considerable certainty, that the figures obtained for the number of individuals of different ages, correspond fairly well to the actual conditions, because the unavoidable errors which occur largely compensate one another.

For the determination of the maximum age of those individuals who had different open epiphysary borders, I have made use of the information supplied by Keibel-Mall (1910) and Rauber-Kopsch (1934), which is summarized in table 3. As these statements do not agree everywhere, I have, in order to obtain a simpler division of the material, taken the approximate averages of the statements given by these authors, and have thus been able to divide the ages for the epiphysary borders into six groups, viz. 16, 17, 18, 20, 22, and 24 years. (See table 3, and table 4.)

For each one of the different long tubular bones two or three different figures for the number of individuals of two or three different ages are obtained. The number of individ-

Tab. 4. *Number of individuals under 16, 17, 18, 20, 22, and 24 years of age respectively.*

	Common grave 1.						Common grave 2.					
	Number of individuals under:						Number of individuals under:					
	16 years.	17 years.	18 years.	20 years.	22 years.	24 years.	16 years.	17 years.	18 years.	20 years.	22 years.	24 years.
Humerus	0	2	—	—	30	—	0	4	—	—	49	—
Radius	—	—	6	10	—	—	—	—	5	11	—	—
Ulna	—	2	—	10	—	—	—	1	—	8	—	—
Femur	—	13	15	—	21	—	—	16	26	—	42	—
Tibia	—	—	13	—	12	—	—	—	17	—	18	—
Fibula	—	—	—	—	1	0	—	—	—	—	1	2
Tuber calc.	2	—	—	—	—	—	2	—	—	—	—	—
Acetabulum	0	—	—	—	—	—	1	—	—	—	—	—
Ultimate minimum of individuals	2	15	30	40	70	—	2	18	44	55	104	—

	Common grave 3.						Common grave 1+2+3.					
	Number of individuals under:						Number of individuals under:					
	16 years.	17 years.	18 years.	20 years.	22 years.	24 years.	16 years.	17 years.	18 years.	20 years.	22 years.	24 years.
Humerus	7	2	—	—	10	—	7	8	—	—	89	—
Radius	—	—	4	10	—	—	—	—	15	31	—	—
Ulna	—	3	—	7	—	—	—	6	—	25	—	—
Femur	—	11	16	—	12	—	—	40	57	—	75	—
Tibia	—	—	6	—	5	—	—	—	36	—	35	—
Fibula	—	—	—	—	3	0	—	—	—	—	5	2
Tuber calc.	4	—	—	—	—	—	8	—	—	—	—	—
Acetabulum	4	—	—	—	—	—	5	—	—	—	—	—
Ultimate minimum of individuals	7	18	34	44	56	—	11	51	108	139	230	—

uals below the highest of the ages given is obtained by adding the number of individuals in the different groups, because in drawing up table 3 only one epiphysary border was noted for each bone or part thereof in the group "youngest or only open epiphysary border". But since it has not been possible to determine which bones belonged to each other, because of the great disorder in the graves, the number of individuals for each group is obtained by taking the highest number of any epiphysary border belonging to this group. This, of course, is also an approximation and lowers the actual number of individuals. For reasons mentioned above, the number of individuals in the older groups is obtained by adding the total of the maximum number of individuals in the younger groups to the highest number which any epiphysary border, belonging to the age limit in question, shows. Since one may assume that the parts of the skeletons in the different common graves were not mixed, the corresponding figures for the total material are obtained by adding the number of individuals belonging to the different common graves.

Thus, in table 4 we find, both for each common grave separately and for the whole material, the number of individuals whose maximum age is 16, 17, 18, 20, and 22 years respectively. In order to be able more easily to form an idea of what these figures mean for the age distribution within the material and its parts, it is most practical to express them in percentages of the entire number of individuals. As the material which forms the basis for the determination of the distribution of age, mostly consists of bones much more brittle than the head of the femur, which was used for the determination of the number of individuals, and a comparatively larger number of bones are therefore unidentifiable, it seems to me most reasonable not to use the number deduced mathematically, because this method was not employed for the determination of age. To make use, on the other hand, of the numbers obtained by counting the number of whole and parts of lower maxillae (table 2), is probably not right either, because in the determination of age, the apparent number of individuals is increased, because probably the same bones have been counted twice sometimes as it was not always possible to determine for certain whether two fragments belonged to the same juvenile bone. I have, therefore, in the determination of the relative number of individuals belonging to the different age-groups, used the number of individuals obtained directly from the number of heads of femur as a starting-point.

Tab. 5. *Number of individuals under 16, 17, 18, 20, and 22 years of age respectively, and the distribution of ages in the different common graves.*

	Common grave 1.		Common grave 2.		Common grave 3.		Common grave 1 + 2 + 3.	
	Number of individuals.	Percentage of total number.	Number of individuals.	Percentage of total number.	Number of individuals.	Percentage of total number.	Number of individuals.	Percentage of total number.
Individuals < 16 years	2	0,81	2	0,30	7	5,93	11	1,06
» < 17 »	15	6,07	18	2,69	18	15,25	51	4,93
» < 18 »	30	12,15	44	6,57	34	28,81	108	10,43
» < 20 »	40	16,17	55	8,21	44	37,29	139	13,43
» < 22 »	70	28,34	104	15,52	56	47,46	230	22,22

As in the determination of the distribution of age by the lower maxillae, the results obtained from the juvenile bones differ greatly for the different common graves (see table 5). Common grave 2 shows a considerably smaller percentage of juveniles than the others, and common grave 3 shows by far the largest number. Throughout, the same distribution of age is obtained when reckoned by the lower maxillae or by the open epiphysary borders. The differences are, however, more pronounced in the latter reckoning, which may be due to the fact that in this case we have a much more accurate method of judging the age of the individual.

The values obtained for the distribution of age show that a comparatively large number of individuals must have been unfit for war. If we consider those under twenty as being too young and those over thirty-five too old, we arrive at the following estimate:

	Too young	Senile	Fit for military service
Common grave 1	16 %	21 %	53 %
Common grave 2	8 %	12 %	80 %
Common grave 3	37 %	18 %	45 %
The entire material	22 %	14 %	64 %

Common grave 2, which is the largest and contains by far the greatest amount of armour, has decidedly the most suitable material, whereas common grave 3 has the worst, in that not even half the individuals were of an age fit for military service. This must signify that the Gotlanders had volunteered to the very last man in order to defend their country against the Danish invaders.

DETERMINATION OF THE LENGTH OF BODY.

With the aid of measurements of the long tubular bones (femur, tibia and radius, altogether 1,917 bones), which are most closely related to the length of the body, I have determined the length of body for the material.

This determination is based upon normal tables drawn up by Manouvrier in 1892 and Pearson in 1894, which are founded on French normal material. Only a very brief account will be given here of the results which have been obtained for the material as a whole and its subdivisions.

	Mean length of body according to Manouvrier 1892	Mean length of body according to Pearson 1894
Common grave 1.	168.92 ± 0.27 cm.	168.84 ± 0.21 cm.
Common grave 2.	168.81 ± 0.19 cm.	168.74 ± 0.14 cm.
Common grave 3.	167.84 ± 0.30 cm.	168.06 ± 0.25 cm.
Whole material	168.81 ± 0.54 cm.	168.69 ± 0.43 cm.

If the length of body is reckoned according to these two different methods for the different kinds of bones, the following table will be obtained:

	Mean length of body according to Manouvrier 1892	Mean length of body according to Pearson 1894
Femur	167.60 ± 0.21 cm.	168.19 ± 0.19 cm.
Tibia	168.14 ± 0.26 cm.	168.80 ± 0.23 cm.
Humerus	168.68 ± 0.27 cm.	168.53 ± 0.21 cm.
Radius	170.80 ± 0.33 cm.	168.94 ± 0.22 cm.

The average length of body for the whole material is remarkably long, because Hultkrantz (1927) has shown that the average height of Swedish conscripts in the year 1840 was only 165 cm., after which it gradually rose and in 1927 was about 173 cm. Since our material in all probability is composed wholly, or for the largest part, of males, and since probably tall men were not selected, because, as has been suggested and subsequently will be proved more definitely, it was absolutely necessary for every man to volunteer in order to put up a defence against the Danes, and since, furthermore, the available material is fairly plentiful, one may assume that the results obtained are moderately correct and that they do not deviate from the actual length by more than 1 cm.

In common grave 3, although no juvenile or senile bones have been measured, the length of body is 1.06 ± 0.40 cm. shorter than that of common grave 1, and 0.97 ± 0.39 cm. shorter than that of common grave 2 (reckoned according to the values obtained from Manouvrier's normal tables).

This indicates that there were fewer middle-aged men in this grave than in the other common graves, which might mean that this grave contained the last contingent of Gotlanders who were more or less fit for military service. In favour of this assumption is the fact that common grave 3 also contained a comparatively large percentage of "minors".

INJURIES RECEIVED IN BATTLE.

The different weapons which were used in the battle of the 27th July apparently were swords, axes, cross-bows, "morning stars", maces and lances, and possibly war-hammers. Also, it must be assumed that emergency weapons such as sticks and clubs were used by the Gotlandic army of defence. Injuries from cutting weapons (swords and axes) are by far the most numerous and occur in 456 cases (see figs. 18 and 29). I have not, however, succeeded in determining with any degree of certainty whether an injury had been caused by an axe or a sword, for which reason I am dealing with them jointly under one head in the following survey. Injuries from arrows are also plentiful (126 cases) and some of these (60 cases) are combined with cuts. Injuries from lances are impossible to distinguish from arrow wounds, because the arrows have been of different sizes.

Furthermore, we have to consider the "morning-stars"; these consisted of a wooden ball studded with square or hexagonal spikes and attached with a chain to a handle. With these weapons the warriors dealt each other blows, chiefly on the head. It is probably impossible to distinguish between injuries from a "morning-star" or an arrow, as it is not certain whether the size or shape of the iron points of the arrow-heads differ from those

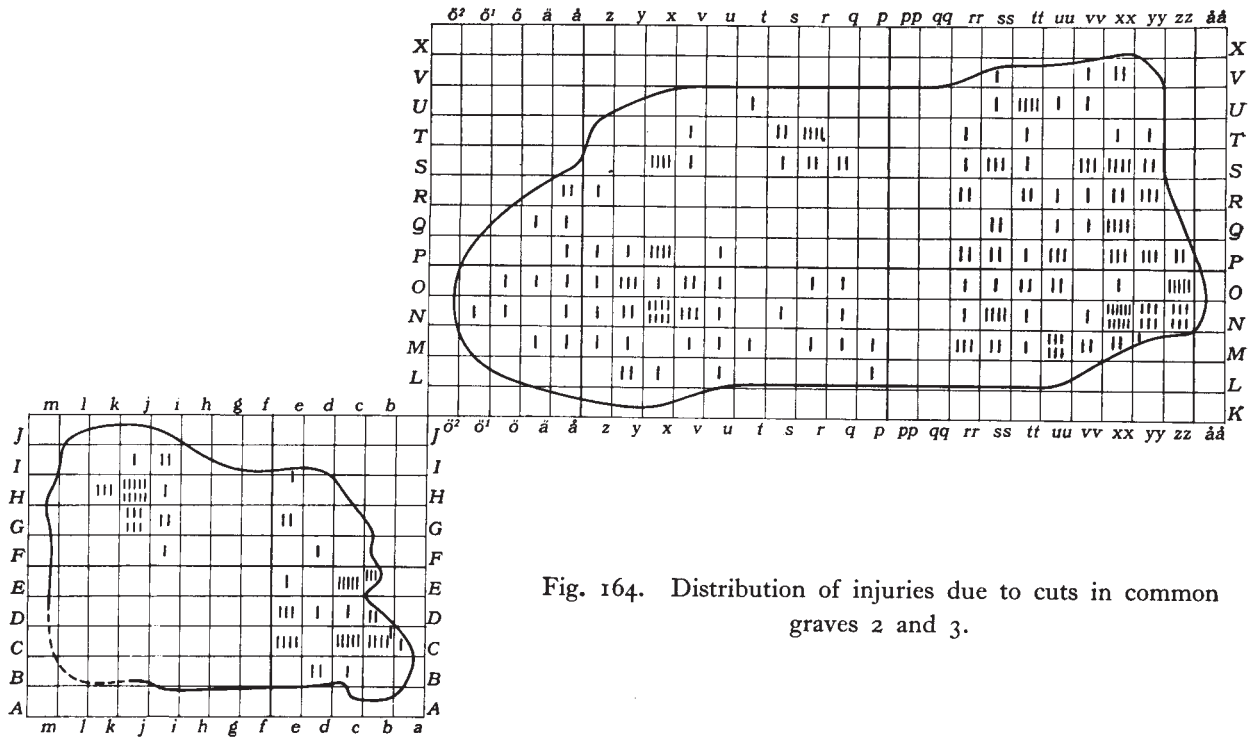


Fig. 164. Distribution of injuries due to cuts in common graves 2 and 3.

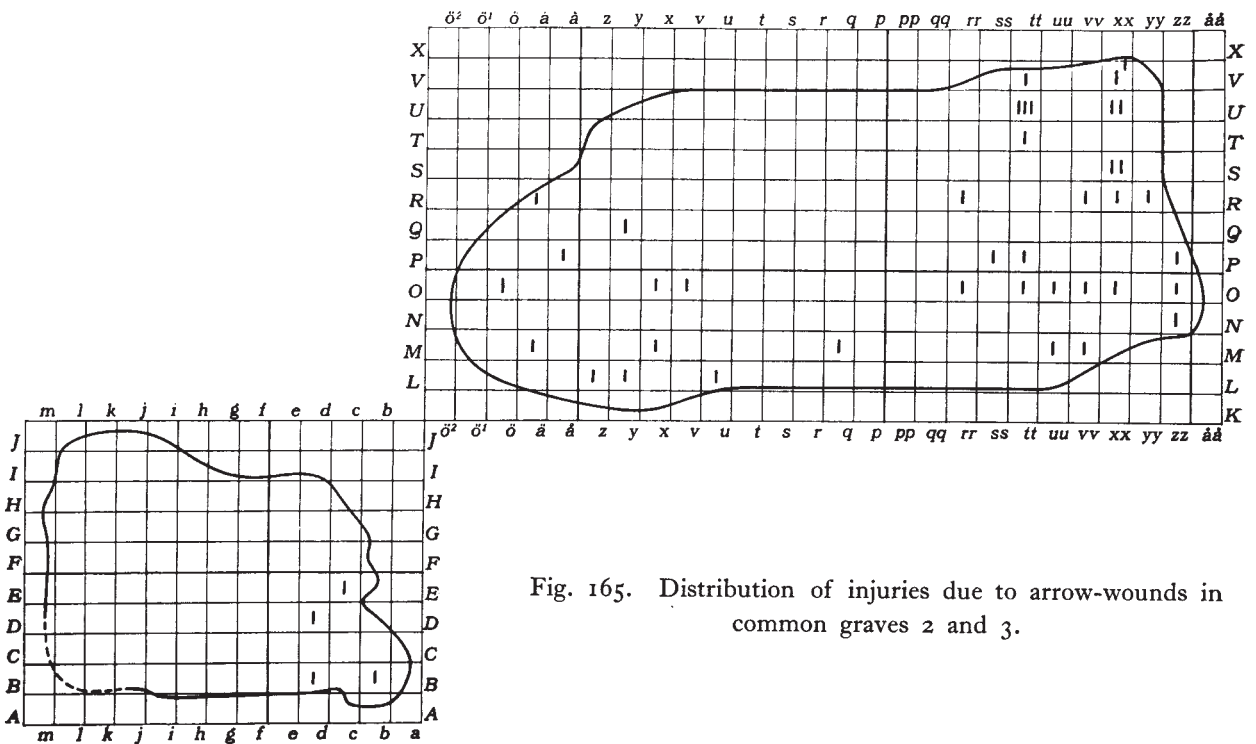


Fig. 165. Distribution of injuries due to arrow-wounds in common graves 2 and 3.

of the "morning-stars". If we therefore assume that the latter weapons were used in the battle, it is easier to explain the fact that multiple injuries occurred to such an extent; for if a warrior succeeds in striking his opponent with a "morning-star" so that he falls, it is very probable that he gives him several more blows to make sure that he is really dead. Rarer and more difficult to estimate are injuries from maces, because damage by crushing could only be distinguished in a few cases from damage done to the material by the weight of the superimposed soil.

As the material from the different common graves shows such disparity in the distribution of age, length of body and number of individuals, as well as in the armour found, it was considered necessary to insert on a map of the burial ground (showing the squares

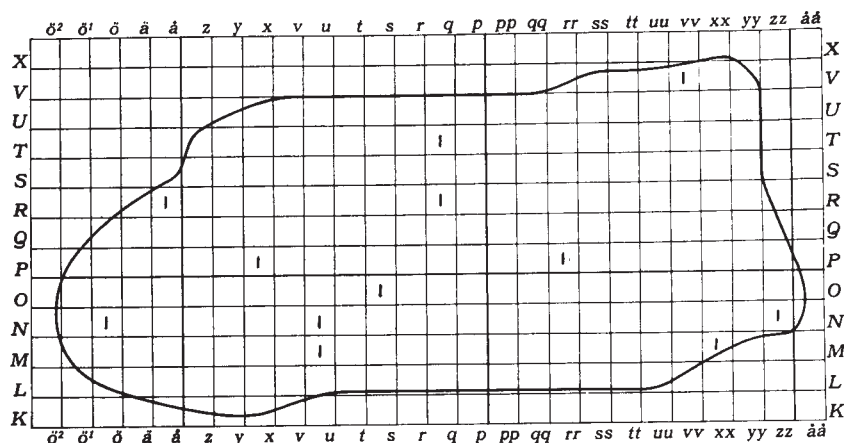


Fig. 166. Distribution of injuries due to cuts and arrow-wounds combined in common grave 2. (Common grave 3 has not been included here, as no injuries of this kind were encountered there.)

into which it had been divided during the excavations in 1928–30) the parts of the skeletons (where their position could be determined) which displayed any battle injuries, so as to be able to discover any differences in the method of fighting in the different parts of the army. In doing so we obtain the figures 164, 165, 166, which represent the distribution of the cutting blows, injuries due to arrow-heads and the combined injuries from blows and arrow-heads. Common grave 1 is not included in these figures, because when it was excavated the positions of the finds were not noted. The number of battle-injuries is considerably greater in common grave 2, where they are found chiefly at either end of the grave, especially at the eastern end. This, however, is explained by the fact that the area delimited by the curved lines on fig. 60 had been partly excavated in 1912, when the position of the finds was not noted and the same area was traversed in 1924 in a direction approximately north–south, by a trench for a water main. The positions of the parts of the skeletons found on that occasion were not noted either, and could therefore not be inserted on the plans. The distribution of injuries is thus clearly in proportion to the number of individuals buried in the different parts of the grave. Common grave 3 shows one area in its eastern and one in its south-western part which is characterized by numerous injuries. This is

explained by the circumstance that this common grave was divided into four different parts (I, II, III, and IV, see fig. 64). Burial I contained about thirty skeletons lying superficially and not in disorder, as is the case with the others, but buried carefully in three rows for the most part, and with their heads in the same direction, showing no injuries. One may possibly imagine that these individuals were wounded during the battle, but died some time afterwards, and were then buried with their fellow warriors. Burials II and IV lay in the south-eastern and western parts respectively of common grave 3, and contained a large number of individuals, lying in disorder in the graves. It is these individuals who bore the injuries which are marked on these areas on the map.

The injuries from arrows on the whole show the same distribution as the cuts. The associated cuts and injuries from arrows are evenly distributed over the whole of common grave 2. The number of injuries from arrows is comparatively small in common grave 3 (5.9 % of the whole number of injuries whose position could be determined, whereas the corresponding figure for common grave 2 is 16.2 %, or, if we include the associated cuts and arrow-wounds, 19.0 %), which perhaps indicates that the character of the battle varied in the different parts of the battle-field.

In judging the injuries, we must remember that we have only been able to note a very small part of the injuries which the warriors actually sustained; for only very powerful blows could penetrate right to the bone and leave permanent marks there. Also, the muscles are naturally of a very different thickness and nature in different parts of the body, and therefore constitute a varying protection against blows. Only in a single case was an injury from an arrow discovered on the extremities (see fig. 167), partly because the bone is more porous and was broken by the injury, whereas a hundred and twenty-five cases of injuries to the head from arrows have been noted. As we must assume that there was a fairly even distribution over the whole body of injuries from arrows, there must have been a large number which only penetrated the flesh and have left no mark on the bone.

On examining the material we often find injuries due to cuts. The position and character of these differ greatly, from a trifling scratch to completely severed bones or large holes in the cranium. Bearing in mind the remarkable toughness and strength which a live bone possesses, we are astonished at the enormous force with which some of the blows must have been struck. For we must always take into consideration the fact that the weapon has first to penetrate the clothing, which consists partly of strong armour, then the flesh and occasionally also a bone, before it is finally stopped by another.



Fig. 167. Tibia with an arrow-head remaining fixed in the proximal end. (Regn. no. *Px 17*.)

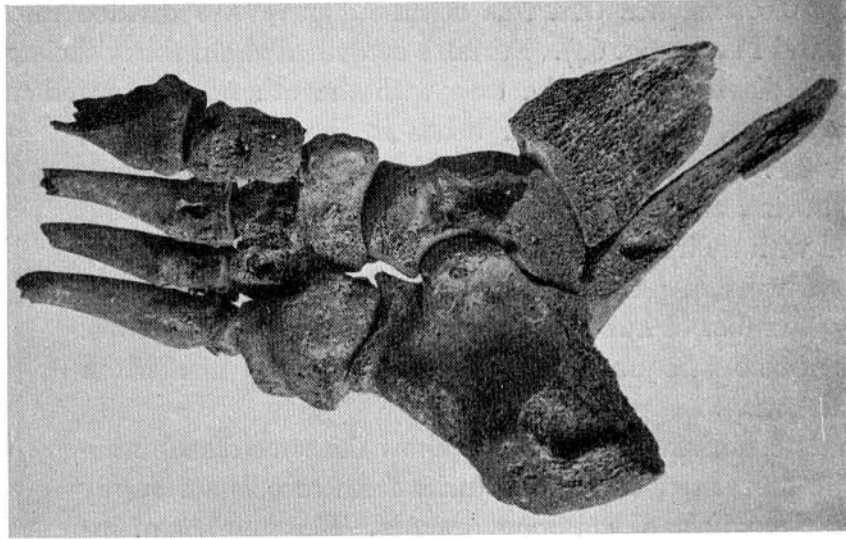


Fig. 168. Right foot severed from the lower leg by a cut through the tibia, fibia, talus, and tuber calcanei. (Regn.no. *Db 7.*)



Fig. 169. Right femur, the fibular condylus of which has been cut off by a powerful cut. (Regn.no. *Cc 3.*)

In order to enable us to form an idea of the general character of the injuries due to cuts or blows, figures 168-176 show some bones with typical injuries. In fig. 168 we see the lower part of a right leg with its appurtenant foot which has been separated from the rest of the leg by a single blow that passed obliquely right through the fibula, the tibia, the upper part of the talus, and the medial part of the tuber calcanei. In fig. 169 we see the distal part of a right femur, the fibular condyle of which has been severed by a single blow which struck the leg obliquely from above and laterally penetrated about two thirds of the leg, which is extremely strong just there. Fig. 170 demonstrates the berserker rage which overcame the warriors in the heat of battle. It shows *in situ* the lower extremities of a man who had had both lower legs cut off, probably by a single blow which struck the right tibia from below on its ventral side and the left tibia on its inside. The cut penetrated almost to the medullary cavity of both tibiae, whereas the fibula was broken off without showing any injuries from cuts. Fig. 171 shows one of the very frequent, fairly superficial injuries to the bones of the extremities.

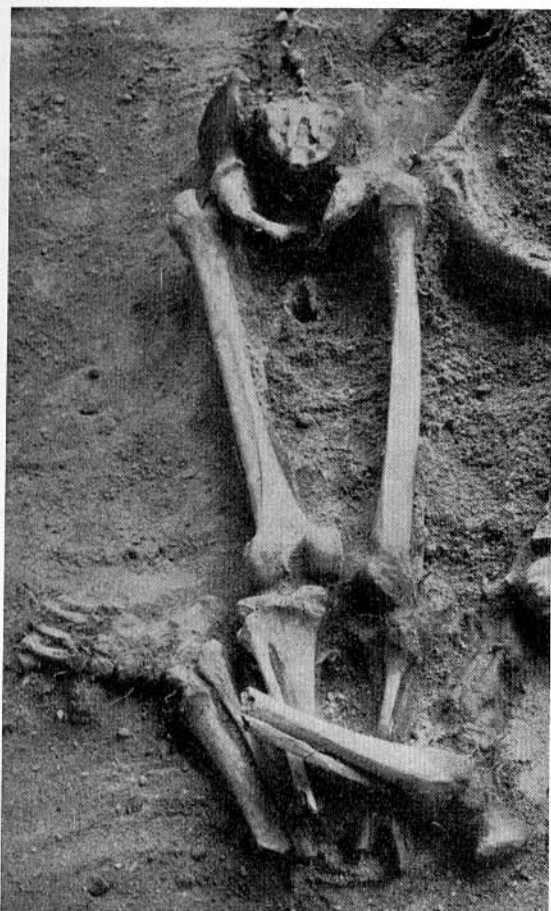


Fig. 170. Skeleton of an individual, the lower legs of which have both been cut off.
(Regn.no. *Fe 2.*)

parietal bone and the occipital bone from the rest of the cranium. In fig. 175 we see a cranium with several cuts, which have caused a fairly large part of the calotte to drop off. Fig. 176, finally, shows the cranium of an old, almost toothless man, partially remaining in its coif. He had received a very powerful blow on the lower maxilla, so that a large part of the alveolar process was gone.

Since, as has been described on page 163, a considerable number of combatants wore armour which protected certain parts of the body, a rather unequal distribution of the injuries due to blows on the different bones of the extremities is to be expected. The fighting in certain parts of the battle was in all probability a wild tumult—a more detailed description of this kind of battle will be given later—but to a considerable extent it was regular hand-to-hand combat. The course of the latter was probably, broadly

It is almost incomprehensible that such blows could be struck. As has been mentioned in Chapter III, several crania have been found in which the coif had been cut to pieces and the blow had partly penetrated to the bones of the cranium. Judging by the injuries due to blows and cuts, a large part of the army of defence, was most probably not provided with these strong means of protection; it is probable, however, that most of them had some form of protective headgear. Nevertheless several crania display remarkably deep cuts; fig. 172 shows a cranium with several cuts, the severest of which, striking sagittally from above, cut off a large portion of the left part of the cranium. In fig. 173 another cranium is seen with injuries due to both arrows and blows, where a large portion of the calotte has been detached. The most powerful blow has, as is seen from the figure, been struck horizontally, obliquely from behind, and from the left. Fig. 174 shows, among other things, a very powerful blow which was struck frontally and from above cutting off a portion of the

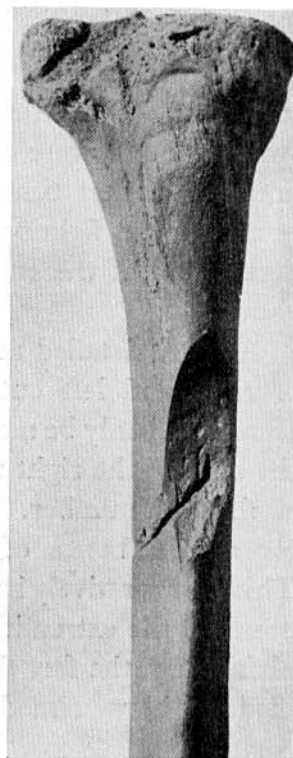


Fig. 171. Right tibia showing a frontal cut.

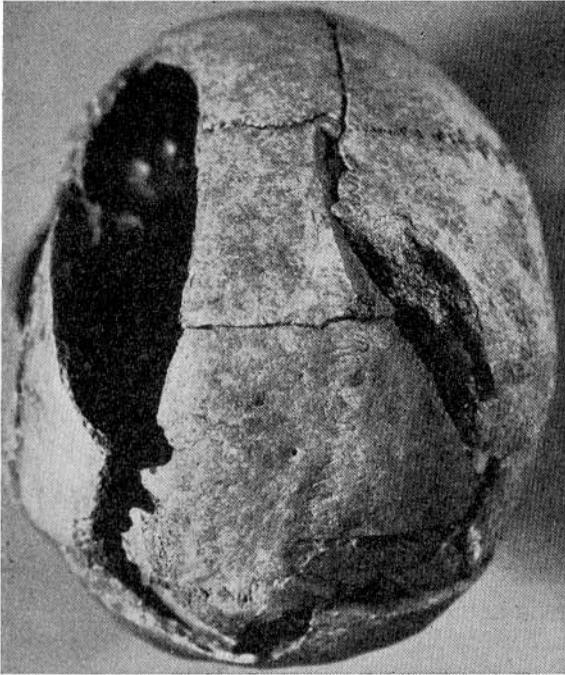


Fig. 172. Cranium with several injuries due to blows, the most powerful of which has struck sagittally. (Regn.no. Pz3 3.)

of the most important reasons for the difference in percentage between right- and left-sided cuts, as will be shown later on. In those cases where the warriors used large, heavy swords which were wielded with both hands—though such swords were probably rather unusual at that time—the shield was generally carried on the left shoulder. On these occasions the fighting was much more erratic, and it is therefore not possible to give a description of the combat similar to that given above.*

A more detailed account of the distribution of right and left cuts is given on page 173. Here it will only be mentioned that on the crania the cuts on the right side amount to only 31 % of the total number. The corresponding figure for all the bones of the extremities is 42 %. This comparatively large difference between the bones of the extremities and the cranium is explained by the fact that many of the cuts were made by blows aimed from the left side, which,

* Major Nils Hellsten, Stockholm, has been kind enough to furnish me with information about the medieval tactics for which I express my sincere gratitude.

speaking, as follows: the warriors carried their shield on their left arm and held their sword (or axe) in their right hand. The left foot was placed a little in front of the right one. When attacking each other the combatants took a step or a jump forward. The first blow was generally aimed straight down or from the attacked man's right-hand side. In nearly all cases the attacked warrior was able to ward off this first blow by means of his shield and at the same time he generally brought the sword of the attacking warrior over towards his left side. This was made use of by the latter in such a way that he aimed his second blow obliquely downwards to the left-hand side. If this blow was not warded off it struck the left half of the head and body, the lateral side of the left leg, and the medial side of the right leg, this last, however, being less probable as the left leg was in front of the right one. This second blow was considerably more difficult to parry, which is probably one



Fig. 173. Cranium with *inter alia* a large horizontal cut and an arrow-hole. (Regn.no. Mxx 2.)

however, did not strike the left extremities but the right ones, which were therefore wounded on the inside.

In a small number of cases of man-to-man fighting we must imagine that because of left-handedness the blows were struck on the right side of the trunk and head and the inside of the left leg and outside of the right. On examining the injuries due to blows on the long tubular bones it is found, as is apparent from tables 6 a, 6 b, 6 c and 6 d, that there are far more injuries to the lower extremities in proportion to the upper ones. For the whole material the number of injuries due to blows on the arms is only 15% of the total number, distributed over the common graves 1, 2, and 3 in the following manner: 20%, 15%, and 9% respectively. This vast preponderance for the lower extremities must be due to the fact that the shield formed a good protection, especially for the arm, and that the armour of the legs was not so strong as that of other parts of the body and also that the second blow described above, which generally struck the bone, was usually aimed at the legs.

Amongst the long tubular bones of the arms, the humerus, except in common grave 3, shows the greatest number of cuts, while the radius and ulna have an equal, much smaller number. As to the lower extremities, the tibia displays by far the greatest number of cuts, viz. more than 65% of the total number. The femur and fibula show 14.3% and 19.3%

respectively of the total. The reason why the tibia has received so many injuries from blows is probably because this bone lies in a very superficial and exposed position and is only protected by a thin covering of flesh, and also that the armour did not reach to this part of the body. The femur, on the other hand, has, with the exception of its distal end, a very thick and strong covering of flesh, so that only the most powerful blows could penetrate. That the fibula has received a comparatively small number of cuts, seems, however, peculiar, but may be because this bone is extremely brittle and, as a rule, was broken before the weapon was able to penetrate the flesh or was splintered

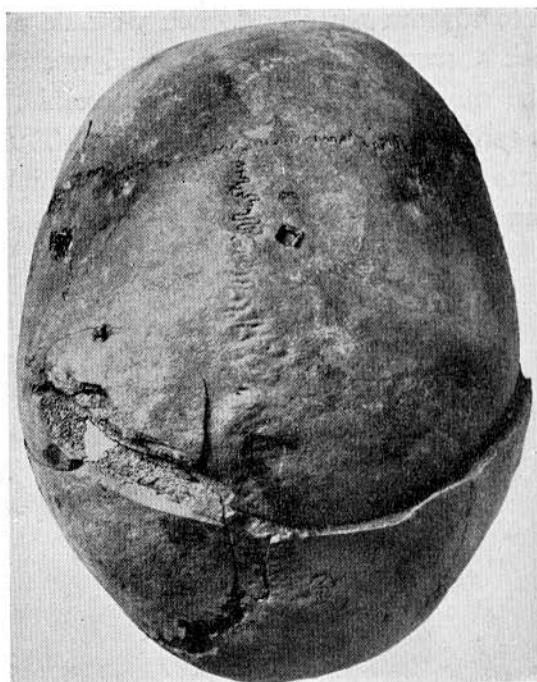


Fig. 174. Cranium with a large frontal cut and several arrow-holes. (Regn.no. B XIII.)

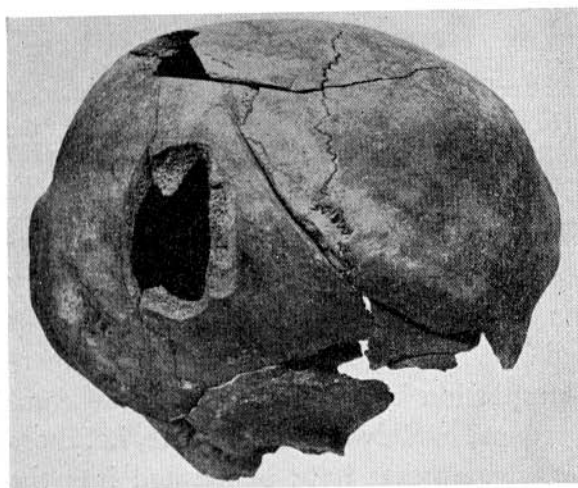


Fig. 175. Cranium with several cuts in varying directions. (Regn.no. B XII.)

into minute parts on which wounds are difficult to diagnose, and which, therefore, were not observed when the material was examined, though this examination was carried out in the most meticulous manner possible. This may also have been the case sometimes with regard to the radius and the ulna. The bones of the carpus, metacarpus and fingers show cuts in only a couple of cases, which is partly explained by the ease with which blows aimed at these bones, can be avoided and by the fact that the hands were partly protected



Fig. 176. Cranium of an old man showing a cut which has struck the right part of the lower jaw obliquely from below and from the right, severing the pars alveolaris. (In addition the cranium shows assimilation of the atlas.) (Regn.no. *Ba 1.*)

by gauntlets of various kinds (see Chapter VI). The feet, too, show cuts only in a few exceptional cases. They were, of course, protected by shoes, and blows were probably very rarely aimed at them.

As has been pointed out above there are all conditions ranging from deep to quite superficial cuts. In order to try to form an idea of the proportion in which the cuts of different depth occur, I have divided them into three main groups, namely superficial cuts, i.e. those that have not penetrated the compacta of the bones, cuts that have penetrated into the medullary cavity of the bone, and completely severed bones. The conception one gets in this way of the force of the blows is rather inaccurate, as the strength of the different bones naturally

varies greatly and they are surrounded by flesh of varying thickness and power of resistance; also, the clothing has offered varying degrees of resistance. But in spite of these sources of error the depth of the cuts gives some interesting data. (See tables 6 a, 6 b, 6 c and 6 d.)

The material has been divided into three groups for every long bone of the extremities, dependent upon the depth of the cuts, and then each group has two subdivisions, depending upon whether the bone has displayed two or more cuts. A feature running through the whole of the material, is that in the group "severed bone" the number of bones belonging to the subgroup "one cut" is greater. The ratio between the number of bones belonging to group "one cut" and "two or more cuts" is about 1.5. This shows, perhaps, that often a single extremely powerful and well-aimed blow was dealt, which immediately incapacitated the opponent, so that no further struggle ensued. In the other cases there probably was a struggle, during which the warrior received several cuts which were not very serious, leaving only minor marks on the bone, until finally a blow was struck which cut the bone completely in two. The number of wounds from these remarkably powerful blows is fairly small (altogether 29); they occur for the most part equally on the tibia and fibula. For the reason given above concerning wounds on the fibula and because a good many cuts have been found on the lateral side of the tibia (about 40), which means that the fibula was probably completely severed by the same blow, it must be assumed that the number of wholly severed fibulae, which is given in table 16, is too low. For the other tubular bones, on the other hand, the number of cases of wholly severed bones is probably too high, as it has not always been possible to join the scattered fragments of the same bone, so that such wounds sometimes may have been counted twice.

For the group "cuts into the medullary cavity" the ratio between the number of bones with "one cut" and those with "two or more cuts", is quite different; for all the common graves with the exception of common grave 3, it is less than 1, i.e. the number in the group "two or more cuts" is larger. This is especially characteristic of the stouter bones (humerus, femur and tibia), whereas the opposite condition is often the case with the others, because they are less protected, and also much more brittle than the stouter ones. This is especially prominent in the case of the fibula. In adding up all the bones (table 6 d), the number of bones with "two or more cuts" penetrating into the medullary cavity, predominates, which must be interpreted as showing that the warriors on closing with each other got so excited that they repeatedly and wildly aimed powerful blows at each other, although probably a single one of these blows would have been sufficient to put the opponent out of action, even if it had not killed him at once. The ratio between the number of deep cuts comprising the groups "cuts into the medullary cavity" and "bone altogether severed" and of superficial cuts, varies for the different bones, and is for the humerus, tibia, and femur throughout less than 1, but for the radius, ulna, and fibula more than 1, which is due to the fact that the former have considerably stronger compacta and thicker spongiosa and throughout are more protected by flesh, whereas the latter are more brittle and occupy a less protected position. For all the bones of the extremities together the ratio is 0.80, and

Tab. 6 a, b, c and d. *Distribution of injuries due*

a.

Common grave 1.														
Bone.	Deep cuts.							Superficial cuts.				Total number of cuts.	Percentage of total number.	Ratio of deep to superficial cuts.
	Bone entirely severed.			Cuts into the medullary cavity.			Total number of cuts.	a	b	a/b	Total number of cuts.			
	a	b	a/b	a	b	a/b								
Humerus	1	0	—	0	2	—	3	3	1	3	4	7	8,23	0,75
Radius	0	0	—	1	2	0,50	3	2	0	—	2	5	5,88	1,50
Ulna	2	0	—	0	2	—	4	0	1	—	1	5	5,88	4,00
Femur	1	0	—	1	0	—	2	7	3	2,33	10	12	14,12	0,20
Tibia	1	2	0,50	4	9	0,44	16	17	12	1,42	29	45	52,94	0,55
Fibula	0	2	—	3	1	3,00	6	5	0	—	5	11	12,94	1,20
Total:	5	4	1,25	9	16	0,56	34	34	17	2,00	51	85	99,99	0,67

b.

Common grave 2.														
Bone.	Deep cuts.							Superficial cuts.				Total number of cuts.	Percentage of total number.	Ratio of deep to superficial cuts.
	Bone entirely severed.			Cuts into the medullary cavity.			Total number of cuts.	a	b	a/b	Total number of cuts.			
	a	b	a/b	a	b	a/b								
Humerus	1	0	—	1	0	—	2	10	2	5	12	14	7,87	0,17
Radius	0	0	—	3	0	—	3	1	0	—	1	4	2,25	3,00
Ulna	1	0	—	1	1	1,00	3	2	3	0,67	5	8	4,49	0,60
Femur	0	0	—	4	7	0,57	11	11	4	2,75	15	26	14,61	0,73
Tibia	4	3	1,33	8	22	0,36	37	51	15	3,40	66	103	57,87	0,56
Fibula	2	2	1,00	4	5	0,80	13	8	2	4,00	10	23	12,92	1,30
Total:	8	5	1,60	21	35	0,60	69	83	26	3,19	109	178	100,01	0,63

a = One cut.

b = Two or several cuts.

for common graves 1, 2, and 3 respectively, 0.67, 0.63 and 1.95. The percentage of long tubular bones with cuts is as follows:

Common grave 1 approximately 26 %.
 » » 2 » 54 %.
 » » 3 » 20 %.

Common grave 3 thus shows a relatively large number of cuts of which the majority are deep, which may perhaps be due to the different ages and length of body in this common grave compared with the others, as well as the small amount of armour discovered, which all indicates the poor quality of this section of the Gotlandic army.

to cuts on the different long bones of the extremities.

c.

Common grave 3.														
Bone.	Deep cuts.							Superficial cuts.				Total number of cuts.	Percentage of total number.	Ratio of deep to superficial cuts.
	Bone entirely severed.			Cuts into the medullary cavity.			Total number of cuts.	a	b	a/b	Total number of cuts.			
	a	b	a/b	a	b	a/b								
Humerus	0	0	—	0	0	—	0	1	0	—	1	1	1,54	—
Radius	0	0	—	2	0	—	2	0	0	—	0	2	3,08	—
Ulna	0	0	—	2	0	—	2	1	0	—	1	3	4,62	2,00
Femur	0	0	—	1	0	—	1	1	0	—	1	2	3,08	1,00
Tibia	1	1	1,00	8	12	0,67	22	10	5	2,00	15	37	56,92	1,47
Fibula	3	2	1,50	10	1	10,00	16	2	2	1,00	4	20	30,77	4,00
Total:	4	3	1,33	23	13	1,77	43	15	7	2,14	22	65	100,01	1,95

a = One cut.

b = Two or several cuts.

d.

Common grave 1+2+3.														
Bone.	Deep cuts.							Superficial cuts.				Total number of cuts.	Percentage of total number.	Ratio of deep to superficial cuts.
	Bone entirely severed.			Cuts into the medullary cavity.			Total number of cuts.	a	b	a/b	Total number of cuts.			
	a	b	a/b	a	b	a/b								
Humerus	2	0	—	1	2	0,50	5	14	3	4,67	17	22	6,71	0,29
Radius	0	0	—	6	2	3,00	8	3	0	—	3	11	3,35	2,67
Ulna	3	0	—	3	3	1,00	9	3	4	0,75	7	16	4,88	1,29
Femur	1	0	—	6	7	0,86	14	19	7	2,71	26	40	12,20	0,54
Tibia	6	6	1	20	43	0,47	75	78	32	2,44	110	185	56,40	0,68
Fibula	5	6	0,83	17	7	2,43	35	15	4	3,67	19	54	16,46	1,84
Total:	17	12	1,42	53	64	0,83	146	132	50	2,64	182	328	100,00	0,80

a = One cut.

b = Two or several cuts.

DETAILED ACCOUNT OF THE INJURIES DUE TO CUTS ON THE TIBIA.

As stated above, by far the greatest number of cuts were on the tibia. As this is one of the strongest bones in the body, it was rarely destroyed by the injuries received in the battle or by the long exposure in the grave, so that it has been possible to determine to a large extent the position of the cuts and the direction in which the blows were aimed at the bone.

Tab. 7 a and b. *Injuries due to cuts on the tibia. Distribution of the cuts of different depth on right and left bones.*

	Bone entirely severed.														Percentage of cuts in the respective common graves.
	Not more than one cut.				Two or more cuts.				Ratio of one to several cuts.	Total:					
	Left	Right	L./R.	L.+R.	Left	Right	L./R.	L.+R.		Left	Right	L./R.	L.+R.		
Common grave 1	0	0	—	0	0	0	—	0	—	0	0	—	0	0	
» » 2	3	2	1,50	5	0	1	—	1	5,00	3	3	1,00	6	7,0	
» » 3	1	2	0,50	3	1	0	—	1	3,00	2	2	1,00	4	12,1	
» » 1+2+3	4	4	1,00	8	1	1	1,00	2	4,00	5	5	1,00	10	6,2	

	Cuts into the medullary cavity.														Percentage of cuts in the respective common graves.
	Not more than one cut.				Two or more cuts.				Ratio of one to several cuts.	Total:					
	Left	Right	L./R.	L.+R.	Left	Right	L./R.	L.+R.		Left	Right	L./R.	L.+R.		
Common grave 1	0	3	—	3	8	2	4,0	10	0,30	8	5	1,60	13	31,0	
» » 2	1	2	0,50	3	7	7	1,00	14	0,24	8	9	0,89	17	19,8	
» » 3	2	0	—	2	4	3	1,33	7	0,29	6	3	2,00	9	27,3	
» » 1+2+3	3	5	0,60	8	19	12	1,58	31	0,26	22	17	1,29	39	24,2	

b.

	Superficial cut.														Percentage of cuts in the respective common graves.
	Not more than one cut.				Two or more cuts.				Ratio of one to several cuts.	Total:					
	Left	Right	L./R.	L.+R.	Left	Right	L./R.	L.+R.		Left	Right	L./R.	L.+R.		
Common grave 1	9	5	1,80	14	10	5	2,00	15	0,93	19	10	1,90	29	69,0	
» » 2	31	23	1,35	54	3	6	0,50	9	6,00	34	29	1,17	63	73,2	
» » 3	6	6	1,00	12	8	0	—	8	1,50	14	6	2,33	20	60,6	
» » 1+2+3	46	34	1,35	80	21	11	1,91	32	2,50	67	45	1,49	112	69,6	

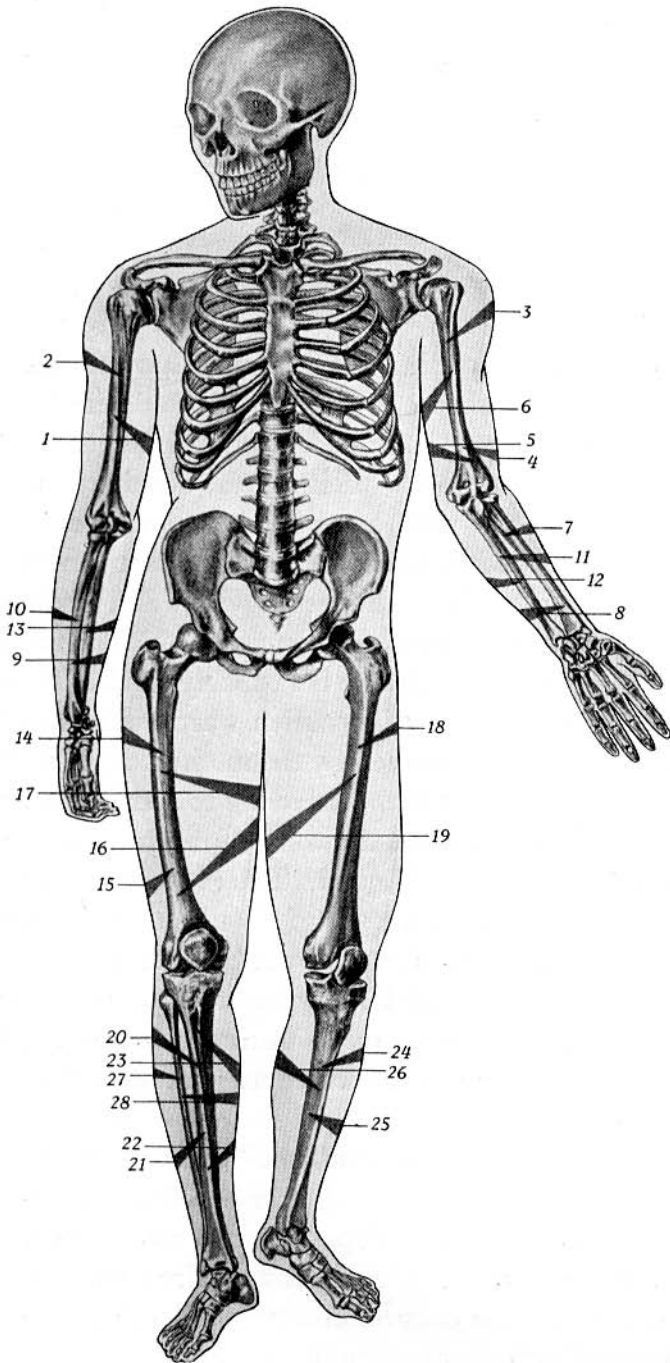
	Total number of injuries due to cuts.														Percentage of cuts in the respective common graves.
	Not more than one cut.				Two or more cuts.				Ratio of one to several cuts.	Total:					
	Left	Right	L./R.	L.+R.	Left	Right	L./R.	L.+R.		Left	Right	L./R.	L.+R.		
Common grave 1	9	8	1,13	17	18	7	2,57	25	0,68	27	15	1,80	42	26,1	
» » 2	35	27	1,30	62	10	14	0,71	24	2,58	45	41	1,10	86	53,4	
» » 3	9	8	1,13	17	13	3	4,33	16	1,06	22	11	2,00	33	20,5	
» » 1+2+3	53	43	1,23	96	41	24	1,71	65	1,48	94	67	1,40	161	100,0	

Tab. 8. *Injuries due to cuts on the tibia. Distribution of the cuts of different depth on the different parts of the tibia.*

	Proximal third.					Centre third.					Distal third.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Superficial cuts	9	5	14	1,80	12,5	48	29	77	1,66	68,7	10	11	21	0,91	18,8
Cuts into the medullary cavity	1	5	6	0,20	15,4	16	10	26	1,60	66,7	5	2	7	2,50	17,9
Bone entirely severed	1	1	2	1,00	20,0	1	1	2	1,00	20,0	3	3	6	1,00	60,0
Total:	11	11	22	1,00	13,7	65	40	105	1,63	65,2	18	16	34	1,13	21,1

In order to make it possible to form a better idea of the methods of fighting, I have summarized in Supplement 1 the various cuts on the tibia, whose position could be determined. To provide an easier survey of the results, I shall give some summaries from this larger table. Tables 7 a and 7 b show a summary of the cuts in regard to their depth, distribution on the right and left tibia, etc. The table shows that the ratio between the number of cuts on right and left bones becomes greater the more superficial the cuts are, so that the ratio for the groups "bone altogether severed", "cut into the medullary cavity" and "superficial cuts" becomes 1,00, 1,58 and 1,91 respectively. These differences are considerable, and, as the number of bones is fairly great, the error due to chance is probably small. These ratios probably indicate that the very deep cuts were received by fallen warriors, in which case the distribution on the right and left legs was not determined by the method of fighting; the opponent could concentrate all his force on the blow without having to fear any resistance. Possibly these blows have been dealt with two-handed swords, for which the ordinary rules for right- or left-hand distribution do not hold good. The ratio between the number of left-side and right-side cuts is also, except for the group "bone altogether severed", lower throughout for the subgroups "not more than one cut" than for "two or more cuts". This probably means that the single cuts were largely due to sporadic blows aimed in the heat of battle, whereas the multiple cuts were made during a more regular struggle, when the warriors fought facing one another and struck repeated blows at each other.

The ratio between the number of cases of "not more than one cut" and "two or more cuts" varies greatly in the different groups. For the group "bone altogether severed" the ratio is 4,00, while for the whole material it is 1,48, and for the groups "cut into medullary cavity" and "superficial cut" it is 0,26 and 2,50 respectively. This means, as already stated in the discussion of the tables 6 a, 6 b, 6 c and 6 d, that the deepest cuts generally occur singly, i.e. they were made when the opponents were able to concentrate their attention on dealing as powerful a blow as possible, whereas in the group "cut into the medullary cavity" the warriors in the heat of battle became so frenzied that they struck at each other repeatedly with great violence, though the opponent had received such severe injuries that he was most probably already incapacitated. With regard to superficial cuts, however, single cuts



					struck obliquely from
1.	Ventral	cut on the humerus			
2.	Dorsal	» » » »			
3.	Lateral	» » » »			above.
4.	»	» » » »			below.
5.	Medial	» » » »			above.
6.	»	» » » »			below.
7.	Lateral	» » » »	radius		
8.	Medial	» » » »	»		
9.	Ventral	» » » »			
10.	Dorsal	» » » »			
11.	Lateral	» » » »	ulna		
12.	Medial	» » » »	»		
13.	Ventral	» » » »			
14.	Lateral	» » » »	femur		above.
15.	»	» » » »	»		below.
16.	Medial	» » » »	»		above.
17.	»	» » » »	»		below.
18.	Ventral	» » » »			
19.	Dorsal	» » » »			
20.	Lateral	» » » »	tibia		above.
21.	»	» » » »	»		below.
22.	Medial	» » » »	»		above.
23.	»	» » » »	»		below.
24.	Ventral	» » » »			above.
25.	»	» » » »			below.
26.	Dorsal	» » » »			
27.	Lateral	» » » »	fibula		
28.	Medial	» » » »	»		

Fig. 177. Diagram of the wounds.

Tab. 9. *Injuries due to cuts on the tibia. Distribution of the different directions of the cuts on the different parts of the tibia.*

Injured surface of bone.	Proximal third.					Centre third.					Distal third.					The whole bone.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Ventral	2	5	7	0,40	11,7	32	13	45	2,46	75,0	4	4	8	1,00	13,3	38	22	60	1,73	37,3
Medial	3	6	9	0,50	20,5	11	14	25	0,79	56,8	4	6	10	1,50	22,7	18	26	44	0,69	27,3
Dorsal	3	0	3	—	21,4	4	3	7	1,33	50,0	2	2	4	1,00	28,6	9	5	14	1,80	8,7
Lateral	3	0	3	—	7,0	18	10	28	1,80	65,1	8	4	12	2,00	27,9	29	14	43	2,07	26,7
Total:	11	11	22	1,00	13,7	65	40	105	1,63	65,2	18	16	34	1,13	21,1	94	67	161	1,40	100,0

are considerably more frequent; these were probably received during a more even struggle, when the warriors were not able to aim so many or such severe blows at each other.

We find the same proportion for the tibia as existed for all the long tubular bones, viz. that common grave 3 shows comparatively more and deeper cuts than the other graves, and common grave 2 the fewest, which is probably due to the fact that the men in grave 3 were mostly of ages unfit for war, and that in grave 2 most of the remains of armour have been found.

Table 8 gives information about the distribution of the superficial or deep cuts on the different parts of the tibia. From this table it is seen that the centre third of the bone received most of the cuts (65 %); the proximal third shows the smallest number (15 %) and the distal one, somewhat more (21 %). Approximately the same distribution is shown by the superficial cuts and the cuts into the medullary cavity, whereas the bulk of the cuts which have completely severed the bones are situated in the distal third (60 %), and the rest are distributed equally over the remaining two thirds. One of the reasons for this fact is probably that the bone in the distal third is thinner than in the other part, but some other factor, unknown to me, may possibly have affected the distribution, e. g. some detail of armour or battle technique. One must, however, bear in mind that the figures are so small that the results they give cannot be regarded with certainty. For the superficial cuts the right-left distribution shows a striking difference with regard to the proximal and centre thirds on the one hand and the distal third on the other, inasmuch as the latter is similar to the first ones. This may be due to the fact that the blows which struck the bones of the right leg were largely those which had missed the left, and, as they had been aimed obliquely downwards, they hit the distal third of the right leg on its inside, because the warriors, when fighting, generally placed the left leg in front of the right one.

In order to elucidate the following account of different directions of cuts for the different injuries, a diagrammatic illustration is given in fig. 177, showing the most commonly occurring cuts on the bones of extremities. Tab. 9 shows that cuts on the ventral side of the tibia are the commonest of all. The majority are found in the centre third of the bone and the rest are distributed equally between the proximal and distal parts; and there are almost twice as many cuts on the left tibia as on the right. The cuts on the medial side of the tibia

Tab. 10. *Injuries due to cuts on the tibia. Frequency of the different directions of the single and multiple cuts.*

	Vertically from above.					Vertico-horizontally from above.					Horizontally.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Not more than one cut	7	5	12	1,44	12,5	36	25	61	1,44	63,5	4	3	7	1,33	7,3
Two or several cuts	3	0	3	—	4,7	28	21	49	1,33	76,6	6	2	8	3,00	12,5
Total:	10	5	15	2,00	9,4	64	46	110	1,39	68,8	10	5	15	2,00	9,4

	Vertico-horizontally above below.					Total number of bones.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Not more than one cut	6	10	16	0,60	16,7	53	43	96	1,23	60
Two or several cuts	3	1	4	3,00	6,3	40	24	64	1,67	40
Total:	9	11	20	0,82	12,5	93	67	160	1,39	100

are more than a quarter of all the cuts and half of these occur on the centre third, the remainder being equally distributed over the other two thirds, while their distribution on the right and left tibia shows a big deviation from that of cuts on the other sides; the ratio between the number of cuts on the left and right tibia is 0.69 for the medial side, whereas the same ratio for the other sides is between 1.75 and 2.07.

This is strong evidence for the assumption I have previously made that the cuts on the medial side of the right leg were usually from blows which had been aimed at the left leg but missed it because it was generally placed a little in front of the right one.

This is also evident from the cuts on the lateral side, which are approximately as frequent as those on the medial side, and the ratio between those on the left and right tibia is 2.07, i.e. the cuts on the left bone are more than twice as numerous as those on the right. This means that only 8.4 % of all blows have hit the lateral side of the right tibia and must, in theory, have had a different direction from that of the other blows, because they have not been caused by cutting weapons which have hit the warriors obliquely from above and from the left. These cuts were probably a result of the "first blow" in the regular combat mentioned above which the warrior had not, as was usually the case, been able to parry with his shield. Here we must realize, however, that the warrior might have received some of these cuts when he had turned his back upon the enemy for some reason, e.g. when he was retreating, in which case the blows would have been struck in the same way as the vast majority.

Dorsal cuts occur least (8.7 % of the total number). They could hardly have been inflicted in battle but only when the warrior had fallen or possibly if he had turned his back upon his antagonist.

Tab. II. *Injuries due to cuts on the tibia. Frequency of the single and multiple cuts which have struck the different surfaces of the tibia.*

Group of cuts.	Frontal cuts.					Fronto-sagittal cuts.					Sagittal cuts.					Total number of injuries due to cuts.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	R./L.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Not more than one cut	18	10	28	1,80	29,2	25	28	53	0,89	55,2	10	5	15	2,00	15,6	53	43	96	1,23	59,6
Two or several cuts . . .	4	6	10	0,67	15,4	32	16	48	2,00	73,8	5	2	7	2,50	10,8	41	24	65	1,71	40,4
Total:	22	16	38	1,38	23,6	57	44	101	1,30	62,7	15	7	22	2,14	13,7	94	67	161	1,40	100,0

Table 10 shows a summary of the directions of the blows. Only a hundred and sixty are included, because one, whose direction was vertically from below, was excluded, as it would have enlarged the table without adding to its interest. As was expected, this table shows a great predominance of blows which have come vertico-horizontally from above (about two thirds of the total). There is an approximately equal number of blows from other directions (about 10 % each). For all the directions of the blows, except those vertico-horizontally from below, there is a greater number on the left tibia. Some striking differences exist between the two groups "one cut" and "two or more cuts"; 60 % of the total belong to the group "not more than one cut", and the preponderance on the left bone is less noticeable than in the group "two or more cuts". This may be associated with the fact that deep cuts often occur in multiples, i.e. they have been caused when the attacker was at a great advantage and could strike several fierce blows in rapid succession with his right hand at the left side of his antagonist. The number of cases for the various directions of blows is different in the two groups. Thus there are more blows in the group "two or more cuts", which struck vertico-horizontally from above, and the reason for this is probably the same as that suggested for the difference between the two different groups in the distribution on the right and left tibia.

A striking feature for the group "not more than one cut" is the large number of wounds from blows aimed vertically from above. These blows naturally have been fairly ineffective, because they only made glancing cuts and they must, therefore, have been dealt during the part of the battle when the warriors were more evenly matched and able to parry each other's blows. Still more conspicuous is the comparatively large number of blows aimed vertico-horizontally from below in the group "not more than one cut". This fact is difficult to explain, but probably they were struck at fallen warriors. Another possibility is that these blows were struck at mounted warriors. In favour of this assumption is the fact that of the blows which have been struck vertico-horizontally from below, 80 % belong to the group "not more than one cut", but only 20 % to the group "two or more cuts", for if a warrior had received such a powerful blow that it penetrated right into the bone itself, he probably tried to withdraw as soon as possible before receiving any more blows, which, of course, was easier for a mounted soldier than one fighting on foot. Another fact in favour of the assumption that they were blows struck at mounted warriors, is the comparatively

Tab. 12. *Injuries due to cuts on the femur, humerus, radius, and ulna.*

	Common grave 1.					Common grave 2.					Common grave 3.					Common grave 1+2+3.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Femur	7	2	9	3,50	26,5	12	9	21	1,33	61,8	1	3	4	0,33	11,8	20	14	34	1,43	55,7
Humerus	3	3	6	1,00	50,0	3	3	6	1,00	50,0	0	0	0	—	0	6	6	12	1,00	19,7
Radius	3	3	6	1,00	75,0	0	2	2	—	25,0	0	0	0	—	0	3	5	8	0,60	13,1
Ulna	3	0	3	—	42,9	2	2	4	1,00	57,1	0	0	0	—	0	5	2	7	2,50	11,5

great preponderance on the right leg, belonging to the group “not more than one cut”. In a struggle with cutting weapons between mounted men and men on foot, the former generally tries to turn the right side of his horse towards his opponent, in which case his left leg is protected from injury.

Horizontal cuts occur somewhat more often in the group “two or more cuts”, which might perhaps be explained by the fact that they were from blows which could only be struck at fallen warriors unable to defend themselves.

Table 11 gives an idea of the way in which the weapon was held when it struck the tibia. As is seen, and this is also to be expected from what has been pointed out above, the sagittal cuts are most common and form no less than two thirds of the total, whereas the frontal ones form only a quarter and the sagittal ones about an eighth.

One may perhaps be surprised that the sagittal ones are so comparatively uncommon and the frontal ones so common—a fact for which I am unable to find any reasonable explanation. It has already been pointed out several times that well aimed blows as a rule are characterized by their occurring together, and the opposite is the case with blows which are not effective or well aimed. It is not astonishing therefore to find that the fronto-sagittal cuts belong rather more often to the group “two or more cuts”, and frontal or sagittal cuts to the group “not more than one cut”. That the fronto-sagittal blows from the left were better aimed is apparent from the fact that the ratio between the number of cuts on the left and right tibia is only 0.89 for the group “not more than one cut”, but 2.00 for the group “two or more cuts”. This ratio is remarkably large for the sagittal cuts, which is fairly natural if we assume that the battle was fought in the manner described, for which therefore, this is further evidence.

INJURIES DUE TO CUTS ON THE LONG TUBULAR BONES APART FROM THE TIBIA.

As is seen from Supplement 2, the number of cuts on the tubular bones, apart from the tibia, is comparatively small. They cannot be discussed in detail in the same way as those on the tibia, because the available figures are so small that no safe statements can be made. I will, therefore, only tabulate the nature of the different cuts in different respects, so that they will be available to anyone interested in them.

Tab. 13. *Distribution of injuries due to cuts on the whole cranium and on minor parts of crania.*

		Whole cranium.				Smaller part of cranium.				Total:
		a	b	a/b	a+b	a	b	a/b	a+b	
Common grave 1	Injury due only to cut	19	10	1,90	29	40	8	5,00	48	77
	Injury due both to cut and arrow-wound	10	11	0,91	21	2	2	1,00	4	25
	Total number of injuries	29	21	1,38	50	42	10	4,20	52	102
Common grave 2	Injury due only to cut	13	24	0,54	37	23	37	0,62	60	97
	Injury due both to cut and arrow-wound	8	11	0,73	19	4	6	0,67	10	29
	Total number of injuries	21	35	0,60	56	27	43	0,63	70	126
Common grave 3	Injury due only to cut	0	5	—	5	0	3	—	3	8
	Injury due both to cut and arrow-wound	0	2	—	2	2	1	2,00	3	5
	Total number of injuries	0	7	—	7	2	4	0,50	6	13
Common grave 1+2+3	Injury due only to cut	32	39	0,82	71	63	48	1,31	111	182
	Injury due both to cut and arrow-wound	18	24	0,75	42	8	9	0,89	17	59
	Total number of injuries	50	63	0,79	113	71	57	1,25	128	241

a = Not more than one injury.

b = Two or several injuries.

In table 12 I have, however, made a brief analysis of these cuts in order to see their distribution over the different common graves, as well as the distribution on right and left bones. There are most cuts on the femur (more than half of the total number). Of the bones of the arm, the humerus has most cuts, as has already been stated; but it is remarkable that there is not a single cut on the bones of the arm in common grave 3, which is all the more remarkable because this common grave shows a comparatively large number of cuts on the bones of the extremities in the aggregate. The distribution of cuts on the right and left femur is fairly similar to that for the tibia. No great importance can be assigned to the vast difference which common grave 3 shows in this respect, as the cuts occurring here are so few in number. That common grave 3 is unique in so far as cuts on the arms are concerned, might, since we have no possibility of judging whether different methods of fighting took place in different parts of the battle-field, be attributed to the use of different types of armour. This assumption is also supported by the fact that the injuries due to cuts on the crania are comparatively few in common grave 3 (see table 29).

CUTS ON THE CRANIA.

In judging the injuries due to fighting on the crania and fragments of such, we encounter some circumstances which make it impossible to deal uniformly with the material. In 1907, professor Clason devoted a vast amount of labour to a minor part of the skeletal material, viz. a part from common grave 1 in an attempt to join cranial fragments belonging

together, in order to reconstruct the crania. I have not made any extensive attempts at joining the cranial fragments together in the remainder of the material. This will, of course, reduce the possibilities of determining the position of some of the injuries which occur on small cranial fragments. Moreover, this sometimes makes it impossible to decide if a cranium has received one or more injuries. In order to eliminate this error as far as possible, I have always ascertained whether a similar injury is to be found on any of the cranial fragments which were lying adjacent to the injured one and which may be assumed to have belonged to the same cranium. This has been successful in a comparatively large number of cases, which is seen from the fact that for common grave 1, 49 % of the injuries due to cuts are found on a "whole cranium", whereas the same figure for common grave 2 is 44.4 % and for common grave 3, 53.8 %. In order to try, if possible, to get some idea of the method of fighting and the effectiveness of the armour for the head etc., I shall render a detailed account of the various cuts, injuries from arrows and other wounds.

Table 13 gives an analysis of all cuts on the cranium. These have been divided into two main groups, viz. first cuts on "whole cranium", and secondly, cuts on a "minor part of a cranium". By "whole cranium" is understood not an entire cranium but the greater part of one, which could be examined as a whole, so that it could be decided with considerable certainty whether it had received one or more injuries. This division has been made in order to obtain a better idea of how often the injuries were multiple ones. For the "whole cranium" 44.2 % of the cases bear only one injury and the remainder, two or more, whereas the corresponding figure for "minor part of cranium" is 55.5 %. The difference is strikingly small, and this, perhaps, partly because multiple cuts are often close to one another and therefore will quite probably appear together on a small part. The proportion of cases of "not more than one injury" and "two or more injuries" is different for the different common graves, in that common grave 1 is characterized by a comparatively large number of cases with "not more than one injury", whereas common grave 2 shows a comparatively large number of cases with "two or more injuries". In about 25 % of the cases, injuries from arrows and blows have been found together, and approximately equally in the different common graves. The groups "whole cranium" and "minor part of cranium" show a considerable difference in this respect, in that 57.2 % of the former group and 15.3 % of the latter show injuries from blows and arrows together. The distribution of the injuries from blows in the different common graves shows considerable divergence in proportion to the number of individuals, in that

in common grave 1, 42.3 % of the men have cuts on the cranium,
in common grave 2, 52.3 %, and
in common grave 3, 5.4 %.

The explanation for this difference in the relative number of injuries from blows can probably only be that the clothing was different in the different common graves, and would therefore indicate that those in common grave 3 had comparatively better and more protective armour than in the two other graves, especially common grave 1.

Tab. 14. *Injuries due to cuts on the cranium. Distribution of the single and multiple cuts on the right and left side of the cranium.*

	Not more than one injury.					Two or several injuries.					Total:				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Common grave 1	19	6	25	3,17	78,1	5	2	7	2,50	21,9	24	8	32	3,00	37,6
» * 2	12	6	18	2,00	40,0	14	13	27	1,08	60,0	26	19	45	1,37	52,9
» " 3	1	2	3	0,50	37,5	2	3	5	0,67	62,5	3	5	8	0,60	9,4
» " 2+3	13	8	21	1,63	39,6	16	16	32	1,00	60,4	29	24	53	1,21	62,4
» " 1+2+3	32	14	46	2,29	54,1	21	18	39	1,17	45,9	53	32	85	1,66	100,0

Since the position of a considerable number of the injuries could be exactly determined, this has been done and the result is set out in Supplement 3. The injuries to the temporal region are not included in this table, as they only amounted to five, and these will therefore be described separately. The same is the case with injuries to the face, which are astonishingly few in proportion to the numerous injuries to the calvaria—a fact which is probably due to the comparative ease with which the warrior could protect his face with his shield, and possibly also to the comparative fragility of the facial bones so that the facial parts of the skeleton were sometimes crushed in the earth, thus rendering the determination of injuries considerably more difficult. The first hypothesis is confirmed by the fact that the comparatively large number of lower jaws only show a total of fifteen injuries due to blows, a figure which is only 6 % of all the cases of injuries to the crania from blows, from which it is evident that the number of injuries on the face due to blows in all probability is comparatively small. A table of the distribution of injuries from blows on the lower jaw is given in Supplement 4.

In order to be better able to interpret the information obtained from Supplement 3 some details from it are given below, with notes on remarkable conditions. Table 14 shows that the greatest number of cuts are on the left of the cranium especially in the group "not more than one injury", these blows being struck during a man-to-man fight, whereas "two or more injuries" shows an almost equal distribution on the right and left side; these multiple blows were probably aimed at fallen warriors. Common grave 1 shows the greatest number of injuries on the left side, and differs greatly from the other common graves in the proportion of cases with "not more than one cut" and "two or more cuts", in that the former group in common grave 1 is composed of fully 75 % of the whole number, while in the other two common graves it is only 35 % to 40 %, which is all the more remarkable because a very great part of the cranial fragments belonging to common grave 1 have been joined together by Professor Clason into more or less complete crania, which has not been done with those in the two other common graves.

Table 15 gives a survey of the position of the different cranial cuts. Almost half of all the blows struck the parietal bone, the greatest number being on the left side, which re-

Tab. 15. *Distribution of cuts on the different bones of the cranium.*

		Frontal bone.					Fronto-parietal bones.					Parietal bone.				
		Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L. R.	%
Superficial cut.	Common grave 1	1	2	3	0,50	17,6	1	1	2	1,00	11,8	7	2	9	3,50	52,9
	» » 2	3	0	3	—	14,3	1	2	3	0,50	14,3	8	4	12	2,00	57,1
	» » 3	1	1	2	1,00	50,0	0	0	0	—	0	0	1	1	—	25,0
	» » 1+2+3	5	3	8	1,67	19,0	2	3	5	0,67	11,9	15	7	22	2,14	52,4
Perforating cut.	Common grave 1	2	2	4	1,00	28,6	0	1	1	—	7,1	5	0	5	—	35,7
	» » 2	4	2	6	2,00	25,0	0	1	1	—	4,2	6	6	12	1,00	50,0
	» » 3	0	0	0	—	0	0	1	1	—	20,0	2	0	2	—	40,0
	» » 1+2+3	6	4	10	1,50	23,3	0	3	3	—	7,0	13	6	19	2,17	44,2
Not more than one injury		8	4	12	2,00	26,1	1	1	2	1,00	4,3	15	5	20	3,00	43,5
Two or several injuries		3	3	6	1,00	15,4	1	5	6	0,20	15,4	13	8	21	1,63	53,8
Total:		11	7	18	1,57	21,2	2	6	8	0,33	9,4	28	13	41	2,15	48,2

		Parieto-occipital bones.					Occipital bone.					Fronto-parieto-occipital bones.				
		Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L. R.	%
Superficial cut.	Common grave 1	0	0	0	—	0	3	0	3	—	17,6	0	0	0	—	0
	» » 2	0	1	1	—	4,8	0	2	2	—	9,5	0	0	0	—	0
	» » 3	0	0	0	—	0	1	0	1	—	25,0	0	0	0	—	0
	» » 1+2+3	0	1	1	—	2,4	4	2	6	2,00	14,3	0	0	0	—	0
Perforating cut.	Common grave 1	2	0	2	—	14,3	1	1	2	1,00	14,3	0	0	0	—	0
	» » 2	1	0	1	—	4,2	2	1	3	2,00	12,5	1	0	1	—	4,2
	» » 3	1	0	1	—	20,0	0	1	1	—	20,0	0	0	0	—	0
	» » 1+2+3	4	0	4	—	9,3	3	3	6	1,00	14,0	1	0	1	—	2,3
Not more than one injury		2	0	2	—	4,3	6	4	10	1,50	21,7	0	0	0	—	0
Two or several injuries		2	1	3	2,00	7,7	1	1	2	1,00	5,1	1	0	1	—	2,6
Total:		4	1	5	4,00	5,9	7	5	12	1,40	14,1	1	0	1	—	1,2

ceived twice as many cuts as the right side. In four cases of penetrating cuts these extended also to the occipital region. These were all on the left, which shows that these blows were better aimed. An astonishingly large number of blows struck the occipital region. These blows probably struck the man when he had turned his back on his antagonist in order to flee, or when he had fallen and his antagonist had taken the opportunity of striking the occiput. But it is astonishing that not more than half the cuts penetrated the bone, but this is explained by the fact that in the occipital region there are strong coverings of muscles from the protuberantis occipitalis ext. downwards to the foramen occipitale magnum and laterally to the mastoid process. Also, the coils of mail usually had a collar of the same

Tab. 16. *Direction in which blows struck the head.*

	Vertically from above.					Vertico-horizontally from above.					Horizontally.					Vertico-horizontally above below.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Common grave 1	4	2	6	2,00	18,8	17	3	20	5,67	62,5	2	0	2	—	6,3	1	3	4	0,33	12,5
" " 2	3	3	6	1,00	13,0	24	15	39	1,60	84,8	0	1	1	—	2,2	0	0	0	—	0
" " 3	2	1	3	2,00	37,5	1	4	5	0,25	62,5	0	0	0	—	0	0	0	0	—	0
Not more than one injury in 1+2+3	7	5	12	1,40	25,5	23	6	29	3,83	61,7	2	1	3	2,00	6,4	1	2	3	0,50	6,4
Two or several injuries in 1+2+3	2	1	3	2,00	7,7	19	16	35	1,19	89,7	0	0	0	—	0	0	1	1	—	2,6
Common grave 1+2+3	9	6	15	1,50	17,4	42	22	64	1,91	74,4	2	1	3	2,00	3,5	1	3	4	0,33	4,7

material, which hung down over the neck and shoulders, and this in all probability served as a fairly good protection against injuries. The great number of cuts on the occiput in relation to its small surface suggests that these were really final blows struck at the man after he had dropped, which is also apparent from the equal distribution to the right and left. The frontal cuts, next to the parietal ones, are the most common. A feature throughout with regard to these cuts is that they are very seldom in that part of the bone which is purely frontal, but generally in the peripheral parts on the transition to the parietal and temporal bones, which is shown by the number of cuts in the group "frontoparietal" being comparatively large, viz. 9.4 % of the total number. A fairly large number of the frontal cuts penetrate the bone and were chiefly caused by the blows which were aimed vertically from above, a fact to which we shall revert. These cuts were probably immediately mortal or rendered the warrior unconscious, which is seen from the fact that the number of cuts belonging to the group "not more than one cut" is very large. For those groups which cover two bones the group "two or more cuts" predominates throughout, which is natural. With regard to parietal cuts the groups are almost equal, whereas for occipital cuts the group "not more than one cut" is much larger, which may probably be explained by the fact that not only strong masses of muscles but also armour protected this region, with the result that only occasional blows struck so deep that they left their mark on the occiput.

Table 16 gives a survey of the direction in which the blows hit the cranium. The same distribution is to be found here as for the tibia, in that the blows struck obliquely from above are far the most numerous and constitute three quarters of all the injuries. Next come the purely vertical blows, which, however, only amount to 17 % of the whole number. The blows coming horizontally and vertico-horizontally from below are much rarer and amount to only 3.4 % and 4.7 % respectively of the total. The rarity of the horizontal blows is because they are very difficult to strike at the head of an opponent who is standing upright, and they were probably most often struck at those who had fallen.

With regard to the tibia injuries, the blow aimed vertico-horizontally from below constitute 12.5 % of all the injuries due to blows. When describing the tibia cuts, among other things we suggested that this was a case of blows aimed at horse-men.

Tab. 17. *Position in the vertical plane in which blows struck the head.*

	Frontally.					Fronto-sagittally.					Sagittally.					Varying.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Not more than one cut . . .	5	3	8	1,67	17,0	17	10	27	1,70	57,4	11	1	12	11,00	25,5	0	0	0	—	0
Two or several cuts . . .	2	3	5	0,67	12,8	8	5	13	1,60	33,3	2	2	4	1,00	10,3	9	8	17	1,13	43,6
Total:	7	6	13	1,17	15,1	25	15	40	1,67	46,5	13	3	16	4,33	18,6	9	8	17	1,13	19,8

This is partly confirmed by the observation that the relative number of blows aimed in this manner is much lower for the crania, because for obvious reasons it was difficult for a foot-soldier to strike at the head of a mounted man. Probably, also the mounted men were well equipped with armour and thus not easily vulnerable. It is also remarkable that both the tibial and cranial blows as a rule belong to the group "not more than one cut". This might also indicate that mounted men aimed these blows, for these warriors naturally find it easier to withdraw after getting wounded than a man fighting on foot. If an individual lying on the ground had been wounded, the blows, from the assumptions already made, would usually have been multiple ones. That there really were considerably more blows on the crania, which had been struck vertico-horizontally from below, than it has been possible to determine, is suggested by the fact that all the injuries found belong to common grave 1, which has been dealt with more carefully, so that the nature of a greater number of the blows could be determined, than has been the case with the other graves. The fact that three quarters of the cuts which were struck vertico-horizontally ventrally hit the right side may perhaps be explained by the fact that a warrior on horseback always turns his right side to his antagonist in battle. Facts which further confirm the assumption that there were mounted warriors are that spurs (four or five, all of which were in common grave 2), and horse-shoes (one whole and two halves in



Fig. 178. Cranium with several arrow-holes and one larger, probably octagonal hole.

common grave 1, two whole ones in common grave 2 and none in common grave 3), were found amongst the skeletons, and therefore were probably not in the soil before the battle or introduced afterwards (cf. pp. 122 f.).

As 80 % of the blows struck vertically from above belong to the group "not more than one cut", it indicates that these blows were difficult to strike. The cuts belonging to the group "two or more cuts" have probably been struck at warriors who had fallen, were retreating or were attacked from behind; whereas the injuries in the group "not more than one cut" were received in a hand-to-hand fight. This is seen

from the fact that the ratio between the cuts on the left side and right side for the former group is 1.17, and for the latter, 2.36.

Table 17 gives an idea of the direction of the blows on the cranium. For the group "not more than one cut" the fronto-sagittal cuts predominate (57 %) as was to be expected, and the sagittal ones include about a quarter of the single cuts, whereas the transverse ones are not quite one fifth. For the group "two or more cuts" a further sub-group has been introduced in the table, viz. to include "varying" directions of the blows.

The fact that this group contains 44 % of all the injuries probably bears evidence of the tumult which prevailed during the battle. For the groups "frontal", "frontosagittal" and "varying" there exists a small predominance of left-hand wounds, which is 1.67 at the most. The group "sagittal" on the other hand shows 11.0 for cases of "not more than one cut", a fact which seems to indicate a regular combat of the kind which has already been discussed.

In four cases frontal blows have been received which have severed the nose from above. As stated above, there are five cases of blows which struck the temporal bone, four of these being on the left side. They have all been aimed vertico-horizontally from above and lie in the sagittal plane. The mastoid process has been completely severed in three cases and in the remaining cases it has fairly deep cuts.

As is seen from table 31, only fifteen cuts are to be found on the lower maxilla among the whole material, ten of these belonging to common grave 1, three to common grave 2, and two to common grave 3. This uneven distribution is difficult to explain, and may possibly be due to different types of armour, or to the more meticulous investigation to which Professor Clason subjected part of common grave 1. The blows were all very powerful and nine completely severed the lower maxilla; they are evenly distributed to the right and left sides, (seven on the right and eight on the left). Most of the cuts, (ten), strike vertico-horizontally from above. The horizontal ones (three) have all cut off a longer or shorter piece of the alveolar process.

The injuries to the remaining part of the face number only four, and in no case have they been combined with injuries to the lower maxilla. The blows have struck the upper maxilla and the zygomatic arch vertico-horizontally from above.

INJURIES FROM ARROWS AND INJURIES DUE TO LANCES AND SPIKED MACES.

As has already been pointed out on p. 160, it is impossible to determine if a hole in the cranium 2—10 mm. square is from an arrow-head, a spike on a mace, or a lance-head. In

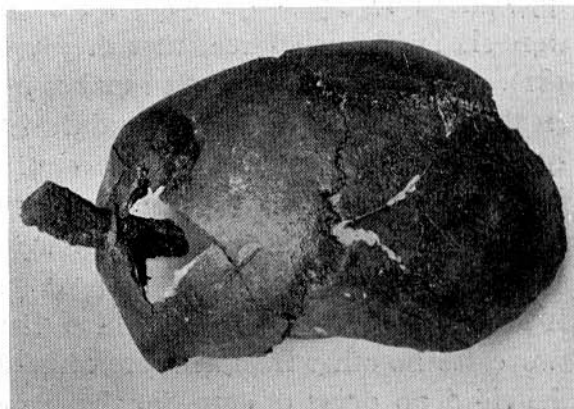


Fig. 179. Part of cranium with an arrow-head remaining fixed.

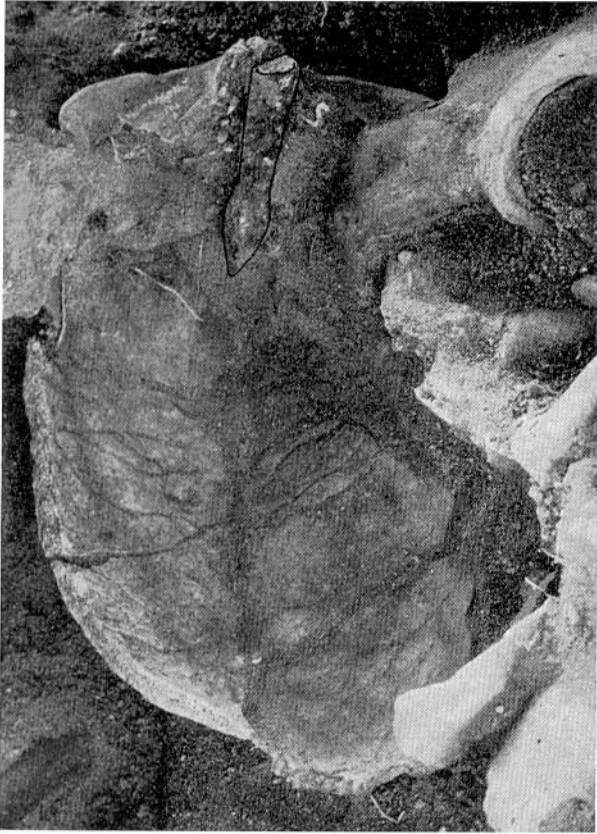


Fig. 180. Roof of cranium with a penetrated arrow-head *in situ*. (Regn.no. Utt 8.)

dealing with these injuries, therefore, we had absolutely no guidance from their appearance. In order to get a uniform treatment of the injuries referred to, they are all dealt with as injuries due to arrows. But it should always be remembered that there are likely to be errors. Spiked maces were very probably used in the battle of Wisby, but to what extent is not known. It has already been suggested, that some of the multiple injuries were caused by spiked maces. In a couple of instances comparatively large hexagonal holes in the cranium have been found. These were probably inflicted by such weapons (fig. 178). The errors due to the inclusion of injuries caused by lances among the injuries from arrows will probably not be great, as the lance was probably only used occasionally in this battle.

As already mentioned on page 160, the only ballistic weapon used was the cross-bow. The arrows consisted of wooden shafts about 25 cm. long with an iron head about 5 cm. long. These arrow-heads had a square or

rhomboid cross section and were more or less sharply pointed. The holes made in the crania are generally 10 mm. square but often not more than 2 mm. The larger holes show, that the iron head of the arrow penetrated some distance into the cranial cavity, of which fig. 179 gives a good example. In five cases arrow-heads have been found during the excavations in 1928—30 lying inside the cranial cavity, which indicates that the arrows were shot with such force, that they went right through the cranial bones (figs. 180 and 181). In by far the greatest number of cases the arrow-holes show a conical shattering on the inside of the cranium round the hole, indicating that the trauma came from without. In three instances, however, the opposite is the case, indicating that the trauma came from within. This means that the arrow had penetrated the cranium in one place, and then, after passing through the brain, struck the bone elsewhere (fig. 182 shows such a case, where the cone has been detached and there remains only the bone crater). It is most unfortunate that all these three injuries belong to minor portions of crania; in two cases no other fragments are certainly known to belong to the same cranium, while in the third no point of entry for the arrow could be found on any other part belonging to this cranium. Since it is known, however, that cross-bows were extremely powerful weapons, which shot the arrows with great initial speed, and since several crania have been

found with arrow-heads inside them, it seems probable that an arrow might have passed right through the head, especially if shot at close quarters and at an individual with little protection on his head.

Since it is chiefly on the cranial bones that injuries from arrows are to be found—in fact in the whole material there is only one tibia (fig. 167) and one ilium, which show injuries from arrows—a survey will be given below of the different characters of the arrow-wounds in respect of position, aim, and number. In some instances there are five, six, and even seven injuries from arrows on the same cranium, which shows that there must have been an enormous number of arrows shot. As already pointed out (see table 18) a combination of cuts and injuries from arrows on the same cranium, is found fairly often which probably must be interpreted as indicating that the arrow-wounds were received after the blows, because the former are as a rule so severe that, even if the men did not lose consciousness

at once, they must at any rate have been incapacitated. Another possibility is, of course, that they received the arrow-wounds first but did not become unconscious, and in trying to defend themselves, received the mortal cuts from their antagonists.

To make a more exact discussion of the arrow-wounds possible I have summarized those which hit the cranium in table 18; this has been drawn up on the same system as table 29, which dealt with the distribution of the cuts. Thus for common grave 1, 88 % of all arrow-wounds belong to the group "whole cranium", whereas the corresponding proportion for common graves 2 and 3 is 38 % and 44 % respectively. The ratio, also, between the number of cases belonging to group "not more than one injury" and "two or more injuries" is lower throughout for common grave 1 than for the other common graves. The following are percentages of the injuries from arrows for the different common graves:

Common grave 1	27.2 %
Common grave 2	65.6 %
Common grave 3	7.2 %

As is seen, these figures are closely related to the number of individuals in the different common graves, and therefore differ considerably from the numbers which were obtained

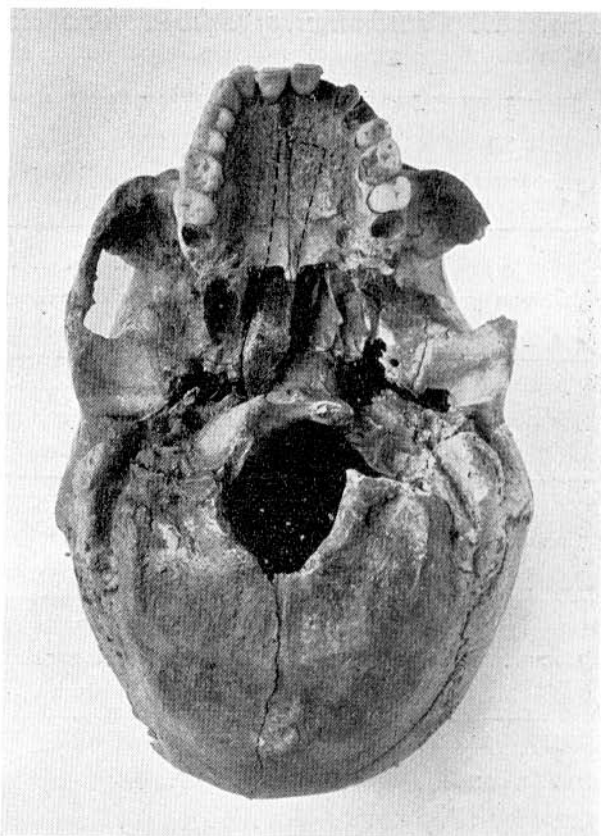


Fig. 181. Cranium with a remaining arrow-head which has entered through the nose. (Regn.no. Qä 26.)

Tab. 18. *Distribution of injuries from arrows on the whole cranium and on minor parts of crania.*

		Whole cranium.				Smaller part of cranium.				Total
		a	b	a/b	a+b	a	b	a/b	a+b	
Common grave 1	Injury due only to cut	4	5	0,80	9	0	0	—	0	9
	Injury due both to cut and arrow-wound	10	11	0,91	21	2	2	1,00	4	25
	Total number of injuries	14	16	0,88	30	2	2	1,00	4	34
Common grave 2	Injury due only to cut	11	1	11,00	12	29	12	2,42	41	53
	Injury due both to cut and arrow-wound	8	11	0,73	19	4	6	0,67	10	29
	Total number of injuries	19	12	1,58	31	33	18	1,83	51	82
Common grave 3	Injury due only to cut	2	0	—	2	1	1	1,00	2	4
	Injury due both to cut and arrow-wound	0	2	—	2	2	1	1,00	3	5
	Total number of injuries	2	2	1,00	4	3	2	1,50	5	9
Common grave 1+2+3	Injury due only to cut	17	6	2,83	23	30	13	2,30	43	66
	Injury due both to cut and arrow-wound	18	24	0,75	42	8	9	0,89	17	59
	Total number of injuries	35	30	1,17	65	38	22	1,73	60	125

a = Not more than one injury.

b = Two or several injuries.

Tab. 19. *Distribution of the single and multiple injuries from arrows on the right and left side of the cranium.*

	Not more than one cut.					Two or several cuts.					Total:				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L. R.	%	Left	Right	L.+R.	L. R.	%
Common grave 1	5	5	10	1,00	58,8	6	1	7	6,00	41,2	11	6	17	1,83	27,4
» » 2	20	10	30	2,00	75,0	5	5	10	1,00	25,0	25	15	40	1,67	64,5
» » 3	3	2	5	1,50	100,0	0	0	0	—	0	3	2	5	1,50	8,1
» » 1+2+3	28	17	45	1,65	72,6	11	6	17	1,85	27,4	39	23	62	1,70	100,0

for the injuries from blows. This indicates that cross-bows were used uniformly over the whole battle-field and also that these injuries are not affected by the garments worn. The distribution of single or multiple arrow-wounds on a "whole" and a "minor part of a cranium" is as follows: with regard to "whole cranium" 53.8 % belong to the group "not more than one arrow-wound", whereas the figure for "minor portion of cranium" is 63.3 %. The difference between these figures is approximately the same as for single and multiple

Tab. 20. *Frequency of injuries from arrows on the different bones of the cranium.*

	Frontal bone.					Fronto-parietal bones.					Parietal bone.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Common grave 1	1	1	2	1,00	11,8	1	1	2	1,00	11,8	5	2	7	2,50	41,2
» » 2	7	3	10	2,33	25,6	0	0	0	—	0	15	9	24	1,67	61,5
» » 3	0	0	0	—	0	0	0	0	—	0	3	1	4	3,00	80,0
» » 1+2+3	8	4	12	2,00	19,7	1	1	2	1,00	3,3	23	12	35	1,92	57,4

	Parieto-occipital bones.					Occipital bone.					Fronto-parieto-occipital bones.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Common grave 1	2	0	2	—	11,8	1	2	3	0,50	17,6	1	0	1	—	5,9
» » 2	0	1	1	—	2,6	2	2	4	1,00	10,3	0	0	0	—	0
» » 3	0	0	0	—	0	0	1	1	—	20,0	0	0	0	—	0
» » 1+2+3	2	1	3	2,00	4,9	3	5	8	0,60	13,1	1	0	1	—	1,6

cuts respectively, but these figures are about 10 % higher than those for the injuries from blows, which means that single arrow-wounds on crania are much more common than single injuries from blows. There is no great difference in the proportion between the number of cases of single and multiple injuries respectively for the different common graves. In nearly half the number of cases (47.2 %) the injuries from arrows are combined with injuries from blows. In common grave 1 this is particularly pronounced, the proportion here being 73.5 %, a fact which may possibly tell us something about the different fighting conditions for the warriors of the different common graves.

In only about 50 % of all the cases of arrow-wounds from these graves has it been possible to determine the definite position of the wounds on the crania. In order to be able to discuss in greater detail the different nature and characteristics of the arrow-wounds the well-located injuries have been summarized in Supplement 5. As a direct reading of this table is rather difficult, a summary is given below.

Table 19 shows that the wounds on the left side predominate almost in all the common graves (because of the paucity of the figures no account can be taken of the minor variations which occur in the different common graves or between the groups "not more than one injury" and "two or more injuries" respectively), and the ratio between the number of left-hand and right-hand injuries is about 1.70. The only reasonable explanation of this seems to be that in battle a warrior, holding his sword in his right hand, always turns his left side slightly towards his antagonist, so that there is more chance of an arrow hitting the left part of the body than the right. Over a quarter of all the injuries belong to the group "two or more injuries", which may indicate that a very large number of arrows were shot, or it may be that the multiple injuries were caused by spiked maces.



Fig. 182. Crater caused by the striking off of a portion of bone from the outer side of the cranium by an arrow. (Regn.no. *B X.*)

Table 20 shows which bones of the cranium have been hit most often. In this table I have not included the temporal bone, as, curiously enough, it has only been injured by arrows three times. All these injuries are on the left side, fairly high up on the squamous bone. The parietal bone has more than half of all the arrow injuries, with a fairly large proportion on the left side. The frontal bone has about one fifth of all the injuries and the occiput not quite one seventh. The last figure is astonishingly high, if we consider that these injuries could not possibly have been received during the battle but must have been caused after the warrior had fallen or when for some reason he had turned his back upon his antagonist.

It was sometimes rather difficult to determine the direction of the arrows with certainty, but in the majority of cases it can be determined with considerable probability. On account of this one must not attach too much significance to minor variations in the number of cases of injuries from different directions, which are given in table 21. It is shown here that the arrows have hit the cranium vertically from above, vertico-horizontally from above and purely horizontally in an approximately equal number of cases, possibly with a slightly greater proportion of the two latter. These directions are, however, in relation to the head in a normal position. On account of the fairly large number of cases of injuries to the cranium from arrows, received vertically from above, it must be assumed, even if one considers that the warriors advanced with their heads bowed to protect their faces, that the arrows had been shot at rather a large angle of elevation and had then fallen more or less vertically. Added to this is the fact that the arrows were probably rather top-heavy. Such arrows can leave a horizontal trajectory fairly rapidly when their velocity diminishes, although they still retain a comparatively high speed. The horizontal injuries from arrows tell us that at least some arrows were aimed directly at the opponent, which obviously means that the archers did not stand at a great distance from the battlefield and shoot at warriors who were fighting with other weapons but also took part in the hand-to-hand fighting. Only one arrow has struck vertico-horizontally from below and none vertically from below. This probably hit an individual after he had fallen to the ground.

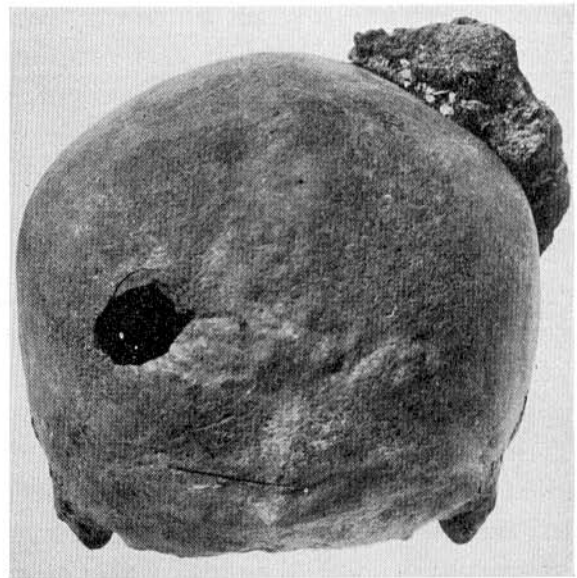


Fig. 183. Cranium with hole caused by the blow of a club(?) (Regn.no. *B II.*)

Table 22 supplies information about the direction of the missiles in relation to the horizontal plane. In this table are to be found, of course, the same figures in the column "vertical" as in the corresponding section in table 21, which thus amount to fully one quarter of all the injuries. The fronto-sagittal ones are about as numerous, whereas the sagittal and frontal ones do not quite amount to one fifth of all injuries. For the group "not more than one injury" the vertical, fronto-sagittal, sagittal, and frontal wounds form about a quarter each. This means that the warriors were shot at from different sides, if we assume that the archers were standing behind the battle-line or that the warriors during the battle turned different sides to their attackers. We shall probably come nearer the truth if we assume that there was a combination of these two factors. In the group "two or more injuries" over a third of all the injuries coming under this heading are of "varying" direction. We must, however, assume that the warrior was disabled when he was hit by an arrow and generally fell, so that arrows shot in the same direction as the first one were probably aimed differently.

Of the eight cases of injuries from arrows in the occipital region, which occur in table 42, two struck frontally, one fronto-sagittally, and the remaining five sagittally from behind. In all probability these arrows hit retreating warriors.

Thus altogether about one hundred and twenty-five warriors were struck on the head by one or more arrows. From what has been shown above it is probable that they were incapacitated by the arrow-wounds, and died from them or possibly received further wounds, which ended their lives. One may therefore maintain that over 10 % of the fallen warriors have directly or indirectly died from arrow-wounds in the cranium. If we also take into account the fact that the head forms a comparatively small part of the body, and that no particularly great opportunity for arrows to hit and penetrate the head existed, because there was comparatively little possibility of aiming with the crossbow, and that also the warriors, at least some of them, had their heads well protected by mail coifs, we can imagine that a considerably greater proportion must have been the victims of arrow-wounds.

As already mentioned, maces were in all probability also used as weapons. Injuries from this weapon are extremely difficult to identify, because they generally completely crushed the bone or cranium, an injury which cannot possibly be distinguished from the damage done to the skeletons while they were lying in the grave. However, in four cases there occur injuries to the cranium which

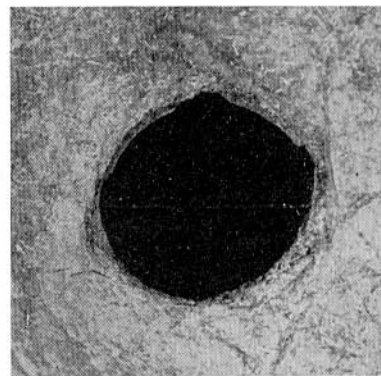


Fig. 184. Hole in the roof of the cranium caused by the blow of a club, seen from within the cavity of the skull. (Regn.no. *Ec* 29.)



Fig. 185. Coalesced vertebrae which have formed the vertex of a hunchback, probably due to tuberculosis. (Regn.no. *A* 13.)

Tab. 21. *Direction in which the arrows struck the head.*

	Vertically from above.					Vertico-horizontally from above.					Horizontally.					Vertico-horizontally above below.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Common grave 1	3	1	4	3,00	23,5	3	1	4	3,00	23,5	5	4	9	1,25	52,9	0	0	0	—	0,0
» » 2	7	5	12	1,40	30,0	11	4	15	2,67	37,5	7	5	12	1,40	30,0	0	1	1	—	2,5
» » 3	0	1	1	—	20,0	3	0	3	—	60,0	0	1	1	—	20,0	0	0	0	—	0,0
» » 1+2+3	10	7	17	1,43	27,4	17	5	22	3,40	35,5	12	10	22	1,20	35,5	0	1	1	—	1,6
Not more than one injury	8	4	12	2,00	26,7	10	3	13	3,33	28,9	10	9	19	1,11	42,2	0	1	1	—	2,0
Two or several injuries	2	3	5	0,67	29,4	7	2	9	3,50	52,9	2	1	3	2,00	17,6	0	0	0	—	0,0

Tab. 22. *Direction in which the arrows struck the head.*

	Vertically.					Fronto-sagittally.					Sagittally.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Not more than one injury	8	4	12	2,00	26,7	9	4	13	2,25	28,9	6	5	11	1,20	24,4
Two or several injuries	2	3	5	0,67	29,4	2	1	3	2,00	17,6	1	0	1	—	5,0
Total:	10	7	17	1,43	27,4	11	5	16	2,20	25,8	7	5	12	1,40	19,4

	Varying.					Frontally.				
	Left	Right	L.+R.	L./R.	%	Left	Right	L.+R.	L./R.	%
Not more than one injury	0	0	0	—	0	5	4	9	1,25	20,0
Two or several injuries	4	2	6	2,00	35,3	2	0	2	—	11,8
Total:	4	2	6	2,00	9,7	7	4	11	1,75	17,7

have probably been caused by some pointed mace, because these injuries consist of round holes in the cranium with a diameter of about 3 cm. Fig. 183 shows such an injury from the outside and fig. 184 the shattered hole from within, with the crater-like enlargement in towards the cranial cavity.

PATHOLOGICAL CHANGES.

A good many morbid processes could be established in the available material. Thus many of the vertebrae show more or less pronounced spondylosis deformans. This is a symptom of a disease which generally occurs only in middle-aged and elderly people, and which produces stiffness in the back and pain in movement. This is especially the case



Fig. 186. Anchylosed knee-joint fixed in a position of about 55° flexion. (Regn.no. *D 1 h.*)

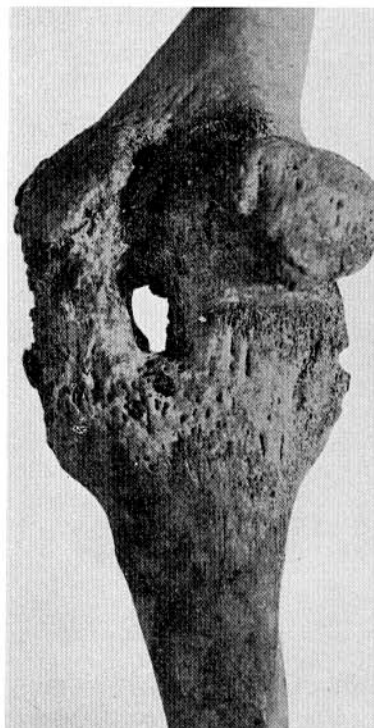


Fig. 187. Knee-joint of the case shown in fig. 186 seen from the front.

when several vertebrae have grown together, which occurs in a couple of cases. Even tuberculous changes of the spine in the form of Pott's disease i.e. humpback, occur in four cases (fig. 185). These are found in fairly small and of course partly disabled persons. Even tuberculous changes of the joints occur. The best specimen of this kind is shown in fig. 186 and fig. 187. It consists of an anchylosed knee-joint which has been flexed at an angle of 55° . The newly formed bone has a fairly smooth surface and there are moderate periosteal growths, the structure of which can very well be seen on the surface. Between the two condyles runs a channel almost as wide as a finger in a posterior-anterior direction. The patella is badly dislocated laterally and adherent to the ventro-lateral surface of the fibular condyle. The general character of the change, the periosteal condyle, the contracted position, and the dislocation of the patella indicate an old, healed tuberculous arthritis; or it might be an old trauma with patellar dislocation, where the exudate has been organized and ossified. The shortening of the leg through this change is fully 9 cm. which caused the person severe lameness.

There occur a fairly large number of probably unspecific inflammatory changes of the joints. Such changes of the ischium are present in about twenty cases, which are probably to be interpreted as an ischiatic disease (*malum coxae senile*). Five of these cases exhibit remarkably pronounced changes; one is shown in fig. 188. Those suffering from changes



Fig. 188. Caput femoris with pronounced arthritic changes (Malum coxae senile).



Fig. 189. Proximal end of a right-hand femur showing changes rather typical of epiphysiolysis.

in the ischium could probably only move with very short steps, so that they were quite unfit for war service. Also inflammatory changes often occur in the elbow-joints and wrists (about twenty-five cases). It is difficult to give the reason for these changes, but they may perhaps be due to the hard work which these individuals had to perform with their hands and arms.

A couple of cases of changes in the bone occur which appear very much like healed cases of osteomyelitis. There are also a couple of cases of old periostitis.

In two cases, one from common grave 1 and the other from common grave 2, there are two femurs with changes that indicate epiphysiolysis of the caput. Fig. 189 shows the proximal end of one femur, where the neck appears considerably thicker than is normal and the head has slipped down somewhat, and shows quite a strong growth which probably occurred after the original disease. This change has caused the person some difficulty and perhaps pain when moving his leg. Some malformations also occur in the material.

There is one case of processus entipichondyloideus on a right humerus. About twenty cases of perforations of the sternum are also to be found. Amongst uncommon malformations in the material are three cases of atlas assimilation and one case of very big processus parachondyloideus. A large number of cases of weak occipital conditions also occur. As these rare malformations do not produce any very noticeable symptoms in the living person and are therefore of purely medical interest, we shall not describe them in detail.



Fig. 190. Fractured femur healed with abundant formation of callus and a shortening of about 9 cm. (Regn.no. *Lv* 6.)



Fig. 191. Proximal end of an ulna which has probably had a pseudarthrosis in or near the middle of the diaphysis.

PREVIOUSLY CONTRACTED INJURIES.

Besides the above morbid processes which have more or less disabled the warriors, there occurred changes due to previous injuries of various kinds. The commonest are fractures, altogether thirty-nine of which have been observed, viz.:

Femur	9	Humerus	1
Tibia	10	Radius	3
Fibula	7	Ulna	4
Metatarsalis	4	Clavicle	5

The fractures show unsatisfactory healing throughout in that the fractured ends are generally rather badly dislocated in relation to each other and united by means of a considerable callus. Fig. 190 shows a femoral fracture with a shortening of about 9 cm., which is not at all unusual. The shortening on the radius and ulna in normal cases is 4—5 cm. Even the fractures of the clavicles show that they healed without being properly set. The fractures have caused fairly serious disablement as such great shortenings as those in question cannot be compensated. The fractures of the metatarsal bones are probably the type of fractures, to which people who stand and walk a great deal are liable, particularly if they carry heavy burdens at the same time. A change in the ulna occurs in one instance

(see fig. 191), which should probably be brought under the heading of pseudarthrosis; for in this case the proximal half of an ulna shows a fractured surface in its distal end, which is provided with closely situated depressions of the size of half a pea, and between these depressions there are elevations in the form of ridges and bumps. Five cm. distally from the olecranon quite a considerable thickening of the bone has occurred and at that point, on a level with the fracture, the surface of which is set at an angle of 45° to the longitudinal axis of the bone, it is about five times as thick as a normal ulna, which shows that the process is of fairly old standing.

A couple of injuries to the fingers occur, where the phalanges have been flexed at an angle of about 90° at the distal interphalangeal joint.



Fig. 192. Cranium with an old, healed injury. (Regn.no. *Gi 51*.)

Even old injuries to the crania occur in a couple of cases. Fig. 192 shows one of these crania which has a depression about 1 cm. deep and the size of a finger tip on the right part of the frontal bone. The medial part of the depression shows a fissure-shaped perforation of the frontal bone about 2 cm. in length. It is not easy to say to what kind of injury this is due, but it is quite possible that the individual received the wound in some earlier battle. The remaining cases of old injuries are of approximately the same appearance and extent.

The teeth show very small pathological changes throughout. Missing teeth are quite common, but caries is rare. The much worn teeth even in fairly young individuals bear witness to the coarse food which these people usually had to eat.

As we have seen from the distribution of age, the pathological changes, and the old injuries to the bones, the whole male population of the Wisby region had probably been forced to join up to the last man in order to defend their island against the Danish invaders. Not even individuals with fairly severe physical defects were allowed to stay at home.

ANIMAL BONES.

A few solitary bones of animals have also been found in common graves 2 and 3. Cows are represented by a couple of lower maxillae, three horns, the distal end of a femur and a humerus, one epistropheus, and some coherent thoracic vertebrae. Some lower maxillae of goats and a few lower maxillae and some metatarsal bones of elks have been found. The skeletal parts are evenly distributed in common grave 2. Only the vertebrae of the cows come from common grave 3, where they were lying superficially on the edge of the grave. Most of the bones lay at or close to the bottom of the common grave, partly with the human skeletons. From the position of the finds it is reasonable to assume that the animal bones were in the soil before the battle. Those which lay at the bottom of the burial pit were probably unearthed when the grave was dug, but were allowed to remain there. Possibly some of the bones were lying in the earth used for refilling the grave. The parts of the cows' femur and humerus, as well as the lower maxillae of the goats, may possibly have been brought as provisions by some of the warriors. The fact that no bones of horses have been found does not definitely contradict the assumption that there were mounted men among the fighting forces, because dead horses would probably not have been buried with the warriors.

		Common grave:	Superficial cuts.																					
			Proximal third.				Centre third.				Distal third.													
			Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally										
			R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.										
Not more than one injury.	Vertically from above.	Frontally.	1.					1	3															
			2.																					
			3.																					
		Fronto-sagittally.	1.								1													
			2.																					
			3.																					
		Sagittally.	1.																					
			2.																					
			3.																					
		Vertico-horizontally from above.	Frontally.	1.																				
				2.	1	1				1	3		1	1										
				3.																				
			Fronto-sagittally.	1.		1					1													
				2.	1	1		1	1	1	3	3	2	1	2	3	1	1	1		2			2
				3.	1		1																	
			Sagittally.	1.																				
				2.																				
				3.																				
		Horizontally.	Frontally.	1.																				
				2.								2												
				3.																				
			Fronto-sagittally.	1.																				
				2.																				
				3.																				
		Sagittally.	1.																					
			2.																					
			3.																					
	Vertico-horizontally above below.	Frontally.	1.																					
			2.																					
			3.				2																	
		Fronto-sagittally.	1.							1	1													
			2.							1														
			3.																					
		Sagittally.	1.																					
			2.																					
			5.																					
	Vertically above below.	Frontally.	1.																					
			2.																					
			3.																					
		Fronto-sagittally.	1.																					
			2.																					
			3.																					
		Sagittally.	1.																					
			2.																					
			3.																					
	Total number of not more than one injury:		1.		1				2	5	1	1	1	2					1					
			2.	2	1	1		1	6	9	3	3	1	3	5	6	2		3	2	2		3	
			3.	1		1				1									1	1	1		1	

tibia of injuries due to cuts.

Cuts into the medullary cavity.												Bone entirely cut off.												Total:		
Proximal third.				Centre third.				Distal third.				Proximal third.				Centre third.				Distal third.						
Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally			
R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.			
																							1	3		
																							1	1		
																							1	1		
																							1	1		
				1																			2	1		
																							1	7		
																							5	7		
																							1	2		
																							1	2		
																							13	16		
																							2	3		
																							1	1		
																							2	4		
																							1	1		
																							1	2		
																							1	2		
																							1	2		
																							3	1		
																							5	1		
																							2	1		
																							1	1		
																							8	9		
2				1	1			1						1								1	1	27	35	
																							1	1	8	9

Supplement 2. Distribution on the humerus,

			Common grave:	Superficial cuts.												Cuts			
				Proximal third.				Centre third.				Distal third.				Proximal third.			
				Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally
				R.L.	R.L.	R.I.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.
Not more than one injury.	Vertically from above.	Frontally.	1.	/				/											
		2.	/																
		3.	/																
	Fronto-sagittally.	1.	/																
		2.	/																
		3.	/																
	Sagittally.	1.	/																
		2.	/			/				/									
		3.	/																
	Vertico-horizontally from above.	1.	/				/							/					
		2.							/	2	2			/			α	1 β	
		3.				/													
	Sagittally.	1.				/													
		2.																	
		3.																	
	Horizontally.	1.												/					
		2.																	
		3.																	
	Fronto-sagittally.	1.																	
		2.																	
		3.																	
	Sagittally.	1.																	
		2.												/					
		3.																	
Vertico-horizontally above below.	1.																		
	2.				/	/			/	/						/			
	3.																		
Sagittally.	1.																		
	2.																		
	3.																		
Vertically above below.	1.																		
	2.																		
	3.																		
Frontally.	1.																		
	2.																		
	3.																		
Fronto-sagittally.	1.																		
	2.																		
	3.																		
Sagittally.	1.																		
	2.																		
	3.																		
Total number of not more than one injury on the humerus:	1.				/				/				/	/		/			
	2.																		
	3.																		
	Total number of not more than one injury on the radius:	1.							2					1	1				
	2.																		
	3.																		
	Total number of not more than one injury on the ulna:	1.				/													
	2.																		
	3.																		
	Total number of not more than one injury on the femur:	1.	/			/	/	/	/		2		/						
	2.	3				/	/	/		/	/	/	2						
	3.																		

α = In this square there is one cut on the radius and one cut on the femur.
 β = " " " " " " " " " " humerus " " " " " "

radius, ulna and femur of injuries due to cuts.

into the medullary cavity.												Bone entirely cut off.								Total number of injuries to cuts on the:							
Centre third.				Distal third.				Proximal third.				Centre third.				Distal third.				humerus	radius	ulna	femur				
Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	R. L.	R. L.	R. L.	R. L.				
R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.				
																		<i>1</i>									<i>2</i>
																											<i>1</i>
																											<i>3</i>
<i>1</i>				<i>1</i>				<i>1</i>												<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>				<i>1</i>
<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>							<i>1</i>								<i>1</i>		<i>2</i>	<i>2</i>	1	3	3	3	3	<i>3</i>
																											<i>1</i>
																											<i>1</i>
																				<i>2</i>	<i>2</i>						<i>1</i>
																		<i>1</i>		<i>2</i>	<i>2</i>						
		<i>1</i>	<i>1</i>	<i>1</i>																		2	3				
<i>1</i>										<i>1</i>																3	
<i>1</i>											<i>1</i>							<i>1</i>									<i>1</i>
																											<i>6</i>
																											<i>7</i>
																										<i>3</i>	<i>1</i>

Roman figures = Humerus.
Italic figures = Femur.

Bold figures = Radius.
Bold Italic figures = Ulna.

Supplement 2. Distribution on the humerus,

	Common grave.	Superficial cuts.												Cuts			
		Proximal third.				Centre third.				Distal third.				Proximal third.			
		Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally	Ventrally	Medially	Dorsally	Laterally
		R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.	R.L.
Two or several cuts.	Vertically from above.																
	Vertico-horizontally from above.	Frontally.															
		Fronto-sagittally.	1.						I					I			I
		3.															
	Sagittally.	1.							I					I			
		2.								I							
		3.															
	Horizontally.	Frontally.															
		Fronto-sagittally.															
		Sagittally.	1.								I				I		
	Vertico-horizontally above below.	2.															
		3.															
		Sagittally.															
	Vertically above below.																
	Total number of two or several injuries on the humerus:	1.															I
Total number of injuries to cuts on the humerus:	2.				I			I		I			I	I		I	
	3.																
Total number of two or several injuries on the radius:	1.																
Total number of injuries to cuts on the radius:	2.							2				1	1				
	3.																
Total number of two or several injuries on the ulna:	1.																
Total number of injuries to cuts on the ulna:	2.				I					I	I						
	3.																
Total number of two or several injuries on the femur:	1.								I					I			
Total number of injuries to cuts on the femur:	2.									3				I	2		
	3.																
Total number of injuries to cuts on the femur:	1.	I			I		I		I	2				I	2		
	2.	3				I	I	I			I		2		I	2	
	3.										I						

γ = In this square there is one cut on the ulna and one cut on the femur.

			Common grave:	Superficial cuts.						Perforating cuts.						Total:				
				Frontal bone.	Fronto-parietal bones.	Parietal bone.	Parieto-occipital bones.	Occipital bone.	Fronto-parieto-occipital bones.	Frontal bone.	Fronto-parietal bones.	Parietal bone.	Parieto-occipital bones.	Occipital bone.	Fronto-parieto-occipital bones.					
				R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.			R. L.		
Two or several cuts.	Vertically from above,	Frontally.	1.																	
			2.																	
			3.																	
		Fronto-sagittally.	1.																	
		2.																		
		3.																		
	Sagittally.	1.			1															
		2.																		
		3.																		
	Varying.	1.																		
		2.																		
		3.																		
	Vertico-horizontally from above.	Frontally.	1.																	
			2.	1	2					1							3	1		
			3.									1						1		
		Fronto-sagittally.	1.																	
	2.			1	3				1		2	3	1			4	7			
	3.															1				
Sagittally.	1.												1				1			
	2.																			
	3.																			
Varying.	1.				1				1	1						2	2			
	2.		1	1	1	1			1	1		2	2			1	5	6		
	3.		1							1						1	1	1		
Horizontally.	Frontally.	1.																		
		2.																		
		3.																		
	Fronto-sagittally.	1.																		
	2.																			
	3.																			
Sagittally.	1.																			
	2.																			
	3.																			
Varying.	1.																			
	2.																			
	3.																			
Vertico horizontally above below.	Frontally.	1.																		
		2.																		
		3.																		
	Fronto-sagittally.	1.																		
	2.																			
	3.																			
Sagittally.	1.			1													1			
	2.																			
	3.																			
Varying.	1.																			
	2.																			
	3.																			
Total number of two or several injuries:			1.		1		2										3	4		
			2.		2	1	3	4	1								1	13	14	
			3.		1												2	3		
Total:			1.	2	1	1	1	2	7									9	23	
			2.	3	2	1	4	9	1		2	3		1	1	2		1	19	27
			3.	1	1		1				2	1		2		1		4	4	

Supplement 4. Distribution on the lower jaws of injuries due to cuts.

		Common grave:	Not more than one cuts.						Two or several cuts.						Total:	
			Superficial cut.		Deep cut.		Bone entirely cut off.		Superficial cut.		Deep cut.		Bone entirely cut off.			
			Isolated cut.	Partial cut.	Isolated cut.	Partial cut.	Isolated cut.	Partial cut.	Isolated cut.	Partial cut.	Isolated cut.	Partial cut.	Isolated cut.	Partial cut.		
			R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.		
Vertically from above.	Frontally.	1. 2. 3.														
	Fronto-sagittally.	1. 2. 3.					1		1							
	Sagittally.	1. 2. 3.														
Vertico-horizontally from above.	Frontally.	1. 2. 3.	1						1							
	Fronto-sagittally.	1. 2. 3.	1	1		2		1	1		1	1				
	Sagittally.	1. 2. 3.					1	1		1	1					
Horizontally.	Frontally.	1. 2. 3.														
	Fronto-sagittally.	1. 2. 3.					1		1							
	Sagittally.	1. 2. 3.					2		2							
Vertico-horizontally above below.	Frontally.	1. 2. 3.														
	Fronto-sagittally.	1. 2. 3.									1				1	
	Sagittally.	1. 2. 3.														
Vertically above below.	Frontally.	1. 2. 3.														
	Fronto-sagittally.	1. 2. 3.														
	Sagittally.	1. 2. 3.														
Total number:		1. 2. 3.	2	1		2	4	2	6	3		1			1	
Total number of cuts:		1. 2. 3.							2	1		1	4	2	6	4

Supplement 5. Distribution on the crania of arrow-wounds.

		Common grave:	Not more than one cut.						Two or several cuts.									
			Frontal bone.	Fronto-parietal bone.	Parietal bone.	Parieto-occipital bones.	Occipital bone.	Fronto-parieto-occipital bones.	Total:	Frontal bone.	Fronto-parietal bone.	Parietal bone.	Parieto-occipital bones.	Occipital bone.	Fronto-parieto-occipital bones.	Total:		
			R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.		
Vertically from above.	Frontally.	1.			2				2	1	1					1	1	
		2.	1	2	2	4			3	6		2	1			2	1	
		3.			1				1									
	Fronto-sagittally.	1.																
		2.																
		3.																
	Sagittally.	1.																
		2.																
		3.																
	Varying.	1.																
		2.																
		3.																
Vertico-horizontally from above.	Frontally.	1.										1				1		
		2.																
		3.																
	Fronto-sagittally.	1.			1			1	1	6	2	1				1	2	
		2.		2	1	4		1		3								
		3.				3												
	Sagittally.	1.											1				1	
		2.						1		1								
		3.																
	Varying.	1.												1		1	2	
		2.										1	1			1	1	
		3.																
Horizontally.	Frontally.	1.			1			1	5			1				1		
		2.	1		1	4		1										
		3.							1									
	Fronto-sagittally.	1.																
		2.																
		3.																
	Sagittally.	1.	1	1		1		2	1	3	3							
		2.	1	1				1	1	2	2							
		3.																
	Varying.	1.											1			1	1	
		2.												1				
		3.																
Vertico-horizontally above below.	Frontally.	1.																
		2.																
		3.																
	Fronto-sagittally.	1.																
		2.			1				1									
		3.																
	Sagittally.	1.																
		2.																
		3.																
	Varying.	1.																
		2.																
		3.																
Total number:		1.	1	1	2	3	2	1	5	5	1	1	2	2	1	1	6	
		2.		5	5	12	2	3	10	20	2		4	3	1		5	
		3.			1	3	1		2	3								
Total:		1.									1	1	1	2	5	2	2	1
		2.	3	7	9	15	1		2	15	1		2	3	1	1	6	
		3.			1	3			1	3			1			2	3	

THE ARMOUR.

GENERAL ANALYSIS OF TYPES OF ARMOUR.

The armour found in the Korsbetningen graves—apart from that consisting of mail—displays two different methods of construction. Most of it is constructed in such a way that iron plates are attached to the inside of a covering or coat which, in those cases where it could be proved, was made of leather but may also have been made of, or covered with, cloth (figs. 193—195). Only on two armours, Nos. 1 and 21, plates occur riveted on the outside of the covering; these were minor ones on the shoulders, which formed the transition to free shoulder-plates. On the other hand, several specimens of armouring occur amongst the gauntlets, in which the plates are riveted to the outside of the covering. The covering constituted the only connection between the plates, keeping them in place and serving for articulation. Only in a single case have two plates been united directly with each other by riveting, viz. in armour 2, where the middle breast plate is riveted to the upper horizontal stomach-plate (pl. 12: *E*).¹²⁷ In exceptional instances hinges have been employed on the armour. On armour 1 the scutiform shoulder plates were attached to small plates by means of a simple kind of hinge (fig. 367), and also the shoulder plate *Rx I* (fig. 102: 3) found independently shows the same arrangement. On armour 21 there were three small hinge fittings on each shoulder between the back and shoulder portions (pl. 102: 47, 48, 49; 1, 2, 124); these were, however, not riveted directly to plates but to the outside of the cover. On armour 25 there was a hinge, which was attached to several lamellae (pl. 144: 314); but this was an alteration. Finally, a loose hinge fitting has also been found (*A* 38, fig. 400), but its place and function in the armour could not be determined; indeed, it is uncertain whether it belonged to a suit of armour at all. Amongst the gauntlets both direct riveting of iron parts (for purposes of articulation), and hinges occur (gauntlet 3: 10, 11, 12, gauntlet 5: 4, 8, figs. 416, 418, 419).

The other method of construction occurring amongst the armour consists of lamellae with regular perforations through which thongs are drawn, weaving the lamellae into rows which in their turn are joined to each other by further thonging (fig. 199). In this way the whole armour could be assembled entirely with the aid of the thongs. Only one complete armour, No. 25, of this type, which we call the lamellar type, has been reconstructed (figs. 196—198), but more or less connected groups of such lamellae have been discovered

in all three common graves, and therefore the remains of at least two or three such armours are probably amongst the finds (pp. 411 ff.). We shall revert later to these types of armour and the way they were changed into a form somewhat similar to the first type.

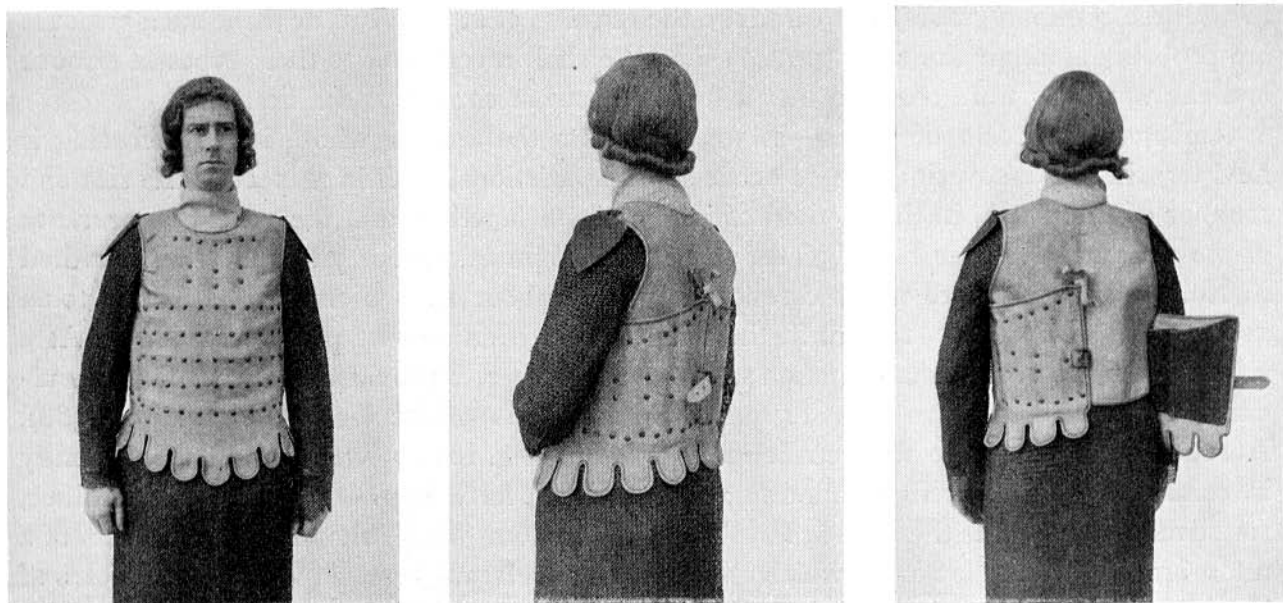
Amongst the coats of plates—as we shall term the armour whose iron reinforcing is held together by a covering—there occur several variations, both in respect of the size and number of the plates, in the method of joining them together, and the general appearance of the armour. The number of plates varies from eight in armour 7 to almost six hundred in No. 24, and their size varies consequently from about 15×50 cm. in the former to an average size of about 2×10 cm. in the latter, where even smaller plates also occur. As a rule there is no proper ornamentation; armour 1, however, is provided with scutiform shoulder plates, and another two suits of lamellar armour have semicircular ones (figs. 102: 1, 388). A round shoulder plate with semicircular scallops (fig. 102: 3) was found independently in common grave 2. Three armours, 21, 22 and 24, have been ornamented with minor, rounded plates round the arm-holes. The only armour which shows ornamentation of a more ambitious kind is No. 7, which has eight small, elegant bronze mounts in the form of heraldic shields, fleurs-de-lis and shells. These mounts had been attached on the front, outside the covering (fig. 206).

As to the shape, the front is, as a rule, slightly lengthened with the obvious intention of protecting the pudenda, either in a more or less sharp point or in a row of plates resembling a skirt. The opening of the armour is generally in the middle of the back, possibly in one case (No. 7) slightly to one side. Two armours (21 and 22) open on one side, and two others (19, 20) on both sides like the lamellar armour 25. One armour, 24, opens right up the middle of the front like a modern coat.

It is rather remarkable that of no fewer than five suits of armour (2, 13, 14, 19, 20) only the fronts have been found, and the question arises as to whether in these instances only the fronts were armoured. For it seems strange that in all these cases, it should have happened that the armouring was torn off just between the front and the back. In armours 19 and 20, however, this can be explained by the fact that the openings were on both sides. Though no definite answer to this question is likely to be obtained, the possibility that in some exceptional cases only the front had been armoured, must nevertheless be considered.

TYPE I.

In the coats of plates, in the vast majority of cases, the plates were all placed vertically (armours 8—24). In seven of the armours, (1—7), however, horizontal plates occur, as well as vertical ones. These armours which we will call type I (cf. pl. 1) have, on the front, at the top, two (4, 5, 7) or three (1—3) vertical plates, those next to the shoulders being curved to follow the form of the arm-hole. A series of horizontal plates adjoins the lower edge of the breast plates. The length of these plates is fairly constant in all armour of this type and is adapted in such a way that every plate covers the body from side to side. But the width, and consequently the number, varies for each armour, from five plates, 7 cm.

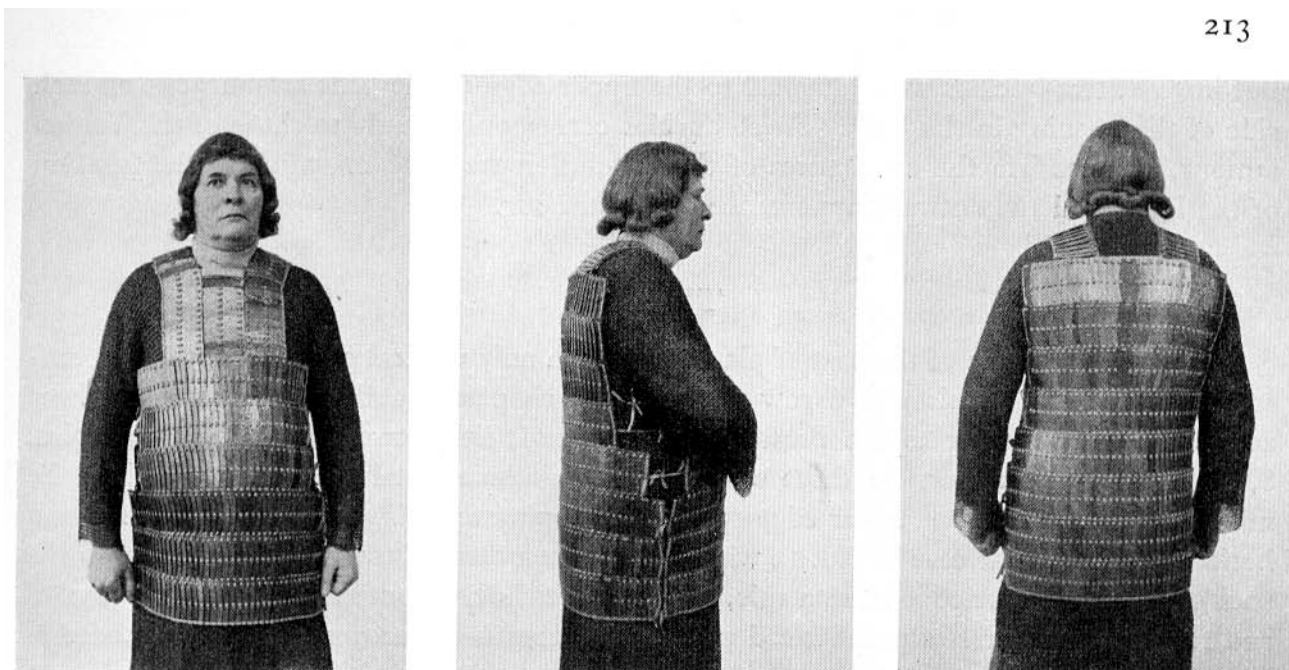


Figs. 193—195. Model of armour No. 1 as reconstructed.

in width, to three, 11—13 cm. in width, or two, 17 cm. in width. On the armours 1, 3, 4 and 7 the bottom edge of the lowest plate curves slightly downwards in the middle. It is possible that the others had similar plates at the bottom. No. 6 has also been reconstructed with a plate of this kind, which was found independently, and whose association with the armour cannot be proved.

The back of five of the armours belonging to type I could also be reconstructed with certainty. They each consisted of a row of vertical plates which cover the back from one edge of the front to the other. While the length of the plates is fairly equal, about 20—22 cm. (in armour 1, where the length of the plate increases towards the centre, the maximum length is 26 cm.), the number, and consequently the breadth, differ; thus armour 3 has fourteen plates 6—7.5 cm. broad; No. 1 has twelve plates 7—8 cm. broad; No. 4 has six plates 10—12 cm. broad; Nos. 5 and 7 have four plates each 15—16 cm. broad. The horizontal plates always overlap from below upwards, because, of course, the fastening to the covering had to be done on the upper edge of the plates. The back plates of armours 5 and 7 are of simple rectangular shape, but in the others the length increases towards the centre, giving the upper edge a rising curve, which in the case of No. 1 has become rather pointed.

The opening in the back was closed with a buckle. On armours 1, 3 and 7—also in several armours belonging to types II and III, which will be dealt with below—an iron loop is riveted to the upper edge of one of the plates next to the back opening. The only conceivable function for this loop is that it served as the fastening for a strap which supported the weight of the back of the armour (fig. 195). It may seem peculiar that the plates adjoining the opening are not both provided with loops—as was possibly the case with armour 9 of type II—but this may be explained by the fact that when the armour was closed, the



Figs. 196—198. Model of armour No. 25 as reconstructed.

buckle held in place the side which was not provided with a loop. This detail throws interesting light on the appearance of the armour, which could not otherwise be determined owing to the complete decay and disappearance of the coverings. For it is clear that an arrangement of this kind would not have been necessary if the armour had had the appearance which otherwise might have been supposed: a coat turned the wrong way round with the opening at the back and the covering running in one piece from the front to the back across the shoulders. In such a case the covering would have been quite sufficient to support the weight of the back armour, and where then would the strap attached to the loop be fastened? Such a construction would be meaningless. The explanation can only be that the back armour was not connected with the front across the shoulders, but only at the sides. It was thus carried round the back from the two sides like a broad belt. Under these circumstances it is obvious that there must have been a device not merely for supporting the weight of the back armour, which would otherwise have slipped down to the buttocks, but the front armour must also have had a corresponding support. A loop of the kind described was sufficient for the purpose if it was fastened to a thong or strap attached to the front covering, which passed over the shoulders, taking its place beneath the armour at the back (fig. 195). In this way the appearance of the armour is reconstructed which, in principle, fully agrees with the almost contemporary representation of a warrior clad in a coat of plates, which has been preserved on a Levitic pew at Verden an der Aller (fig. 317). The difference is merely that the back of the Verden armour is prolonged slightly upwards in two points, which have been fastened by means of two buckles to the shoulder-portion, extending from the front. A design which still more closely approaches the Verden armour is shown in our armour No. 4; here there was no loop of the kind we have just dealt with,

but instead, two buckles were attached to the upper edge of the back armour, one on each side of the opening in the back. These buckles correspond exactly to those of the Verden armour, and confirm the correctness of the conclusion we have drawn as to the function of the loops and the outward appearance of the armour.

TYPE II.

Among the armours of the coat of plates type with only vertical plates, the simplest construction, type II, consists of a row of plates which pass round the body and of plates across the chest similar to the breast plates in type I, either two (No. 13) or three (Nos. 8, 10, 11, 15) in number. In those cases where it can be ascertained, the opening is in the middle of the back. The upper edge of the row of plates passing round the body forms a horizontal line (in the case of No. 12 with a faint upward trend towards the opening in the back), while the lower edge is, as a rule, horizontal at the back but in front slopes downward and forms a more or less pronounced point. The length of these plates is fairly uniform in the various armours, from about 17–20 cm. at the opening in the back to about 29–33 cm. at the longest plate in the middle of the front. On the other hand, their number varies from twenty-three, with a minimum breadth of 4.5 cm. (No. 8) to thirteen, with a breadth of about 10 cm. (No. 15). The plates overlap from the central plate in the front to the sides and back, except in one case, armour 10, where one of the plates on the left side overlaps the two adjacent ones, and so on, to the back on one side and forward and around the back to the opening on the other. Of the armours which belong to type II, five (8, 9, 11, 12, 15) are provided with a loop on the upper edge nearest the opening in the back, one of these (No. 9) possibly with two loops, one on each side of the opening. As the other armours may originally have had the same device, type II was probably similar to type I in outward appearance.

TYPE III.

The other coats of plates with vertical plates all have three or more rows in the front, of which the lowest forms a kind of pendent skirt. They may be divided into three types: III, IV and V according to the shape of the skirt. Type III is closely akin in shape to type II in that the bottom edge of the sharply pointed skirt forms a continuous line with the back and side plates. In type IV the blunter bottom edge of the skirt projects below the back and side pieces, and forms an angle with them; this is also the case with type V, whose skirt is square and, in contrast to the others, composed of two rows of plates. Type V has the opening in the centre of the front while all the other armours—in so far as this can be determined—are open at the back or on one or both sides (cf. pl. 1).

The three armours, 16–18, belonging to type III are all very fragmentary. On No. 16 the upper part of the front is missing, of No. 17 only parts of the left side exist, and of No. 18 only the left side and the left half of the back. Armour 16, which was composed of three rows of plates in front and one row on the back, resembles type I more than type II

in the appearance of the back armour, in that the upper edge of the row of plates rises towards the middle, where the opening is. The transition between the single row of plates on the back and the double row in front corresponding to them, is arranged in such a way that the two side plates nearest the front are curved sharply downwards at their lower edges. These two plates are each adjoined in front by two, whose combined length corresponds to the side plates. The bottom edge of the lower one of these continues the downward curve and so on, until the plates meet in the centre of the front, where a point is thus formed. The two lower rows of plates in front do not overlap each other, but lie edge to edge. The number of the back plates is nine on one side and ten on the other side of the opening; the number of the plates in the front is eight in each of the lower rows. The number of the breast plates is unknown. The total number of plates round the body was thus twenty-seven, or considerably more than in armour 8, which has of all the armours belonging to type II the greatest number of plates. In view of this, it is not improbable that the number of breast plates was greater than in type II, and that the armour more closely resembled type IV a. One of the plates nearest the opening in the back is provided with a loop at its upper edge, and the armour thus was externally similar to that of type II, from which it could not be distinguished when the covering concealed the structural differences. Armour 17 also belongs to type III, as is seen from the transition between the side plates and the skirt plates. Here, too, the length of the outer plate of the skirt together with the plate in the row above, corresponds to the length of the adjacent side plate. However, the skirt plates are not lying edge to edge with the plates in the row above, but are overlapped by them. This armour differs from the preceding one because above the row of plates next above the skirt there existed two further rows of smaller plates, which passed round the trunk, and which overlap from the top downwards. Since of this armour only a piece of the left side has been preserved, we do not know whether the upper parts of the breast and back have been constructed alike, or where the opening has been. But in view of the armour's complicated construction with small plates, it is not inconceivable that in its general appearance it was similar to No. 22, with which it also seems to agree in the number of plates, which may be estimated at approximately a hundred. Finally amongst type III armour 18 should also be included. Of course, owing to its fragmentary condition, it cannot be proved that the skirt did not project below the lower edge of the row of plates on the back, but the similarity of the armour to No. 16 makes this extremely unlikely. None of the armour belonging to type IV has such a pointed skirt nor an opening in the middle of the back as in this case. A loop on the plate nearest the opening in the back shows that the exterior of the armour was also shaped like No. 16. The back plates here form an upper edge which rises steeply towards the opening, and which is more pronounced than in any other armour found here. The number of back plates was ten altogether, and in front there were probably eight plates in each row. The breast plates, which have completely disappeared, were probably similar to those in types I and II.

In armour 16 the plates overlap from the centre of the front towards both sides of the opening at the back. In armour 18, too, the plates on the preserved left side overlap from

the front towards the back. On the other hand, the opposite is the case in armour 17. There the plates overlap from the back towards the front, just as on the left side of armour 21 and on the right side of armour 22—which suggests that the former approached the latter in its general appearance. It is also remarkable that the rows of plates overlap from the top downwards, thus agreeing with the upper parts of the two armours which have the smallest types of plate, Nos. 23 and 24.

TYPE IV.

Type IV differs, as stated, from type III in that the skirt hangs below the lower edge of the back plates. This type can be divided into two groups according to the number of rows of plates in front, (a) with three, and (b) with five or more rows. The three suits of armour 19–21 belong to group IV a. Of these only No. 21 is preserved in its entirety with complete front and back, while 19 and 20 consist only of fronts. These fronts are identical in all three armours. The upper row of plates over the breast consists here, in contrast to type I and II, of many plates: seven in No. 19 and six in Nos. 20 and 21. The outer plates next to the shoulders still show, however, the same characteristic curve inwards though not so strongly as is usual in types I and II. The number of plates in the centre row is twelve (No. 21) or thirteen (Nos. 19 and 20) and in the skirt eight (No. 21), ten (No. 20) or thirteen (No. 19). The armours 19 and 20 differ, however, from armour 21 in a significant manner as regards the position of the opening; the traces preserved go to show that the two first in all probability opened at both sides. The backs may or may not have been armoured. No. 21, on the other hand, was open only on the right side, with an additional opening between the front and the right shoulder part (figs. 380, 381). Nos. 19 and 20 were thus put on over the head and buckled together on both sides, while No. 21 was put on from the left side and buckled together on the right side and on the right shoulder. The back of No. 21 is, in principle, a duplicate of the front, except that the upper row of plates is divided into two rows, making the number of rows four, instead of three. The number of plates is, in the two top rows, six, in the row below, (which forms a direct continuation of the central row of the front) thirteen, and in the skirt, six. On both sides, between the skirts of the back and the front, there were also small side-skirts, each one consisting of four plates. These three skirts on the back and sides (fig. 382) have no counterpart in the other armours (cf. however, a kind of side-skirt on armour 23). In this armour we also encounter for the first time complete shoulder armour. There are three plates on each shoulder and also six small plates, which form a transition to the semicircular decorative plates, and which, it is interesting to note, were fastened to the outside of the covering. Apart from the scutiform shoulder plates, these are the only example of external armouring on armours of the coat of plates type from the excavations. Also on the back of each shoulder there are three hinges, which joined the shoulder to the back, and which were also fastened to the outside of the covering. There are, in all, about eighty plates in this armour. The plates in the row passing round the trunk overlapped from the plate at the back part of the opening, i.e. from right to left.

This is also the same in the other rows, with the exception of the right side skirt and the front and back skirt, where the opposite is the case; however, the plate farthest to the right on the latter skirt overlaps the adjacent plate to the left, which thus has both its edges covered. The fronts of Nos. 19 and 20 overlap in the same way as No. 21.

Of the two armours in group IV b, No. 22 is very much akin to No. 21. The difference consists in the two upper rows on the front and the row of plates on the back connected with the front, each having been divided into two rows, and the side and back skirts being absent. The number of rows of plates in front is thus five, and on the back, four. The opening is also placed on one side, in this case on the left. There is a considerable difference in the position of the opening, for, while in No. 21 it is in the middle of the side, in No. 22 it is closer to the front. The armour could probably be buckled at the front of both shoulders, like No. 24. There is also armouring on the top of the shoulders, but only one plate on each side, and also semicircular ornamental plates round the arm-holes. The number of plates in each row is, in the two upper rows in front, eight, in the rows below these, ten, and in the skirt, nine; in the top row of the back, seven, in the next row, eight, and in the two lower ones, twenty-one. The total number of plates in the whole armour is something over a hundred. The plates overlap each other throughout from right to left, i.e. in such a way that the plates next to the side opening in front, overlap adjacent plates to the left, and so on, round the trunk.

Of armour 23, only a small part of the left side has been preserved, and, therefore, many details in its appearance, such as the location of the opening and the construction over the shoulders, cannot be definitely determined. It is composed of considerably smaller (about 4×10 cm.), and consequently more, plates than any of those so far dealt with. The whole number of plates in the armour might be estimated to have been over one hundred and twenty-five. The number of rows of plates below the arm is four, including the skirt, and, if we assume that to this should be added at least two rows across the breast as in No. 22, the front consisted of at least six rows. The agreement of the armour with type IV with regard to the skirt is not absolutely determined, since its fragmentary condition makes it theoretically possible that the skirt row continued backwards round the trunk, but since such a condition is without any counterpart amongst the other armours, it is rather improbable. It is more likely that the armour belonged to type III, i.e. that the skirt row and the row immediately above, were continued backwards by a row of plates just as long as the total length of the plates in the two rows in front. The armour then would closely resemble No. 17. This, too, is less probable than the suggested reconstruction according to type IV, because the skirt in type III is more pointed than it seems possible for it to have been here.

Nor can the position of the opening be considered as definitely established, but coincident circumstances indicate that, as in No. 22, it was on the left side, though still a little more to the front, so that it cut through the left side of the skirt. In this way a kind of side skirt was formed on the left side, reminding one of armour 21. Whether this, likewise, had its counterpart on the right side, is not known. In this armour, the rows overlap each other partly from the top and partly from below, so that the second from the top of the rows

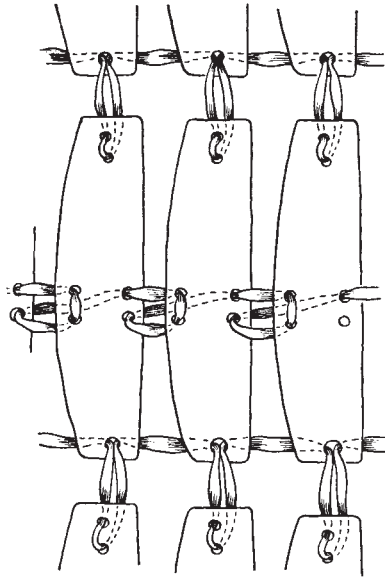


Fig. 199. System of lacing lamellar armour. Scale 1:2.

preserved projects below the two adjacent ones. The plates overlap from right to left.

TYPE V.

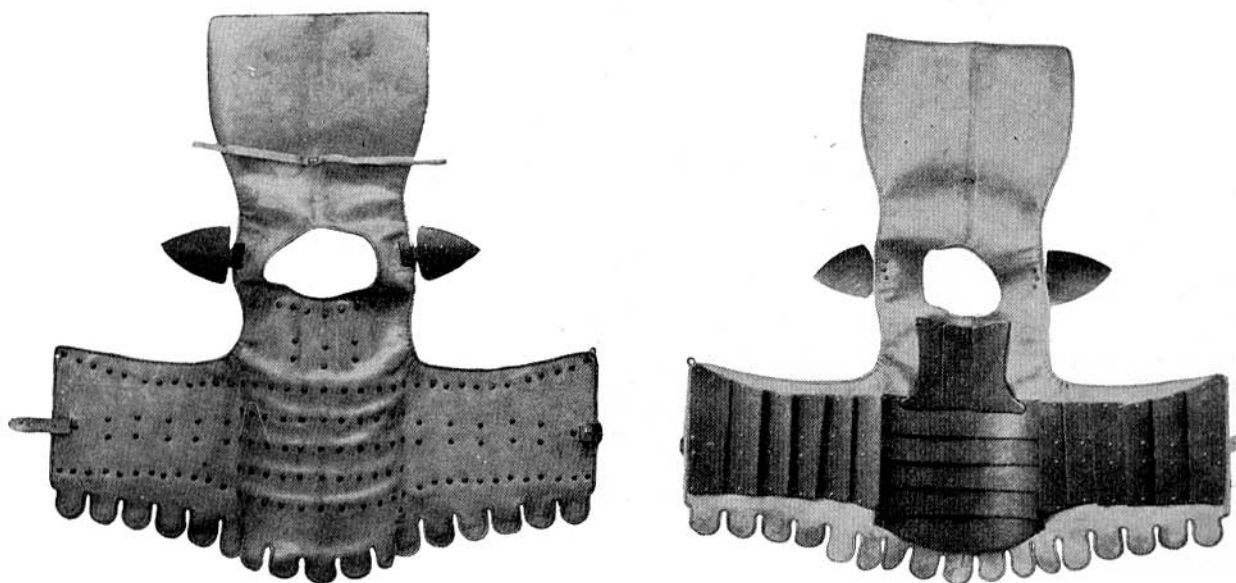
Armour 24 is the only one amongst the finds belonging to type V, indeed, not even fragments of similar armours have been found. The plates are still smaller than those in armour 23, as a rule about $2-3 \times 8-10$ cm., and the number incomparably greater, five hundred and fifty. In appearance, the armour is an armless coat, open in the centre of the front and, as in armour 22, at the front of both shoulders. Its type thus approaches No. 22 very closely only with the opening moved from one side to the front. In this respect armour 23—if its construction has been properly interpreted—may be said to form an intermediary stage, in that the opening there cuts through the skirt while in No. 22 it is placed

to the side of the skirt and in No. 24 parts it in the middle. The number of rows in front is ten including two rows for the skirt, and at the back, eight, which overlap from the top downwards and from below upwards, in such a way that the fifth row from the top in both directions is overlapped by the adjacent rows. To this have to be added three plates on each shoulder and some semicircular ornamental plates round the arm-holes, similar to those in Nos. 21 and 22. The plates overlap from the two sides of the opening in front backwards, except the two uppermost rows of the front, where the order is reversed.

TYPE VI.

Type V completes the material of the coats of plates and we turn to the lamellar armour. As has been mentioned before these are characterized by the lamellae being perforated, and held together by means of thongs which were drawn through the holes in a systematic manner (fig. 199). The lamellae are, with a few exceptions, made in standard form, 9–9.5 cm. long and about 2 cm. broad, with one long side straight and the other convex, and as a rule, vertically arranged in rows so that the convex edge of a lamella overlaps the straight edge of the adjacent one. Even the perforation is uniform throughout; there are four holes in pairs, approximately in the middle of the lamella on both long sides, two holes in the upper end above each other in the longitudinal axis of the lamella, and finally, one hole in the lower end. The thong that held the lamellae in the same row together was drawn through the four holes in the middle, and through the holes in the ends thongs were drawn which united the different rows of lamellae, and which passed from the hole in the lower end of a lamella, through the two holes in the upper end of adjacent lamellae in a row below, and then again up to the row above, and so on. The only lamellae,

which are different in size, and this only in regard to breadth, or have different perforations, are those which terminated a row or were placed at the point where the lamellae changed direction, i.e. from having overlapped from right to left, proceed to overlap from left to right. The former, which are about 3-4 cm. wide, have, like the standard lamellae, one straight and one convex edge. At the straight edge there are, as usual, two holes in the centre; but as a rule, seven holes in all are distributed along the two short sides and the curved long side (pl. 144: 275 etc.). The purpose of this arrangement of the holes is clearly to finish off the network of thongs in a way which is at the same time ornamental and strong.



Figs. 200, 201. Model of armour No. 1, spread out. Outside, inside.

The lamellae of the other type have both long sides convex. They are about 4-5 cm. broad and have, like the standard lamellae, four holes in the middle; but at each short end they have two holes near the edge (pl. 144: 229 etc.). Still broader lamellae, which occurred in exceptional cases, were probably inserted during repairs (fig. 402: 1, pl. 144: 398, 401, 414).

Of type VI only one armour, No. 25, has been found in such a condition that it could be reconstructed. It consists, in front, of six horizontal rows with three vertical rows above, and on the back, of eight horizontal rows. The front and back are united by a row of lamellae over each shoulder. The armour is open on both sides and the rows of lamellae are wider at the bottom than at the top of the armour. The number of lamellae amounted to over six hundred. The armour has on some later occasion been remade to appear externally like a coat of plates, by detaching the rows of lamellae from each other and riveting them to the inside of a leather covering. Also, the shoulder straps were divided into two parts of equal length, the right one being attached to a hinge, and a buckle was fitted between the rows of the left shoulder. Finally, two large, semicircular shoulder plates were attached to the shoulders. In this condition the armour in outward appearance could not be distin-

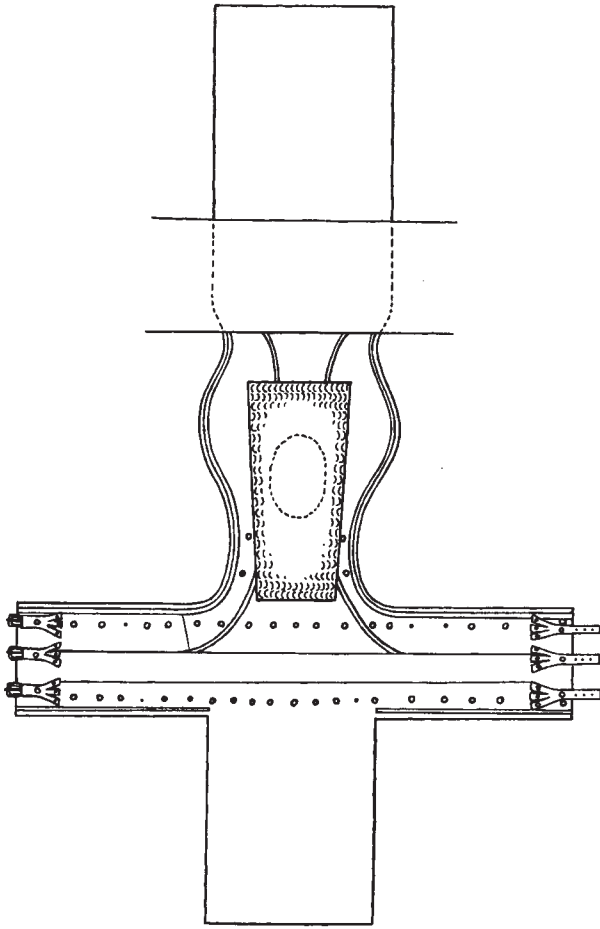


Fig. 202. Reconstruction of armour on figure of St. Maurice, Magdeburg, spread out. Cf. figs. 288, 289.

worn on the same day and at the same place. No identical specimens exist amongst them. Even such closely allied suits as Nos. 19 and 20 differ from one another, not only in the different number of plates but also in such important details as the central row of plates in No. 19 being provided with rivets at the lower edge, while these are absent in No. 20. This detail actually constituted the guide for the proper reconstruction of this type. Nos. 9 and 10, which agree with each other, not only in type but also in the number of plates, differ in an interesting way from one another in the arrangement of the plates, which in the one case overlap from the central plate, and in the other from a plate at the side. The construction varies between such different principles as hinges, riveting to the covering, and attachment by means of thongs, and the number of plates varies from only eight in No. 7 to over six hundred in No. 25.

On the other hand, all the armours display features which permit of the different types being brought together into a relative association of development. This is also true of the type of lamellar armour, which, from a structural point of view, is quite different from the

guished from a coat of plates, for, as in the latter, only the rivet heads were visible on the outside of the cover, and the shoulder plates further contributed to the impression that it was an armour of this kind, being similar in this respect to No. 1; the openings on both sides are paralleled in Nos. 19 and 20, and the strapping device on one shoulder is like No. 21.

None of the numerous fragments of lamellar armour found, supply any guidance or hint to the reconstruction of the armours to which they belong, except that amongst them there are probably parts of another two lamellar armours, which had subsequently been provided with coverings. A shoulder plate similar to those belonging to No. 25 was found with one of these groups (fig. 102: 1). On the other hand some lamellae finds probably belonged to uncovered armours.

DIFFERENCES AND CONNECTIONS OF TYPES OF ARMOUR.

On reviewing the various armours and their types it is particularly striking that they differ so much, though they were certainly all

others, but which, on the one hand, may have exercised an influence upon the coats of plates, especially in the evolution of type V, and, on the other hand, has been influenced by them to such a degree that in several cases it has been altered and transformed into a coat of plates. Even with respect to the outer form, the lamellar armour No. 25 has parallels amongst the coats of plates in Nos. 19 and 20. This form—a front and a back, united over both shoulders (fig. 204: 1)—is based upon one of the primary and most primitive forms of dress, the “poncho” type, according to Mützel¹²⁸, a piece of cloth or skin which had been provided with a hole for the head and was allowed to hang down freely over the trunk on both sides. It is quite obvious that all the types of armour here represented, have developed from this primary form. With the guidance of the loops, (or buckles in the exceptional case of No. 4), which occur in types I–III on the back armour close to the opening, the conclusion could be drawn that the front in these types continued over the shoulders down the back (figs. 200, 201). Whether this continuation from the front was so large that it covered the whole back (fig. 204: 2 a) or whether it formed a rudimentary point, (fig. 204: 3 a), or possibly consisted only of a couple of straps cannot now be decided since the cover has completely decayed. But it is clear that it derived from a garment of the poncho type, and the development is clearly illustrated by two representations of armour from Germany¹²⁹, which show the appearance of the back: a figure of St. Maurice from Magdeburg and the carving of a warrior from the Levitic pew at Verden which has already been mentioned. The former (fig. 202), from the middle of the 13th century, has an armoured hauberk which reaches to the knees on both sides; the latter (fig. 203), belonging to the third quarter of the 14th century, has a coat of plates reaching to the hips, the back apparently being considerably shorter (fig. 204: 5a). From the Magdeburg sculpture it is also clearly seen that the back armour is to be considered as a kind of belt or girdle extending from both edges of the front, this belt being fastened in the middle of the back. In this way the back armour of types I–III would also be explained. The Verden armour shows a development of this armoured girdle to a piece covering nearly the whole back, open in the middle and fastened at the back of the shoulders to the shoulder pieces which run from the front to the back. None of our armours have reached this stage of development, unless possibly No. 17. Nevertheless, there is apparent in No. 18 a tendency in this direction (fig. 204: 3 a) in that the back armour here curves steeply upwards; and No. 4 approaches the Verden armour in having the back and front joined by two buckles (fig. 204: 4 a). A continued development

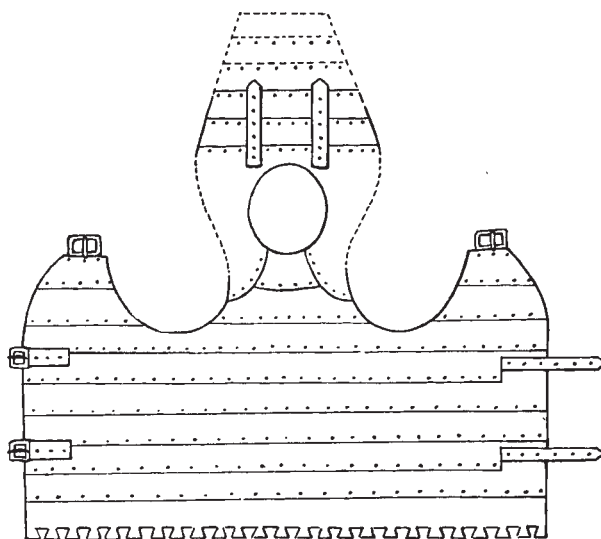


Fig. 203. Reconstruction of armour on warrior on Levitic pew, Verden, spread out. Cf. figs. 316, 317.

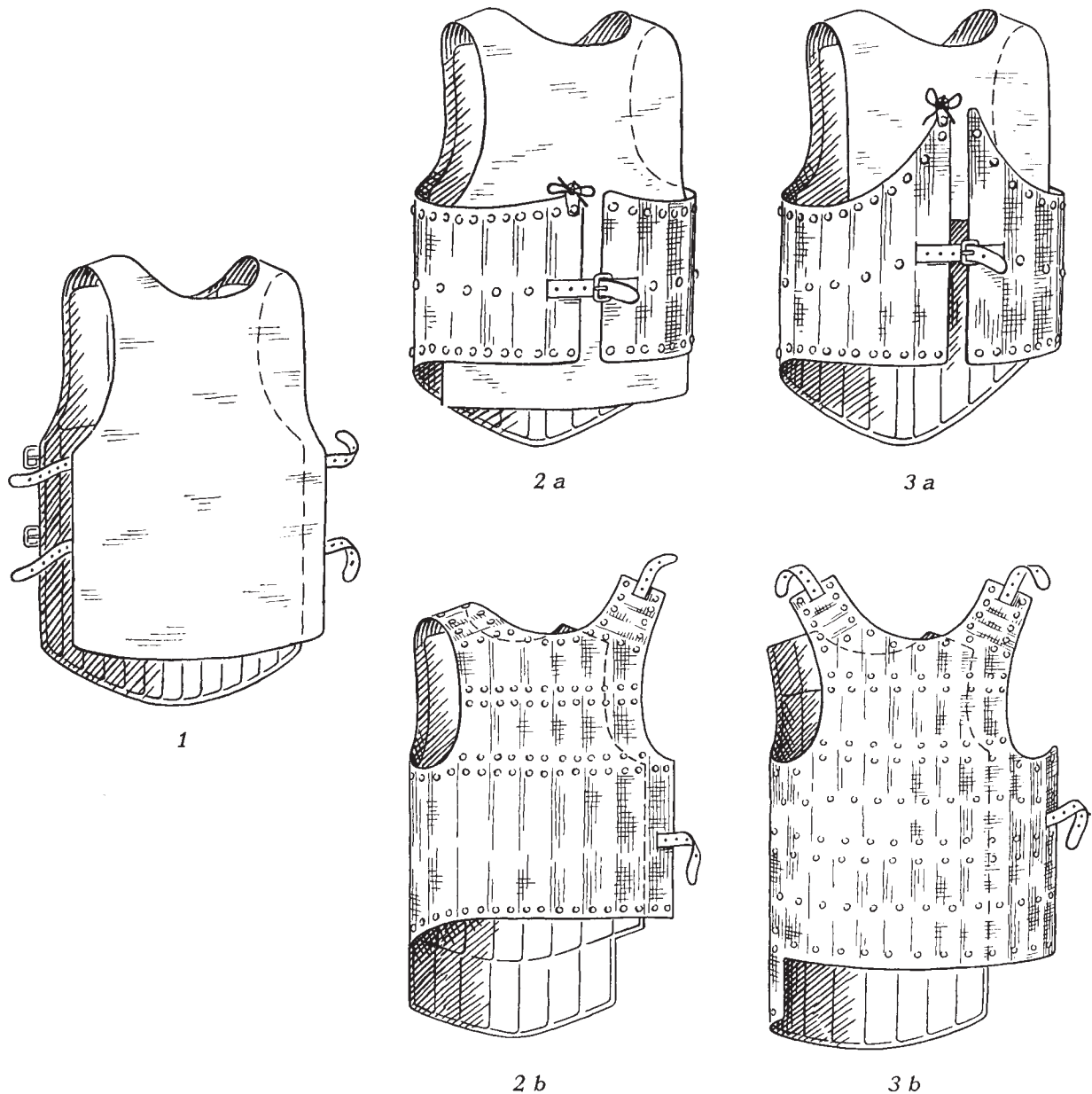
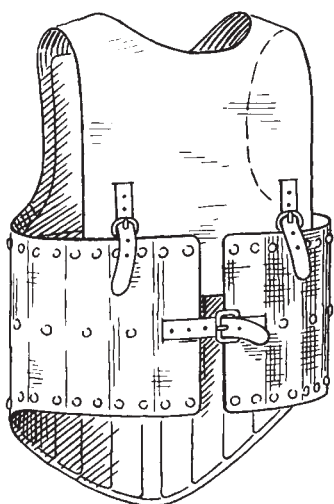
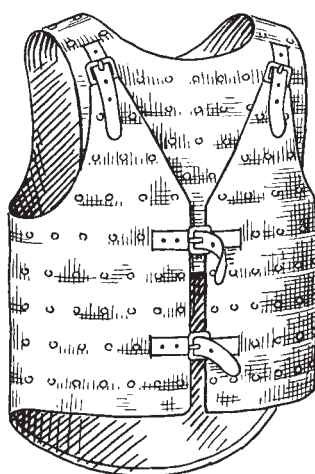


Fig. 204. Diagrammatic representation of the

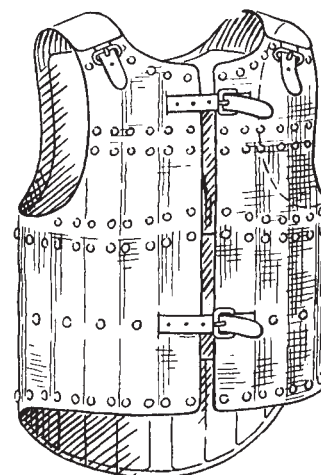
of the armour in the same direction would lead to a type in which the rudimentary back piece holding the back and the front together over the shoulders, has disappeared, and the "girdle" coming from the sides has grown over the upper part of the back. This would have produced a reversed coat with the opening in the middle of the back (fig. 204: 6 a). Whether such a type of armour really existed, is not known, but possibly the armour on the figure of St. George at Hradschin (figs. 332, 333 b) was of this kind, though the buckles on the back of the shoulders are concealed and their existence cannot, therefore, be proved.



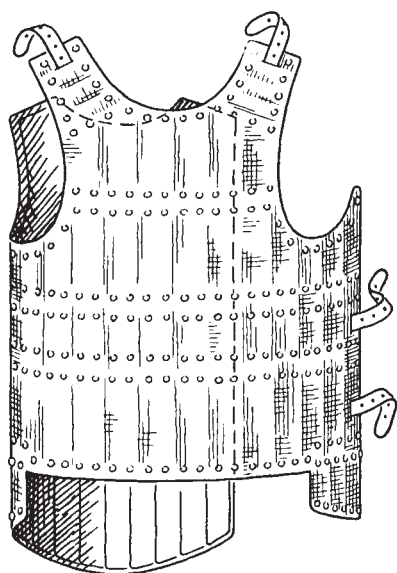
4 a



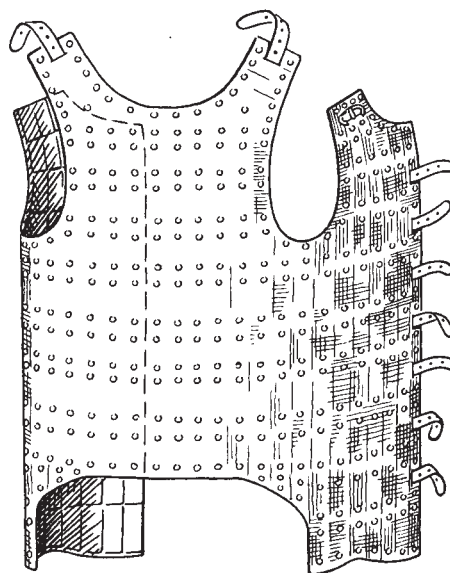
5 a



6 a



4 b



5 b

stages of development of coat of plates.

In types IV–V the original form (fig. 204: 1), the “poncho” type, is represented by armours 19 and 20, which developed in another direction, and No. 21 is closely related to these two armours. Here the front and back have become joined at one side, and at the same time there is an opening in front of one shoulder (fig. 204: 2 b). This develops further in No. 22 by openings being made on both shoulders, and also the side opening, which in 21 was placed right at the side, is moved forward somewhat (fig. 204: 3 b), the same tendency being pursued in No. 23, where the skirt is also cut through (fig. 204: 4 b). The final ex-

pression of this development is seen in No. 24, where the opening is in the middle of the front, dividing the skirt symmetrically (fig. 204: 5 b). The two openings in the front of the shoulders are retained. Both lines of development which we have been able to trace have therefore ultimately led in different ways to remarkably similar forms, which may be said to be the reverse of each other: on the one hand the Verden armour, with the openings down the middle of the back and between the shoulders and the back, on the other hand No. 24, with openings down the middle of the front and between the shoulders and the front.

The development of form in types IV and V shows simultaneously a gradual diminution of the size of the plates, and an increase in their number. If we consider type III from this point of view, we can assert that No. 16 is most closely related to the oldest form of armour in type IV, Nos. 19 and 20. In comparison with No. 16, No. 17 shows the same tendency for the size of the plates to decrease and their number to increase that has previously been observed. On the other hand, the contrary is the case with No. 18, whose developed back armouring suggests that it is of a later type, compared with Nos. 19 and 20.¹³⁰ Here the plates are both larger and fewer than in any of the other types of armour III–V. This corresponds to type II, where No. 8, with the most numerous and the narrowest plates, shows the greatest similarity to No. 16. To establish a similar typological connection with type I, will probably not be possible without forcing the method too far. It seems probable, however, that in this type the armours with smaller plates are earlier than those with fewer and larger ones (No. 7), just as it is very probable that the riveting of the central breast plate to the upper horizontal plate in No. 2 represents a tendency toward the big breast plate in later plate armour. The construction of the armour should therefore follow two lines of development, viz. the most primitive type with medium-sized plates is developed on one hand towards an increase in number and decrease in size and, on the other hand, towards fewer and larger plates; the former tendency should appear in the armour which was open in front or at the side and the latter in that which was open at the back. In this connection it may be significant that the brigandine, the covered plate armour of the 15th and 16th centuries, with very small plates, generally has the opening in front or at the side.¹³¹

Side by side with the two main forms of armour, which we have analysed—one group consisting of the types I and II and the other of the types IV–VI, while type III seems to belong to both—one can distinguish a series of less essential characteristics which do not follow either of these groups. Thus the straight or relatively gently curved lower edge in armour of type I recurs in armours of types IV–VI, but only exceptionally in type II (No. 13), while this type as a rule has a more serrated or pointed lower edge, which occurs still more prominently in type III. The upper edge of the back armour, again, runs horizontally in type II, but in types I and III has, as a rule, a tendency to turn upwards, corresponding to the well-developed protection for the back which is to be found in types IV and V. As regards the breast plates, on the other hand, types I and II are alike in that they both have relatively large ones, two or at the most three in number, while in types IV and V they are smaller and there are at least six of them across. The small semicircular ornamental plates around the arm-holes appear to belong to the armour composed of smaller plates (21,

22, 24), while the large shoulder plates have only been found with an armour of type I, apart from the two altered armours of the lamellar type. It may, however, be assumed that originally they were not connected with this type.

The remaking of the lamellar armour seems to indicate that this type was looked upon as out of date in 1361 (or perhaps even earlier), and it is interesting to note the care that was devoted to an alteration which was only meant to give the armour a more up-to-date appearance, while, in so far as one can judge, it can scarcely have helped to make it more suitable for its purpose. In remaking, every row of lamellae was dealt with as if it had been a single large plate, i.e. in principle the armour was made to consist of a number of horizontal plates, with the exception of the breast portion, which was covered by three vertical plates. The front thus became very similar to type I, and it is notable that in this instance the three vertical rows were also united with each other by means of riveting. It may perhaps be permissible to see in this a further influence from type I, where, in fact, certain portions of the breast in armour 2 were also riveted together. Finally, as has been stated, the occurrence of the large shoulder plates on two of the covered suits of lamellar armour witness to the fact that these have been modernized on the model of type I.

If, thus, the lamellar type has been clearly influenced by the coat of plates type—and this not only in a single exceptional instance—one cannot get away from the impression that a counter influence also made itself felt. The elasticity and pliability which must have been the great advantage of this type in comparison with the more rigid coats of plates, may have given impulse to the development towards the smaller plates seen in types IV and V. The close agreement in size between plates and lamellae in the coat of plates 24 and the lamellar armour is far too striking to allow one to consider it fortuitous.

DID THE ARMOUR BELONG TO GOTLANDERS OR DANES?

The uniformity within the various combinations, both with respect to the main features of the lines of development and the details of the material, shows that all the armours belong to one and the same cultural area, with the exception of the lamellar type in its original form, which had clearly been influenced afterwards by the coat of plates type. As will be shown below (p. 270), it is also clear that the lamellar type is an Asiatic phenomenon, which—except those from Wisby—has left no traces in Europe during the Middle Ages and before then, only very sporadic ones. The coat of plates, on the other hand, is the normal type in Europe during the 14th century. The problem then is whether the armours found at Korsbetningen display any particular features from which it can be determined whether they were worn by Gotlanders or Danes in the battle, or if armour developed in

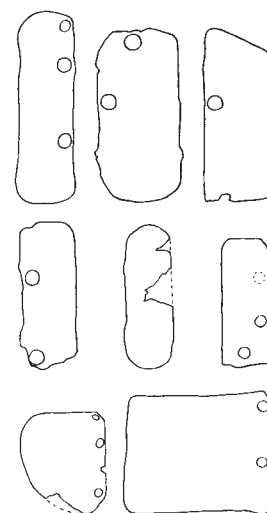


Fig. 205. Armour finds from Lindholmen in Scania. Scale 1:4.

Northern Europe with such a close connection between the various countries and with such intimate reciprocity that similar styles could be worn by both friends and foes.

It should be mentioned at once that the prospects of solving this problem, are very slight. Our knowledge of the appearance of the armour and its construction during this period is so fragmentary that it is only in some of the main features that local differences can be distinguished; this is because of the original material from the 14th century, only a few pieces have come to light in various quarters, and the pictorial material upon which our main knowledge must be based, only supplies vague information of the construction, by the way, almost always showing only the front.

The lamellar armour presents a starting point for the discussion of this question because it is the most uncommon in appearance. After the Migration Period lamellar armour has only once been found in Europe apart from the Korsbetningen finds, and even this was in Swedish soil, from the Viking town of Birka, in Lake Maelar, probably from the 10th century.¹³² This shows that the appearance of lamellar armour in the Korsbetningen graves is not due to chance, but that this type had been used in Sweden for centuries, but to what extent cannot be gauged. Both Birka and Gotland had very considerable importance as centres of commercial and cultural intercourse with oriental countries, so that an appearance there of this type of armour is not astonishing. Even if Denmark was not subject to cultural influence from the East to the same extent as eastern Sweden, there exists, however, a pictorial representation¹³³ indicating that lamellar armour was perhaps used also in Denmark in the 14th century. On the other hand, one may reasonably consider that it is improbable that the Danish army of invasion was equipped with such armour. Tradition has it that there were German mercenaries in the Danish army, and it is certain that the king was accompanied by several prominent officials (p. 19). Under such circumstances one must assume that the army of invasion was equipped in a modern and efficient manner, and it seems highly improbable that armour of the antiquated lamellar type was used. Also it fits in very well to imagine that the hastily mobilized Gotlandic peasant army wore such armour; to a large extent they had been forced to content themselves with the equipment available at the moment, and at the best could only manage hastily to modernize some of the old lamellar armour by riveting on a covering.

Even if, for these general reasons, one might consider it certain that the lamellar armour was worn by Gotlanders, this, nevertheless, does not prove that they also wore coats of plates. It is probable that the latter type was current throughout the North at this time, and this is apparent from finds and contemporary illustrations from both Sweden and Denmark, including Gotland.¹³⁴ This material is, however, far too small to enable one to differentiate any local variations; so that, even with this type we must depend on general reasoning.

First it may be questioned whether the Gotlandic people, composed entirely of peasants without any feudal society, can conceivably have possessed armour, some of which is apparently of a very modern type, judging from the finds. To this must be added that Gotland at the time of the Danish invasion had had no wars for a long time. The last war in

Gotland had been fought, as far as is known, in the year 1313, when a Swedish royal army seems to have been defeated by the Gotlanders; prior to that, we must go back to just before 1288, in which year the Swedish king settled a conflict that had degenerated into open war between the citizens of Wisby and the rural population (p. 13). During the greater part of the 13th century and the first half of the 14th century, the peaceful state of the island is also reflected in an almost complete lack¹³⁵ in Gotland of such treasure trove as generally accompanies wars, which is in sharp contrast to the enormous mass of treasure trove that has been brought to light from the early Middle Ages and from the unhappy year 1361 and later. One must also take into consideration the fact that the obligations of the Gotlanders to the Swedish crown in regard to defensive measures were comparatively trifling.

On the other hand, it must be emphasized that the character of the Gotlandic peasant population must not be compared with that of ordinary peasants. Politically, Gotland occupied a position semi-independent of the mother country, and may be looked upon as a kind of federated commercial and peasant republic under the Swedish king with limited taxation and conscription (p. 9). Economically the peasants had also always been merchants, who, at certain seasons, carried on a good deal of shipping and navigation around the coasts of the Baltic and had mercantile relations reaching still further afield. Socially, there was absolutely no feudalism, but a peasant aristocracy existed whose cultural level and power may be gauged from the remains of the really palatial buildings that existed in sundry places in the rural areas of Gotland (figs. 13–15), and from the artistic wealth displayed in the Gotlandic churches, which is far superior to any other part of the North.

Under these circumstances it can hardly be disputed that the Gotlandic peasants might own armour of the kind found in the graves. They undoubtedly had the economic resources to provide it, and the big farmers and landowners occupied such a position that they would be considered eligible to wear it. As we have already come to the conclusion that the lamellar armours belonged to Gotlanders, the similarity of construction between these in their altered form and the coats of plates, and between the different types of the latter, might be considered as an argument in favour of all the armour having belonged to fallen Gotlanders. In particular, the unique type V, which we have presumed to have been transitional between lamellar armour and coats of plates, should confirm this assumption. However, during excavations in the summer of 1935 on the site of Lindholmen Castle in Scania—i.e. on former Danish soil¹³⁶—fragments of armour were found which, without doubt, came

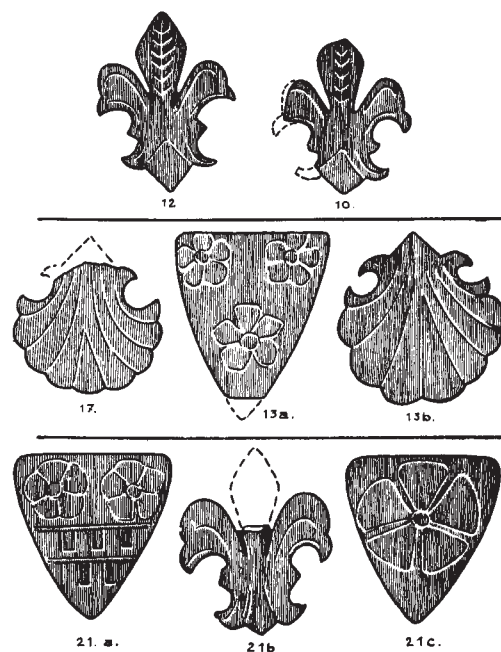


Fig. 206. Bronze mounts on armour No. 7.



Fig. 207. Detail of martyrdom of St. George. St. Nicolas Church, Stralsund.

from an armour that closely corresponds to No. 24. Even such a characteristic detail as the semicircular ornamental plates round the arm-holes have been found (fig. 205). This shows that we should not draw any hasty conclusions from the far too scanty material which is known at present, relating to 14th century armour. Clearly armour has developed more uniformly throughout the whole Nordic area, independently of political boundaries, than one might be inclined to assume.

Another detail which enjoins care in referring the armour to Gotland, is the heraldic design on No. 7, which has been the subject of special study by A. Hoff and H. Olsson.¹³⁷ This armour is decorated with three fleurs-de-lis, two shell-shaped mounts and three escutcheons, which each bear different coats of arms, but in which, in each case, a simple five-petaled rose occurs (fig. 206). On one of the shields (21 c) a single rose is engraved; on another (13 a), three; and on a third (21 a), two roses in chief and on the lower half, rows of vair.¹³⁸ The en-

deavours made by A. Hoff to connect these coats of arms with Swedish or Danish medieval families or private persons, have, unfortunately, not been successful. Coats of arms Nos. 13 a and 21 a are unknown in Gotland. A coat of arms with one rose belonging to the end of the 13th century is certainly known, but the form of the rose is so different from this one that no identification is possible, and the escutcheon also bears three stars. The coat of arms No. 21 a is also unknown in Sweden and Denmark, nor is the coat of arms No. 13 a known in Sweden, but is found in Denmark. On the other hand the coat of arms No. 21 c or similar ones have been used by medieval families both in Sweden and Denmark, but no connection could be discovered between the Wisby battle and any members of these families, which of course by no means prevents one of these having been the owner of the armour. But what is very peculiar here is the fact that the three escutcheons do not show the same coats of arms, although they are clearly related and one may assume that they were worn by members of the same family. During the Middle Ages it was a rule, and this also occurred later, that younger branches of a family by a change in the coat of arms, a so-called brisure, seceded from the main branch. This could be done in many different ways¹³⁹, but *inter alia*



Fig. 208. Monumental effigy of Don Ramon de Peralta. In the possession of Lionel Harris, Esq., London.

by a trebling of the original coat of arms, such as occurs on our escutcheon No. 13 *a* in relation to No. 21 *c*, or by the introduction of new figures, as shown in escutcheon 21 *a* in relation to escutcheon 13 *a*.

The owner of the armour would thus, apart from his own escutcheon (No. 21 *a*), also have worn his father's (No. 13 *a*) and his grandfather's (No. 21 *c*), but not the quarterings, for those also include the coats of arms on the female side. It must be admitted that I know of no parallel whatsoever of such a phenomenon. The small number of representations of armour which in this or a similar manner is provided with several small escutcheons (figs. 207, 208) bear either the same escutcheons on all or are blank.¹⁴⁰ But one is not justified in assuming for that reason that the escutcheons did not possess any heraldic importance but were merely used as decorations. It is true that escutcheons were often apparently used purely decoratively in the Middle Ages, to ornament domestic utensils, hooks and the like, but that is very different from wearing escutcheons without meaning on the armour itself. It seems to me most improbable that a warrior—whether he be a knight or not—should have decorated his armour with heraldic escutcheons which were not his own, just as he would never have applied a meaningless ornament or decoration to his shield or his helmet. I am also disinclined to assume that the fleurs-de-lis and shells applied to the armour are without meaning either. The heraldic and also general symbolic significance of the shell is well known; it proclaims the wearer as having made a long pilgrimage. As to the lily, it is one of the commonest motives of heraldry, and very likely did not possess the same particular significance as the shell. There are many possible explanations for its application to armour. H. Olsson has suggested one which perhaps is the most feasible, namely that the owner belonged to a knightly order which had the lily for its symbol.

If it is correct that the decorations on this armour possess an heraldic purport or meaning over and above their decorative one, the owner must have been a very prominent man of an ancient noble family, and in such an economic situation that he was able to make a long pilgrimage. Can it be imagined that this was a Gotlander? Heraldic coats of arms are not unknown on Gotlandic tombstones from the 14th century, but, on the other hand, one must remember that Gotland at that time was a kind of peasant republic, where tenure *in capite* and feudalism were quite unknown. An escutcheon in itself, therefore, does not constitute any obstacle to the owner's Gotlandic birth, but it must, nevertheless, be considered less probable that these bourgeois coats of arms developed in accordance with the finer distinctions of exclusively feudal heraldry, which are noticeable here. It is therefore most probable that this rich armour belonged to a noble Danish knight.

Our investigation into the nationality of the armours leads to the conclusion that the lamellar armour probably belonged to Gotlanders and that armour No. 7 may possibly have been worn by a Danish knight. As regards the others, we must admit that we lack sufficient evidence to enable us to adopt an attitude towards the question of whether they should be regarded as Gotlandic or Danish.

THE GAUNTLETS.

GENERAL ANALYSIS OF TYPES.

Among the finds from the common graves, the gauntlets form a separate group, unique of its kind in European armour. As in case of body armour the gauntlets are of two different constructions: mail and plates. We have already dealt with the mail gauntlets in connection with the shirts of mail (pp. 107 ff.); they have, like most of the others, come from the large common grave 2. In the best preserved shirt of mail (fig. 93) the sleeves are lengthened to the base of the fingers; obviously the fingers and palms of the hands were covered with cloth or leather, but there was a separate piece of mail for the thumb. Close to another shirt of mail, but not in direct contact with it, a single gauntlet was found (figs. 96, 97), the mail of which also completely covered the outside of the fingers. The separate thumb can easily be distinguished in the centre, and to the left, obliquely below it, is the fairly wide opening for the wrist; if a cuff existed, it must have been made of leather. The palm of the hand and the fingers were covered with leather, some remnants of which can still be distinguished.¹⁴¹ The leather was fastened by bronze rings to the mail.

The other gauntlets were provided with thin iron plates of various sizes and numbers, from the smallest scales and narrow bands to larger plates, which covered the back of the hand and the wrist. Only the iron is preserved and none of the fabric or leather to which it had been fastened. The iron plates are, in fact, only occasionally connected with each other by means of rivets or hinges. As a rule each piece was separate—just as in the armour—riveted either to the outside of the gauntlet or on the inside of its cloth covering. The latter was usually the case, but this means that the gauntlet was also lined, because the iron could not be worn next to the skin. As in the mail gauntlets, the plate gauntlets were only armoured on the back of the hand, while the palm and the inside of the fingers were merely covered with leather or fabric.

All gauntlet finds of importance came from common grave 2, which also contained the richest and most valuable finds of other kinds. From common grave 1 we have only the fragments Nos. 7, 8, 14, 16, 17 and 19. No gauntlet finds were made in common grave 3.

¹⁴¹ This chapter is chiefly an augmented reprint of corresponding portion in Nörlund-Thordeman, *Panzerhandschuhe aus der Schlacht bei Wisby*.

The gauntlets, at any rate those found during the 1928–1930 excavations, were not on the hands of the skeletons. It is rather curious that the three complete gauntlets Nos. 1, 2 and 3, and some of the fragments, lay in the topmost layer of the grave above the other finds. The only interpretation for this is that they were in the soil with which the pits were refilled, and confirms the impression gained by other facts, that the work was done carelessly and in a great hurry.

Gauntlet 2 is so well preserved that its reconstruction cannot be doubted at all. The three components of the gauntlet, fingers, back plate and cuff, are all in good condition and the defects are quite trifling. Even in the seriously damaged gauntlet, No. 4, the reconstruction is simple, assuming the parts preserved have been correctly interpreted. Except for the question as to whether the tip of the finger guard, like the knuckle plates, was fastened to the outside or, like the other finger plates, to the inside of the covering, the whole arrangement of the gauntlet is clear.

Gauntlets 1 and 3 are fortunately almost complete. But the cuffs are missing in both cases, if they ever existed. In the case of gauntlet 3 it is quite possible that the cuff was like that in the very similar gauntlet 2 (and probably 4). On the other hand, we know nothing at all about the cuff of gauntlet 1. Here, also, the bottom portion of the guard for the back of the hand must be missing, for the remaining plate is so short that it cannot have adjoined the cuff.

The hand and cuff of 5 are preserved, and also enough of the fingers to enable a reconstruction in principle. Altogether only four pieces of the fingers are preserved, one of them probably for the thumb. These justify the assumption that all the iron plates were attached to the outside of the covering, and that the thumb pieces were riveted together.

All the gauntlets have three characteristics in common: the back of the hand was covered with a single plate (although of various shapes); this never extended over the thumb-base, which was covered with a plate of its own; and in none of these gauntlets were the plates for the back of the hand and the cuff made of one piece nor united directly by rivets or hinges. On the other hand, the gauntlets differ especially in two respects; the number of iron pieces used, and the way in which they were united, viz. partly with a covering of cloth or leather (with rivets on the outside), partly held together by a foundation inside (with rivets on the inside). Also, in exceptional cases the plates were riveted to each other (i.e. the thumbs of 3 and 5, the cuff of 5) or joined by hinges (the cuff of 5).

The two extreme cases, both with respect to the number of plates and the way in which they were united, are gauntlets 2 and 5. Gauntlet 2 consists of numerous small plates, all iron parts having been concealed by a covering. In contrast to this is gauntlet 5, which has the fewest, and consequently the largest plates, which are fastened throughout to the outside of the gauntlet. The cuffs are also constructed quite differently, i.e. one of them has rather small strips united lengthwise, while the other has two large plates united by hinges. We must also mention here the only part of gauntlet 10 preserved, viz. the unique funnel-shaped cuff, which is formed from two bent pieces of iron.

Between the two extreme cases, there is, on the one hand, gauntlet 1, to which 6–8 are



Fig. 209. Part of gauntlet from Kugelsburg, Westphalia. Scale 2:3. British Museum, London.

rather similar, with relatively few plates, all of them concealed by a covering, and, on the other hand, No. 3, to which 4, 9 and 17 are also related, consisting of a large number of plates, some of which are attached to the outside and others to the inside of the covering.

ORIGIN OF GAUNTLET.

The gauntlet makes its appearance comparatively late in the Middle Ages. The first, safely dated representation which is generally mentioned is the seal of Richard Coeur de Lion on a document of the year 1195.¹⁴² Here, as in the earliest effigies, the gauntlet is not a single, independent piece, but, as we have also found at Wisby, simply

a lengthening of the sleeve of the mail hauberk, with a pocket or a bag for the fingers, from which, however, the thumb was always separated.¹⁴³ A loose glove of leather or cloth was probably always worn beneath it. It is not known exactly when the mail gauntlet became separated from the hauberk, but it is never mentioned before the beginning of the 14th century¹⁴⁴, and there is no reason to assume that it is much older. Further, it should be added that even in the 14th century the gauntlet was still depicted in one piece with the sleeve of the armour. It is even probable that the mail gauntlet as an independent piece, such as we know it from the Wisby find, was always an exception, like the mail coif (see above p. 104).

Earlier than the separate mail gauntlet there occurs another type of gauntlet in which small scales or plates, either of whalebone, iron or brass, were fastened on to a cloth or leather glove. Thanks to a thorough study of records by Victor Gay¹⁴⁵ and Ch. Buttin¹⁴⁶ we know that this kind of glove or gauntlet was made in the year 1290 by the armourers of Paris. At first, perhaps, they were made of whalebone, which can most easily be handled. Buttin draws attention to the fact that whalebone gauntlets were mentioned in 1285, and were not even then a novelty. A representation of such a gauntlet from about 1290 is on the brass of Sir Richard Buslingthorpe (Buslingthorpe Church, in Lincolnshire¹⁴⁷), and also in the manuscript, "Légende de Saint-Denis", from the year 1317 in the Bibliothèque Nationale.¹⁴⁸ The hands and fingers are covered with small plates of equal size, which overlap; they are attached to the outside of the gauntlet, but it cannot be seen how they are fastened, whether they are sewn on or riveted.

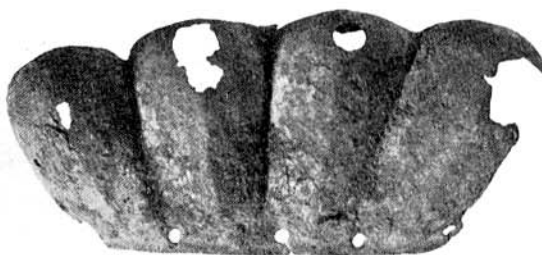


Fig. 210. Part of gauntlet from Lund, Scania. Scale 2:3. Cultural History Museum, Lund.

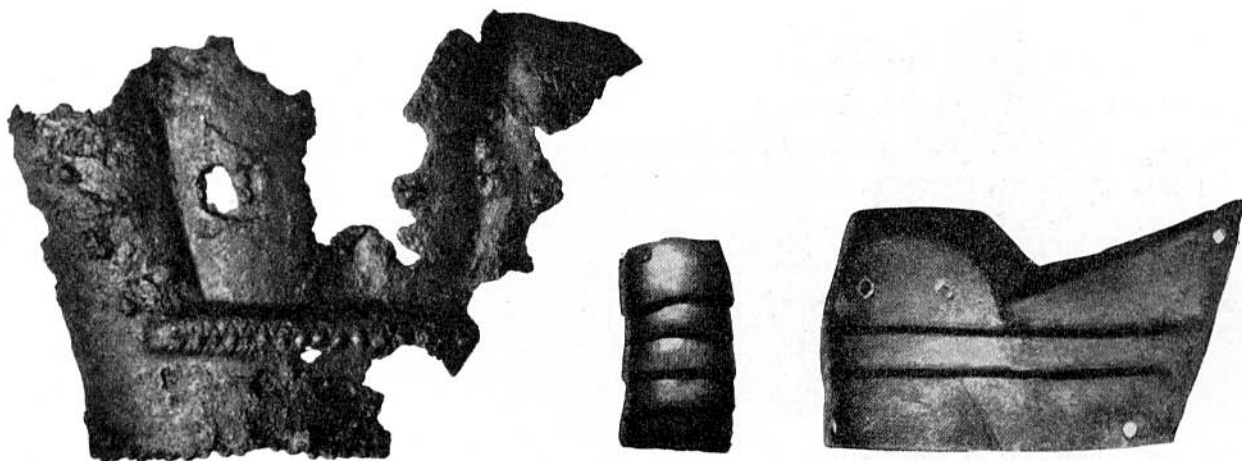


Fig. 211. Fragments of gauntlet from Küssnach, Switzerland. Scale 2:3. Schweizerisches Landesmuseum, Zurich.

GAUNTLETS PRESERVED FROM THE 14TH CENTURY.

No original pieces of these earliest scale gauntlets exist, which differ from the Wisby gauntlets in not having any large plates, and all the plates being of the same size. Nor are there any fragments which definitely point to this type. Even from the next period, about the second quarter of the 14th century, we have very few original pieces.

Best preserved of these is a back plate (fig. 209) which was found at Kugelsburg, Westphalia, and presented to the British Museum by the well-known collector of arms, R. Zschille. This is related to some of the pieces (2, 3, 4) found at Wisby, and has raised knuckles, the whole piece being held together with a covering of cloth. It is slightly longer than the corresponding Gotlandic pieces and reached to the wrist, where in all probability it joined the cuff, in a way something similar to the Wisby gauntlet 5. A similar, though much narrower knuckle guard of bronze has been found with a gauntlet of a later type in Schauenburg, near Dossenheim, in Germany.¹⁴⁹ It agrees best with the Wisby gauntlet 2, though it has a much smaller number of rivets on the outside, and has probably had, like the latter, a continuation of narrow plates down towards the wrist. A knuckle-guard (fig. 210), which was found in the year 1908 at Lund, in the south of Sweden, has, like gauntlet 3, rivets on the inside.¹⁵⁰

Amongst the finds from the excavations of the Castle of Küssnach¹⁵¹ are also some fragments of gauntlets belonging to the middle of the 14th century (fig. 211); (1) a very imperfect back plate with raised knuckles, finely scalloped lower edge, and a transverse ridge delicately chased with a zigzag ornament; on the inside, remnants of a lining are still visible; (2) five bent finger-scales of equal size, with two rivet-holes, and overlapping each other; finally, (3) a short plate for the base of the thumb with two channels, which, in shape and size, most nearly resemble the Wisby gauntlets 2—4. All the plates have rivets for a lining on the inside; 2 and 3 are made of brass or copper, with traces of gilding. Dr. Gessler considers

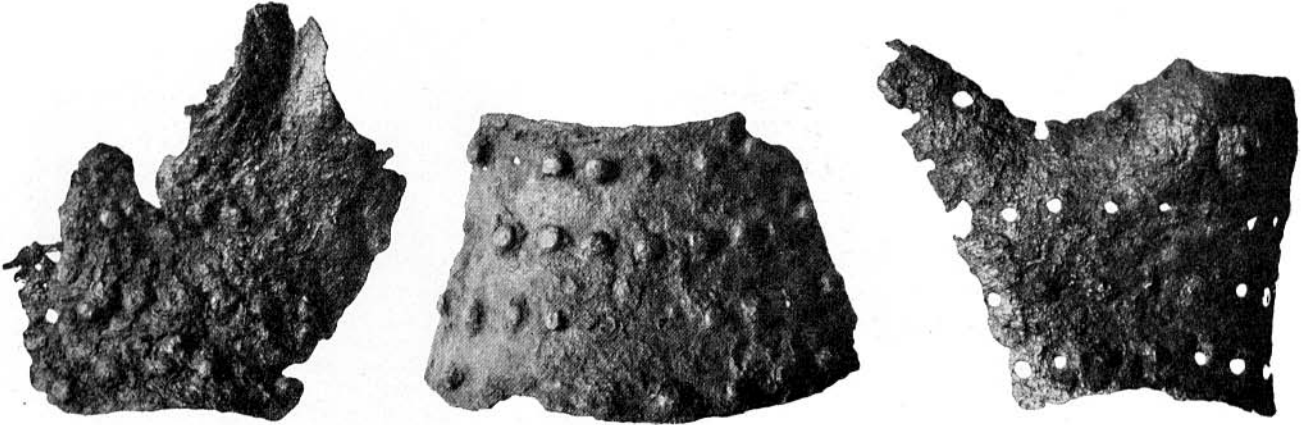


Fig. 212. Fragments of gauntlet from Boringholm, Denmark. Scale 2:3. National Museum, Copenhagen.

it probable that the two last are parts of one gauntlet, though they were found at different times.

Amongst the finds in the National Museum in Copenhagen, from Boringholm Castle, in Jutland, made by the Danish archaeologist Chr. A. Jensen, there are also some fragments of gauntlets (fig. 212), which seem to agree fairly well chronologically with the Wisby finds. They had rivets on the outside, so that the iron, in contrast to the Küssnach-fragments; was on the inside of the gauntlet. The three most important parts are: (1) a piece of a short cuff, which had had a pronounced funnel shape with projecting edges (cf. gauntlet 10), and which must have belonged to a gauntlet for the right hand; (2) a plate belonging to a left gauntlet, which had covered the base of the thumb and the portion of the knuckle near the index-finger; (3) a fragment of a back plate with the knuckles very much raised. The type reminds one somewhat of the Wisby gauntlet 5 (the large plate for the base of the thumb and the cuff, which consists of two pieces). But it differs in having the rivets on the outside, and there are no traces to be found on the undamaged edges of the parts of the cuff to show that they were united by means of hinges or something similar. The iron plates were only held together by the covering. The back plate reminds one in shape and size of several pieces of the Wisby find (Nos. 2—4), but is, in contrast to these, bent concavely in its longitudinal direction and one or more iron strips were probably inserted between this plate and the short cuff.

This is all, as far as I know, that has been preserved from this period; merely fragments which can only be dated and reconstructed thanks to comparison with the Wisby gauntlets.

The type of gauntlet predominating at the latter part of the 14th century is the earliest from which we have so far been able to get a precise idea from the originals preserved, and before we revert to the gauntlets from earlier periods we shall make a survey of these. This is the type of gauntlet which Laking so aptly terms "hour-glass shaped". It might also be termed "stiff gauntlet". It consists, apart from the fingers, of a single unarticulated plate, which is shaped in such a way that it is narrowest where the back of the hand meets the cuff, and thence widens on both sides. The plate is bent round the hand, at first without



Fig. 213. The Black Prince's gauntlets. Canterbury Cathedral.

meeting, but in such a way that either side of the hand is covered. First and foremost, the brass gauntlets of the Black Prince († 1376) which hang above his monument in Canterbury Cathedral¹⁵² belong to this type (fig. 213). This pair was probably made for the funeral ceremonies, and therefore was never intended for practical use, but it is certainly a reliable example of a gauntlet of the period, as is seen from its similarity to the gauntlets reproduced on the Prince's effigy (fig. 214). These gauntlets are remarkable because not only the greater part of the fingers have been preserved but also the soft inside glove of leather upon which the finger plates were riveted. At the base of the four fingers a narrow strip is inserted, attached by articulating rivets to the metacarpal guard. The different parts of the fingers are not riveted to each other nor to the plate, but only to the leather gauntlet which holds them together.

Amongst the finds from Tannenberg Castle, near Darmstadt¹⁵³, destroyed in the year 1399, there are two such hour-glass gauntlets, one of them in the Landesmuseum at Darmstadt, the other in the Metropolitan Museum, New York.¹⁵⁴ Also amongst the finds from the Swedish Royal Palace of Alsnö Hus, near Stockholm¹⁵⁵, destroyed about 1390, there is a fairly complete gauntlet of the same kind (fig. 215). Together with the latter were found several fingers whose plates were riveted directly to one another, like the thumb on the Wisby gauntlet 3 (fig. 216).¹⁵⁶

These specimens of hour-glass gauntlets are open on the inside of the wrist. Completely closed ones of this kind, and therefore probably of somewhat later date, are less rare. Fine gauntlets, probably made in Northern Italy about 1390, which are in the ar-

meeting, but in such a way that either side of the hand is covered. First and foremost, the brass gauntlets of the Black Prince († 1376) which hang above his monument in Canterbury Cathedral¹⁵² belong to this type (fig. 213). This pair was probably made for the funeral ceremonies, and therefore was never intended for practical use, but it is certainly a reliable example of a gauntlet of the period, as is seen from its similarity to the gauntlets reproduced on the Prince's effigy (fig. 214). These gauntlets are remarkable because not only the greater part of the fingers have been preserved but also the soft inside glove of leather upon which the finger plates were riveted. At the base of the four



Fig. 214. The Black Prince's gauntlets on his effigy in Canterbury Cathedral.



Fig. 215. Gauntlet from Alsnö Hus, Sweden.
Scale 1:2. National Museum of Antiquities,
Stockholm.

moury at Churburg¹⁵⁷, in the Bargello at Florence¹⁵⁸ and in the Wallace Collection in London¹⁵⁹, are characterized by beautifully fashioned knuckles and by an ornamental beading, which runs round the wrist. They bear decorative inscriptions, and the Florence gauntlets have the maker's mark, the capital letters A N interlaced. The Churburg gauntlets still preserve the cloth inside, and on one thumb are riveted two finger-guards, which consist of small, longitudinally curved plates. On the right hand a narrow plate is riveted to the metacarpal plate, between the knuckles and the fingers, which is intended to hold the plates protecting these. Similar in shape is a gauntlet of inferior workmanship (fig. 217), which was found on the site of the Castle of Örum, in Denmark.¹⁶⁰ The thumb, which is preserved, consists of two plates riveted to one another. A narrow plate for articulation is also inserted here at the base of the four fingers, which have been lost.¹⁶¹

The metal of these gauntlets was usually attached to the outside of a cloth lining or leather glove, but sometimes they had a cover riveted over the plates. This is seen in a fragment of unknown origin, preserved in the armoury of the Tower of London.¹⁶² In this one, the hour-glass type is related to the wholly covered forms such as the Wisby gauntlets 1 and 2.

The hour-glass gauntlet belongs to the end of the 14th and the beginning of the 15th century, and many specimens from effigies can be cited. It is, however, sufficient to note that this type was in use in the 'seventies, and even in the late 'sixties of the 14th century, i.e. at the same time or shortly after the Battle of Wisby, and yet it differs essentially from the Wisby gauntlets. However much these may differ in detail, they agree with one another and differ from the hour-glass type in that the back plate, the plate at the base of the thumb and the cuff were never united, but each formed a separate unit which could be composed of any number of small plates. Even the cuff No. 10, which approaches the shape of the hour-glass gauntlet, was not rigidly united with the gauntlet. The Wisby gauntlets represent a series of intermediate forms between the gauntlet of the beginning of the century, consisting of a large number of small iron scales, and the stiff or rigid single plate gauntlet. With the material from existing effigies, we shall



Fig. 216. Finger belonging
to gauntlet fig. 215.
Scale 1:2.

try to illustrate the evolution of this intermediate period, that is, the period of the Wisby find.

TYPES OF WISBY GAUNTLETS IN CONTEMPORARY EFFIGIES.

The stiff, hour-glass gauntlet was the first to give satisfaction for some time. It is, therefore, frequently found, although with various small differences. On the other hand, in the earlier part of the century, the character of the gauntlet is constantly changing. This period was transitional in the evolution of gauntlets, as for all armour, and it is, therefore, not sur-

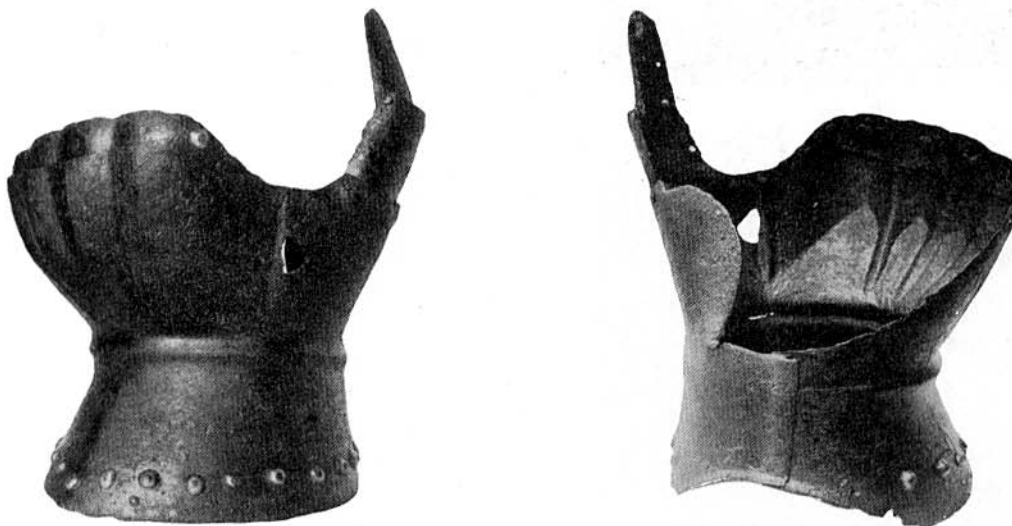
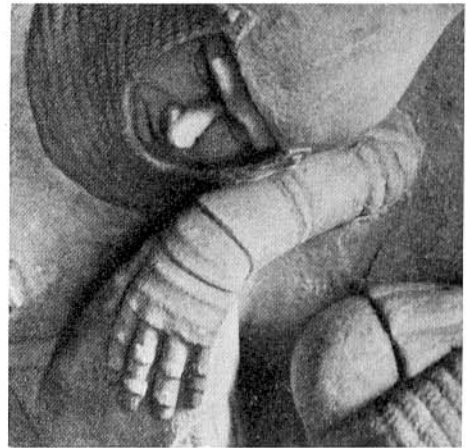
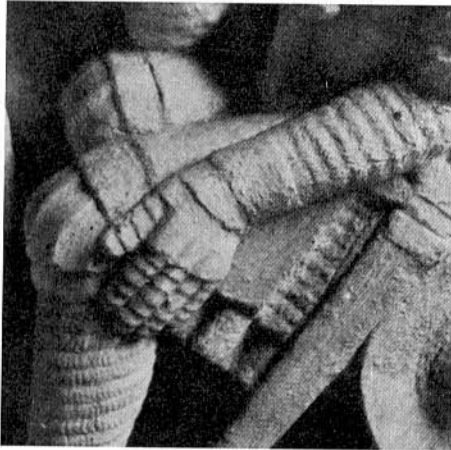
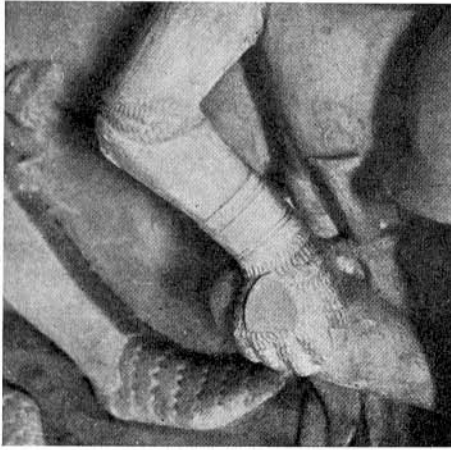


Fig. 217. Gauntlet from Örum, Denmark. Thisted Museum.

prising to find so many variations in the Wisby finds; they illustrate the tentative efforts being made at that time, comparable to the attempts to evolve the body armour.

The study of representations of gauntlets in contemporary art may begin with a relief on an Easter Sepulchre in the Cathedral at Freiburg i. B.¹⁶³, dated shortly before the middle of the century (1340—1350), in which the soldiers are rendered very accurately and with great detail, wearing a variety of armour. One of the five figures wears ordinary mail gauntlets, which appear to be attached to the sleeve. Two others also wear mail gauntlets but in both cases these are reinforced with plates, one of them (fig. 218) with a small shield on the back of the hand, whose function is chiefly ornamental, the other (fig. 219) with a large back plate and a short cuff, while the fingers are only covered with mail. Finally, two of the warriors wear complete plate gauntlets, which, besides the hand and cuff plates, have variously shaped small finger plates. In one (fig. 220), the fingers consist only of plates of equal size¹⁶⁴, while those in the other (fig. 221) consist of somewhat larger plates with special knuckle plates between them. Both types also occur in the Wisby finds.

Gauntlets on approximately contemporary figures at Strasbourg and Hagenau are akin to those on the figures in the Freiburg relief. These have been thoroughly dealt with,



Figs. 218—221. Representations of gauntlets on the Easter Sepulchre in the Cathedral at Freiburg im Breisgau.
Cf. fig. 314.

from the point of view of the armour, by B. Engel¹⁶⁵, but the gauntlets do not supply so much information as those in the Freiburg relief, though they give valuable additional information on some points.

Warrior No. 3 at Hagenau wears a mail gauntlet with a scutiform mount and a very peculiar, cuff-shaped device round the wrist, which, according to Engel, consists of a leather band, approximately 8 cm. broad, "to which at least sixteen hollow, iron half-cylinders are riveted with a rivet at each end. The leather band is fastened on the inside of the wrist with only one strap." The gauntlets worn by warrior No. 1 at Hagenau and by warrior No. 3 at Strasbourg, have cuffs which remind one very much of our gauntlet 5 and still more so of gauntlet 10; there are no hinges and they are made of one plate which is open at the inside of the arm. Both are fastened together with a strap drawn through two slits, and this corresponds exactly with the arrangement in gauntlet 5. One of these gaunt-

lets (Hagenau 1) is provided with a back plate, while the fingers are covered with mail; in the other (Strasbourg 3) the fingers are mounted with plates, like the fourth one at Freiburg. Warrior No. 5 at Strasbourg wears a gauntlet which is of especial interest to us, as its cuff is made only of leather, without any iron fittings. It shows that there is the possibility that our cuffless gauntlets (1 and 3) originally had leather cuffs.

Contemporary or a little earlier than these, are gauntlets (fig. 222) worn by a member of the De Lucy family on his effigy from Lesnes Abbey (Kent), now one of the treasures of the Victoria and Albert Museum (fig. 106). The cuff, which does not quite meet on the inside, has a smaller part which can be opened with a hinge. Between the cuff and the metacarpal guard are two smaller plates. Prince John of Eltham's († 1337) gauntlets (fig. 223) on his effigy in Westminster Abbey¹⁶⁶ are also very similar, but the cuff is divided into three plates across the arm, and a plate is also inserted at the base of the fingers, rather similar to several of those with which we have already dealt. The fingers consist of simple, curved plates with knuckle-guards.

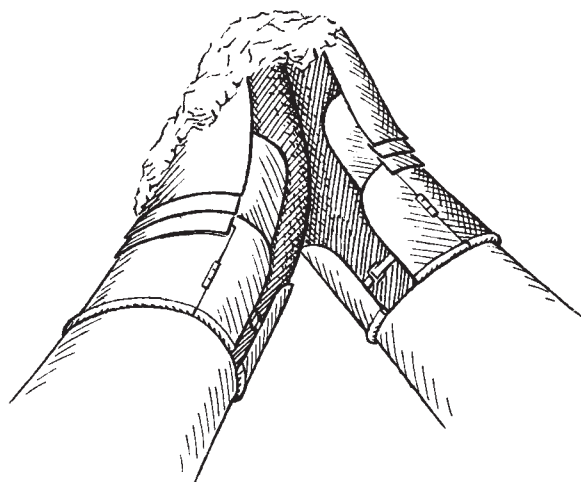


Fig. 222. Gauntlets on an effigy from Lesnes Abbey. Victoria and Albert Museum, London.
Cf. fig. 106.

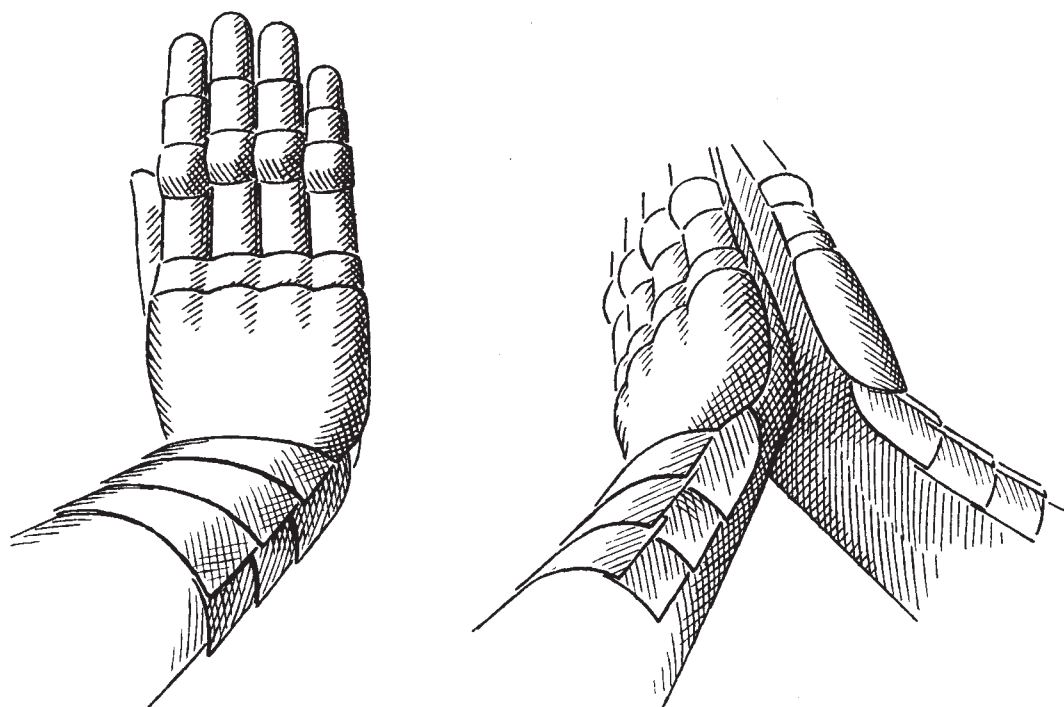
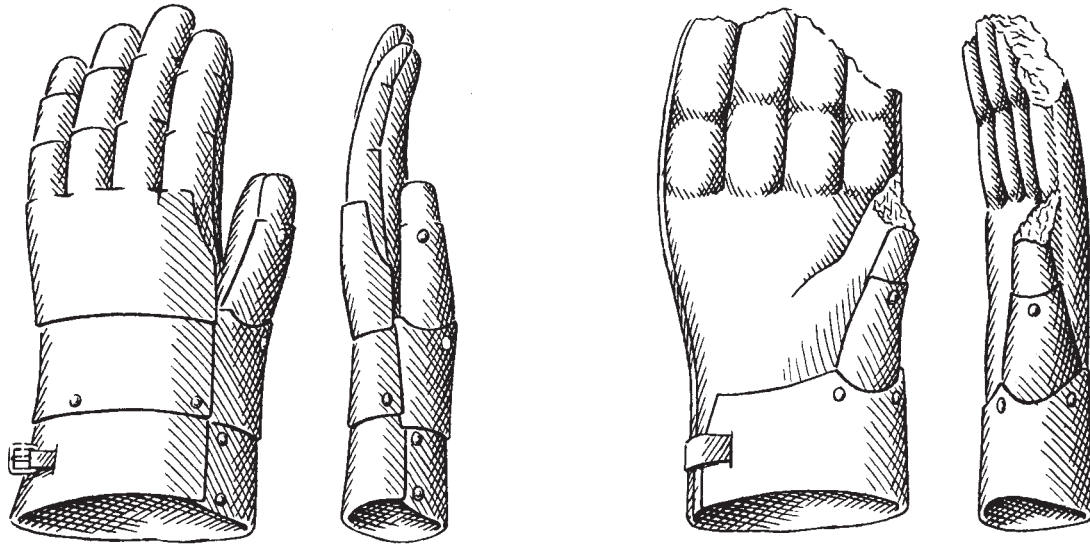


Fig. 223. Gauntlets on the effigy of Prince John of Eltham († 1337). Westminster Abbey, London.



Figs. 224, 225. Gauntlets on the effigy of Ulrich de Werdt († 1344). Saint-Guillaume, Strasbourg.

A rather simpler construction is shown by Ulrich de Werdt's († 1344) gauntlets on his tombstone at Strasbourg.¹⁶⁷ As the gauntlets are here represented lying on the tombstone, one with the palm and the other with the back upwards, every detail is discernible (figs. 224, 225). We see how the plates are fastened to the outside of a leather glove and partly riveted to each other. The plates on the hand and on the fingers are larger and fewer. The cuff, if one can call it such, is very short. The plate at the base of the thumb reaches to the edge of the gauntlet and is prolonged on the inside so as to extend across the whole breadth of the hand. There are no knuckle-guards on the fingers. Very similar to these are the gauntlets on the effigy of Albrecht von Hohenlohe-Möckmühl († 1338) in the convent church at Schönthal a. d. Jagst, Würtemberg (fig. 307). Probably contemporary with the latter is the effigy over a knight in Ash Church (Kent)¹⁶⁸, whose gauntlets (fig. 226) have a more complicated construction, with a larger number of small plates. In this they resemble the Wisby gauntlet 2, especially as the cuff is divided into narrow longitudinal plates. The metacarpal plate is somewhat larger than the others but does not reach to the cuff, being separated from it by three narrower plates. This plate has become full size on the gauntlets worn by warriors on the Levitic pew at Verden (fig. 227; cf. fig. 316)¹⁶⁹; the cuff consists in the one case of two, in the other of three, rows of small plates, which overlap one another like

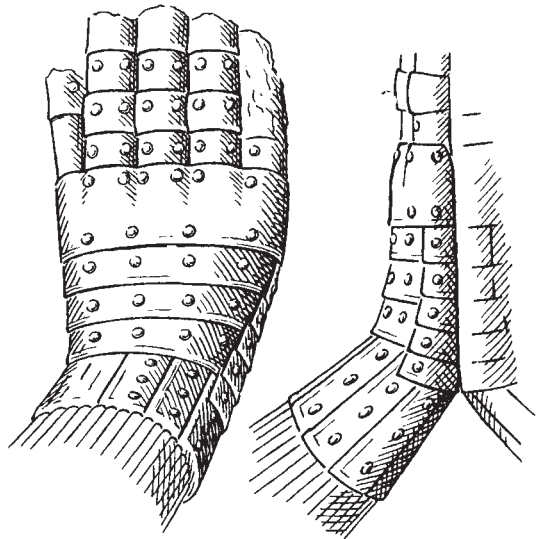


Fig. 226. Gauntlets on the effigy of John Leverick(?). Ash Church, Kent.
Cf. fig. 308.

tiles on a roof. The fingers consist of simple, curved plates like those in the Wisby gauntlet 1. The numerous, clearly marked rivets on these gauntlets are placed in such a way that it may perhaps be assumed that the iron reinforcing was attached to the inside of the soft fabric or leather glove, like the majority of the Wisby gauntlets, but probably in contrast to all the other gauntlets in contemporary effigies which we have studied.

But it is beyond doubt that the gauntlet studded with rivets was in general use elsewhere during the whole period, as is quite clear from the statements which Ch. Buttin has collected from the records of the period 1302—1355.¹⁷⁰ Of particular interest are some records of the year 1352 from the silversmiths of the French King, giving special information about the number of silver rivets made for three pairs of gauntlets: for one pair, 1200, for the second, 1000 and for the third, 860 rivets. These are large numbers, but not larger than we have in the Wisby finds, where a single gauntlet (No. 2) had over 650 iron rivets. This gauntlet also shows that it is impossible to estimate the number of iron plates from the number of rivets, as here the back is studded with no fewer than 93 rivets.

With the exception of the Verden figures, which belong to 1360–70, the other monuments from which we have given examples of gauntlets composed of small plates, belong to the two decades immediately prior to the middle of the century. These gauntlets belong to the first phase of development—apart from the earlier scale gauntlets—and to this group all the Wisby gauntlets also belong, with the exception of No. 10. Round about, or after 1350, forms of gauntlets are found which indicate a new tendency. They are characterized partly by the cuff and the metacarpal guard being made in one piece, and partly by the shape of the cuff which curves outwards, both of which are developments towards the hour-glass type of gauntlet.

On the monument of Günther von Schwarzburg († 1349) erected in 1352 in the Cathedral at Frankfort¹⁷¹, he wears gauntlets (fig. 228) in which the cuff and metacarpal plate are connected with a small beading across the narrowest part, exactly like some hour-glass gauntlets, with which we have already dealt. Probably the beading was meant to cover an original riveted joint. But the plate at the base of the thumb is still a separate piece. In the gauntlets on the effigy of Berthold V von Zähringen († 1218, erected about 1350) in Freiburg Cathedral¹⁷², the joint between the cuff and the metacarpal guard is still quite distinct (fig. 229)—had it been covered with a beading we might have assumed that the gauntlets belonged to the hour-glass type. The cuff curves rather sharply outwards and



Fig. 227. Knight on the Leutic pew at Verden.

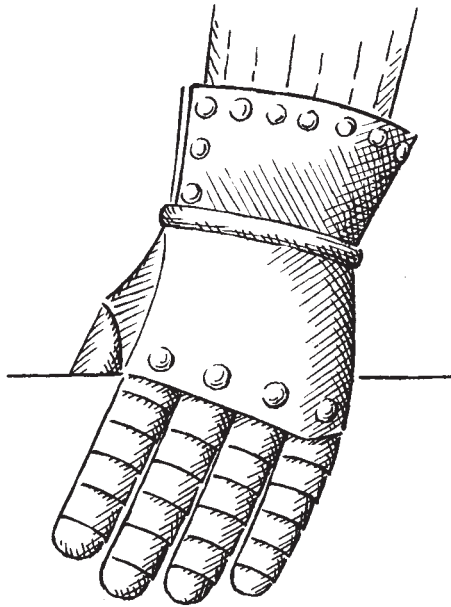


Fig. 228. Gauntlet on the effigy of Günther von Schwarzburg († 1349). In the Cathedral at Frankfort on M.

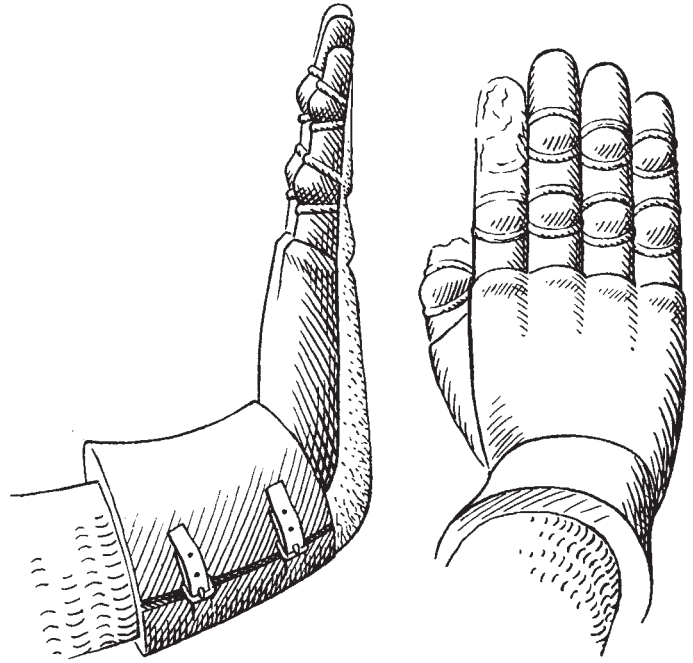


Fig. 229. Gauntlet on the effigy of Berthold von Zähringen. In the Cathedral at Freiburg im Breisgau.

perhaps also the plate of the base of the thumb is made in one piece with the metacarpal plate. This is certainly the case in a very interesting pair of gauntlets on an effigy in the Frari Church, in Venice (fig. 230). The hour-glass shape is fully developed, but the gauntlet is made of four transverse parts overlapping each other. The fingers, however, still consist of small iron scales, even more in number than the Wisby gauntlet 2. The gauntlets on the effigy of Rezzo von Bechlingen (fig. 328) in Bächlingen Church, Württemberg, seem to be a counterpart of the Wisby cuff No. 10. Two narrow plates are inserted between the cuff and the metacarpal plate, the latter probably being made in one piece with the plate at the base of the thumb.

Another monument which is of particular interest to us is the alabaster monument of the Danish Duke Christopher, the son of King Waldemar Atterdag, in Roskilde Cathedral (fig. 107). The young prince had himself taken part in the Battle of Wisby, but died in the year 1363, i.e. two years later, and his effigy on the tomb certainly shows the armour of a noble knight of the time of the battle. The gauntlet (fig. 231) consists here, apart from the fingers, of four parts, viz. a short back plate with arched knuckle-guard, a narrow plate between it and the fingers, a separate plate for the base of the thumb

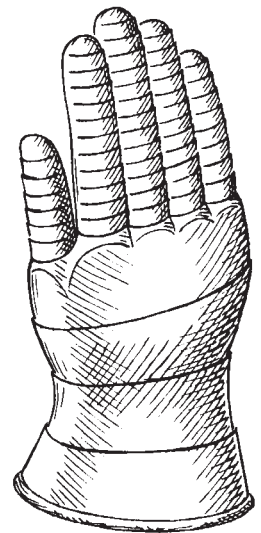


Fig. 230. Gauntlet from effigy in St. Maria degli Frari, Venice.

and a large hour-glass-shaped cuff, which is very wide at its open end. No rivets are visible on the gauntlet. The plates are on the outside of the soft glove; the knuckles of the fingers are protected by plates, which are larger than the usual finger scales, but have no sharp points like, for example, the gauntlets of the Black Prince in Canterbury Cathedral. These monuments, in which the cuffs very closely resemble the Wisby cuff 10, show us, therefore, a development towards the hour-glass gauntlet proper, in which the hand and cuff have merged into a single plate.



Fig. 231. Gauntlet on the effigy of Prince Christopher of Denmark († 1363). In the Cathedral at Roskilde.

Cf. fig. 107.

POSITION OF WISBY GAUNTLETS IN DEVELOPMENT.

Our study of the types and shapes of gauntlets of the 14th century has thus enabled us to distinguish four different stages of development: (1) At the beginning of the century the gauntlet covered with scales, whose relation to the continued development is just as vague as that of scale armour to coats of plates. (2) During the second quarter of the 14th century a gauntlet with a varying number of small plates. Although the armouring is sometimes on the outside and sometimes on the inside of the soft glove which holds it together, there now also occurs direct joining of plates by means of hinges or rivets. (3) During the third quarter of the century the forms are transitional to the hour-glass gauntlet, characterized by fewer plates, the hour-glass shape and the beginning of a merging of the metacarpal plate and cuff. (4) The hour-glass type from about 1370¹⁷³ is characterized by the hour-glass shape and the metacarpal plate, the plate at the base of the thumb and the cuff merging together into a single plate, at first open on the inside of the wrist, afterwards joined there also, like a closed tube or funnel.

The Wisby gauntlets are, like most gauntlets in group 2, of rather different constructions, and it is tempting to arrange them in a series, according to the number and size of their plates, their attachment on the inside or outside of the soft glove, or the direct connection of their different parts. In the same way gauntlets in the Easter Sepulchres on the Upper Rhine could be arranged in a still more obvious order, in which the gradual covering of the mail with iron plates would indicate the direction of the development. But I do not advise applying such a stereotyped method of speculation. What seems to be an organic development, is, sometimes perhaps, only concurrent or local efforts in different directions. It was a period of experiment in the development of armour and that discovered during the excavations at Wisby bears out this statement.

From the point of view of the historical development of gauntlets, it seems, therefore, to be of subordinate importance, whether the iron is attached to the outside or the inside.

These two forms occur at the same time, judging from the available material. The real development seems to be in a direction away from the soft glove as a structural and connecting component, and towards the direct connection of the plates with one another. Towards the end of the century this development reaches its end in a gauntlet made in one piece and on a recognized principle.

In the evolution towards plate or "white" armour, the gauntlets, with other parts of the armour, for instance, knee-cops, vambrace and greaves, have played a considerable part. When the armour was often concealed beneath a surcoat, it is these parts that were the first to receive plate additions. These parts of armour have been of still greater importance in the introduction of structural changes, viz. the hinge and the riveting of the plates to each other, which gave much of its character to the plate armour of the 15th and 16th centuries. No knee-cops were found at Wisby, but we find that hinges were already being used on the shoulder guards. It is in these apparently less important parts that new features first appear.

The gauntlets also seem to be in advance of the fashion of the period in their artistic design. One cannot refrain from drawing the parallel between the hour-glass gauntlets and the narrow-waisted armour which appeared a little later and which soon influenced civilian dress.¹⁷⁴ In both cases it is the same sense of plastic form which finds expression, and it is a question whether it is the development of defensive protection necessitated by war technique which influenced fashion, or the armour which followed the fashion of the time. I shall not discuss here this theoretical problem which is quite distinct from our empirical investigations. But it is clear that changes of technique and fashion first appear in the details before they are able to influence the main features.

How, then, do the Wisby gauntlets stand in relation to the development we have been trying to elucidate? Only the funnel-shaped, almost closed gauntlet cuff No. 10 belongs to the immediate predecessors of the hour-glass gauntlet. All the others belong to the group immediately preceding it. Gauntlet 5, with its large plates over the metacarpus and base of the thumb, and its closed cuff, seems to be very late. The thumb plates on gauntlet 3, riveted to the plate at the base of the thumb, are also remarkable. The question as to whether a gauntlet like No. 2, with its large number of small plates, should be regarded as an antiquated or developed form, must be left undecided. Perhaps a double line of development existed similar to that of armour; one, towards larger plates in rigid combination, and one, towards smaller plates arranged to achieve the greatest possible flexibility. We have not been able to prove the latter line of development in the gauntlets, but this does not mean that it cannot have existed; in which case gauntlet 2 would occupy the same relative position as armour 24. At all events, it is, like Nos. 3 and 4, from a technical and artistic point of view of the very highest quality, while, on the contrary, a gauntlet like No. 1 gives a very clumsy impression. As a summing-up of the Wisby gauntlets, it might be said that some specimens are quite up to date, but the majority may perhaps be regarded as rather antiquated.

HISTORY OF LAMELLAR ARMOUR.

LAMELLAR ARMOUR IN CENTRAL ASIA.

The two main types of construction which we have been able to distinguish amongst the armour found at Korsbetningen, lamellar armour and coats of plates, exerted an influence upon one another relatively late. They have, therefore, behind them different lines of development which must be dealt with separately.

Lamellar construction¹⁷⁵ comes from Asia, where it appears in different forms and materials; it is to be found made of bone in Alaska and in Eastern Siberia; of leather, generally lacquered, in Central Asia, Japan and Persia; of metal in Tibet; and appears sporadically also in other regions. The central area for the later dissemination of the type as an ethnographic phenomenon is undoubtedly Tibet. From here sundry lamellar armour, including a couple of horse accoutrements of this construction, have been acquired for European collections.¹⁷⁶ Helmets of the same or of kindred construction also belong to some of these suits of armour.

The lamellae in these Tibetan armours (fig. 232: 30-44) vary greatly in size and shape, not only between the different armours but also in their place and function in the same suit. Sometimes they are rectangular, sometimes rounded at one or both ends. Occasionally they are small and scale-like, but as a rule they are elongated, 1-2 cm. wide and about 8-12 cm. long. However, they are all alike in that they are perforated according to a system, which in principle agrees with the armour from Wisby (fig. 232: 1), though the perforation is generally more plentiful, so that the group of four holes occurring on our lamellae is usually doubled or even trebled. The external appearance of the armour also varies; generally it reaches to the feet, is open in front and sometimes provided with a kind of sleeve (fig. 233), but at least one specimen, (in the State Ethnographical Museum, Stockholm, figs. 234-238), is scarcely longer than the trunk, and open at both sides, thus exactly corresponding to the Wisby armour 25. These armours supply full information of the method of lacing the thongs in the lamellar type. The holes at one edge of a lamella cover those on the adjacent edge of the next lamella, and so on. Through adjacent pairs of holes thongs are drawn in a zigzag line in such a way that they appear vertical on the outside of the armour, but diagonal on the inside. Occasionally, even on the same armour, the lacing of the thongs is doubled so that the thongs cross each other on the inside, whereas on the

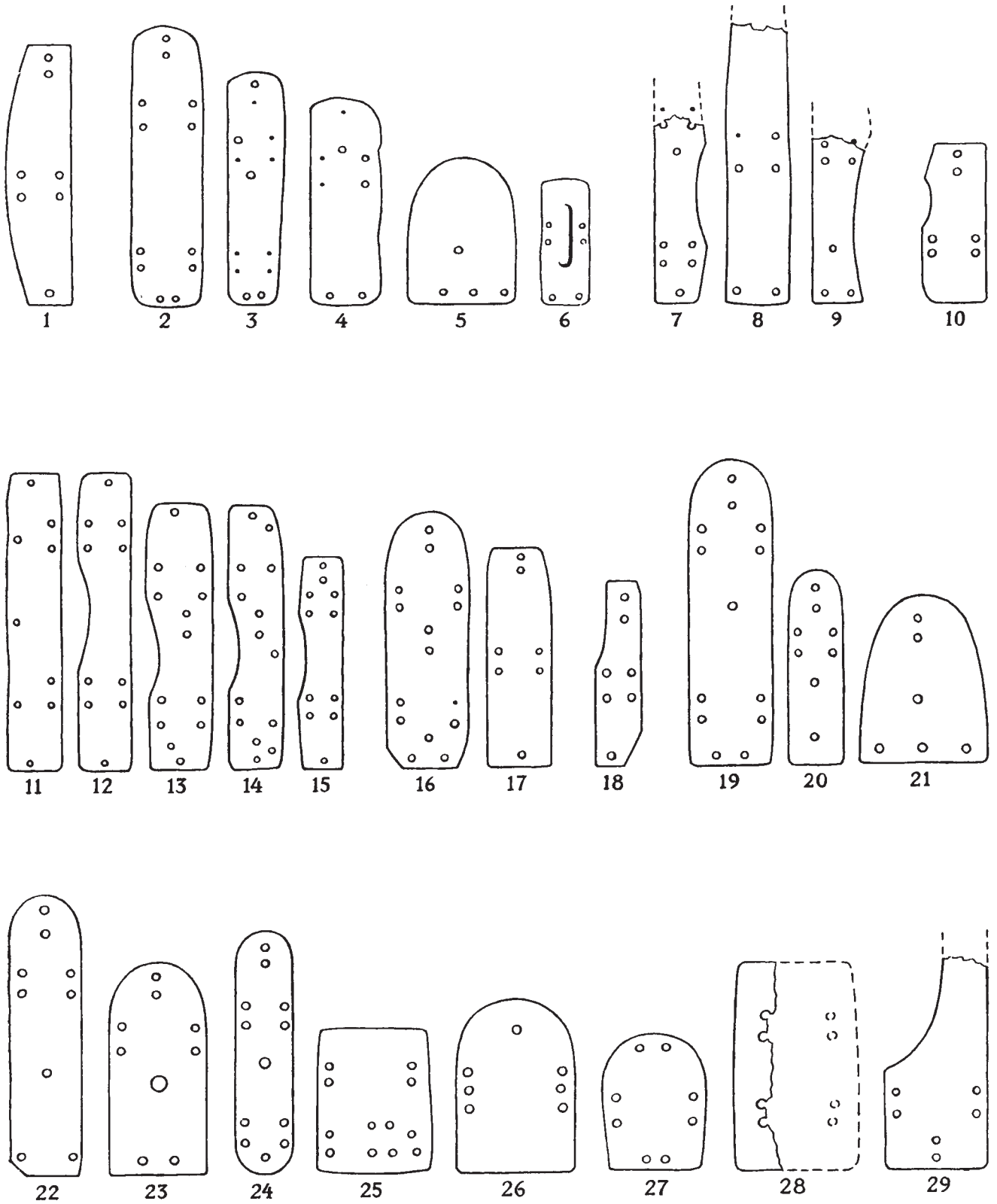


Fig. 232. Types of lamellae. Scale 1:2. For find locality or place of origin, see p. 248.

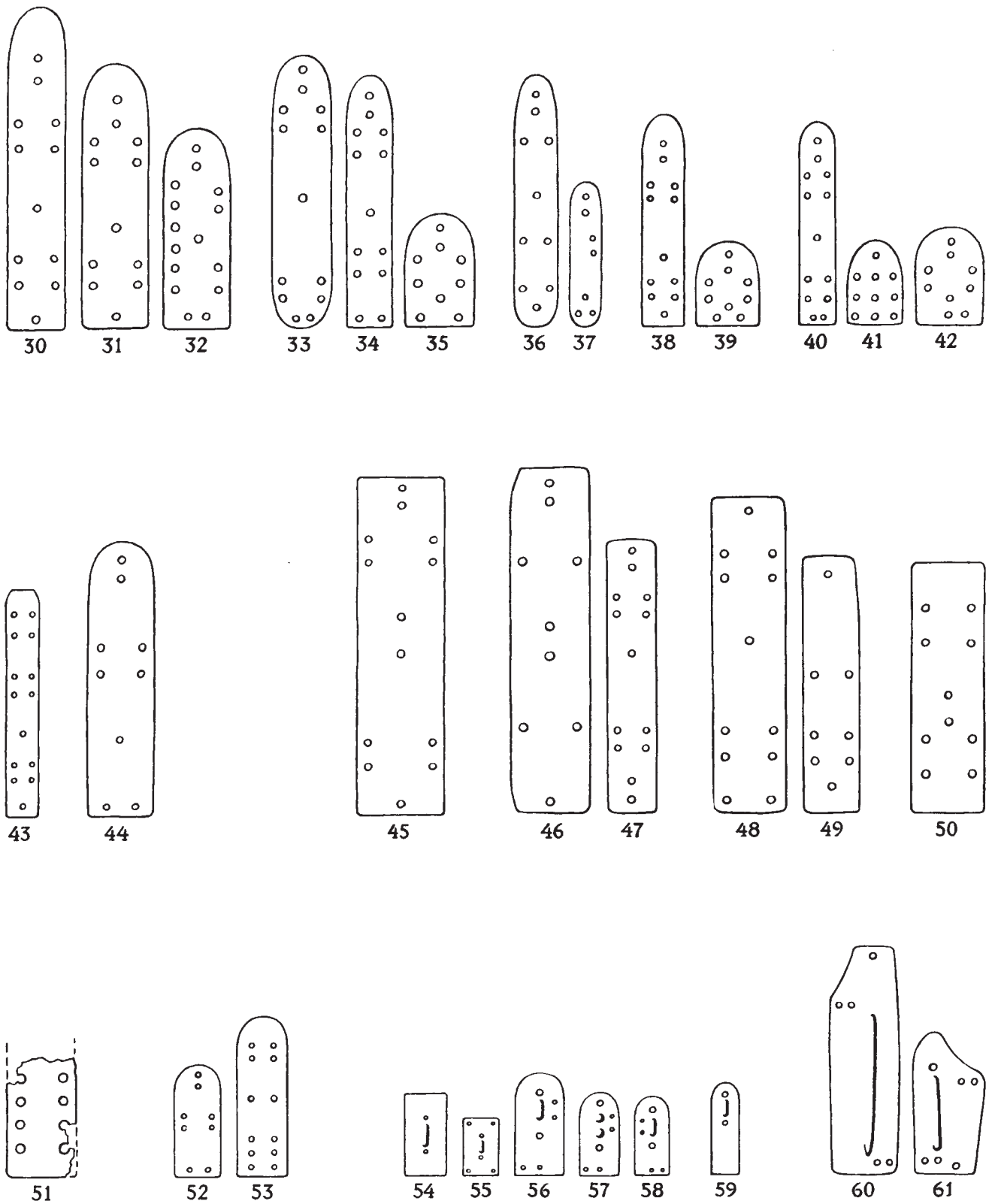


Fig. 232. Types of lamellae. Scale 1:2. For find locality or place of origin, see p. 248.

outside they coincide so that their appearance remains unchanged. Identical methods of lacing could also be observed from traces preserved on the Wisby armour 25 (p. 401). Thongs are also drawn through the holes at the bottom, which hold the lamellae fast to each other. The thongs are pulled tight so as to form firm but flexible units. The rows, again, are loosely joined to each other, the lower one to the one immediately above; this is accomplished by means of a thong which, from a single hole below the centre on the lamellae of the upper row, is pulled through the two holes placed in pairs in the upper end of the lamellae of the lower row, which overlaps the lower edge of the row above. The rows thus always overlap from below upwards. The same method has undoubtedly been employed in the lamellar armour from Wisby, though no traces of this could be observed. As, however, the single hole below the centre found on the Tibetan lamellae, is absent there, it must be assumed that the thong which held the two rows together, passed through the lowest hole in the upper row of lamellae, and, therefore, it held together the two rows and the separate lamellae in the upper row at the same time (fig. 199). This assumption is fully confirmed by the picture of a Sassanian armour, which we shall mention below, where the arrangement of the holes corresponds to that on the Wisby lamellae (fig. 255).

The Tibetan armours that have been preserved cannot be more than a few hundred years old. The one now in Stockholm had been used in battle by its last owner as late as this century (fig. 235). That lamellar armour belonged, however, to Tibetan culture for a very long time, is seen not only from its being so firmly established there and so widespread but also from a devotional ivory plaque in the Victoria and Albert Museum (Indian Section) in London, acquired at the Shigatse Monastery during the British Mission to Lhasa in 1904, dated to before the 15th century. Several figures occur in it which without doubt are clad in armour of this type.

Lamellar constructions which are clearly akin to the Tibetan ones, but which differ in some respects, are known from the still independent tribes which inhabit different parts of the Chinese province of Sze-chuen, to the east of Tibet. In the Wassu district W. Stötzner acquired suits of armour¹⁷⁷, composed of leather lamellae (figs. 239–241). In each row the lamellae are laced together in the same way as the Tibetan ones, from which they differ in the joining together of the rows. While the thongs which connect one row

Fig. 232. Find localities or places of origin:

(1) Common graves, Wisby. (2–6) Birka, Sweden. (7–9) Castel Trosino, Italy. (10) Kunszentmárton, Hungary. (11–15) Kertch, Crimea. (16–17) Dchitigarinsk, Western Siberia. (18) Kasr-i-Abu Nasr, Iran. (19–21) Turfan. (22) Khara khoto, Etsin gol. (23, 25) San Pao, Chinese Turkestan. (24) Chiktam, Turkestan. (26) Niya, Turkestan. (27) Khara khoto, Etsin gol. (28, 29) Wayen torei, Etsin gol. (30–32) Dergé, Tibet. (33–35) Gyantse Monastery, Tibet. (36–37) Tibet. (38, 39) Niari, Tibet. (40–42) Tibet. (43) Tibet (Darjeeling, India). (44) Tibet. (45–50) Siberia (Chukchian). (51) Naiman, Eastern Mongolia. (52–53) Province of Izu, Japan. (54–58) Idalion, Cyprus. (59) Amathus, Cyprus. (60, 61) Lisht, Egypt.—1–6 in the National Museum of Antiquities, Stockholm. 22, 27–29 in the Eastern Asiatic Collections, Stockholm. 38–39 in the Ethnographical Museum, Stockholm. 54–59 in the Cyprus Collections, Stockholm. 40–42 in the British Museum, London. 30–35, 43 in the Victoria and Albert Museum, India Dpt., London. 44 in the Museum für Völkerkunde, Hamburg. 7–9 in the Museo Nazionale, Rome. 10 in the Museum at Szentes. 45 in the National Museum, Helsingfors. 19–21, 36, 37, 46–49 in the Museum of Anthropology and Ethnography, Leningrad. 50 in the Russian Museum, Leningrad. 11–15 in the State Historical Museum, Moscow. 16, 17 in the Museum at Orenburg. 23–25 in the Chosen Museum, Seoul. 18, 52, 53, 60, 61, in the Metropolitan Museum, New York.—24, 25, 28 of raw-hide, lacquered. 26 of green leather. 50 of bone. 52, 54, 55 of bronze. 60, 61 of copper; all the remaining ones of iron.—Dots mark reconstructed holes that had probably been obscured by rust.—Cf. additions fig. 427.

with the other in the Tibetan armour usually run horizontally, or rather back and forth between two adjoining rows, in the Wassu armour they run vertically, from the top downwards, from row to row. These vertical thongs hold the rows in such a way that, coming from the top from the outside of the lamella, they are passed through a hole near the upper edge or in the centre of the lamella. On the inside, the thong engages another running horizontally or with a more or less horizontal direction, runs out on to the outside through the same hole, and continues to a lower lamella, where the same process is repeated, and so on (fig. 241). The armour has, as is often the case with the Tibetan ones, the form of a long coat open in front and with two separate cape-like parts over the arms. The warlike Lo-lo tribe in Southern Sze-chuen has armour which is closely akin to the Japanese.¹⁷⁸ The upper part, which consists of big plates, is provided with a skirt of leather lamellae similar to those just described, and joined together on the same principle.

Far older proofs of the occurrence of lamellar structure exist from Turkestan. Iron lamellae, exactly corresponding to the Tibetan ones in size and perforations, have been found in the neighbourhood of Turfan (fig. 242)¹⁷⁹ together with lamellae of a wider and more scale-like form, which nevertheless show the same system of perforation (fig. 232: 23, 25). One edge of the rows of lamellae is here bound with cloth or leather (figs. 242, 243). These finds are, as far as I know, not datable exactly, but are probably of approximately the same age as some similar lamellae (fig. 232: 22) found by Folke Bergman in the neighbourhood of Etsin gol, in the Gobi Desert, and dated to the 10th–14th centuries.¹⁸⁰ A series of chronologically well-authenticated finds (fig. 232: 26) and illustrations of lamellae from still older armour (fig. 244) have been found, chiefly through Sir Aurel Stein's researches in the ruins of Turkestan.¹⁸¹ Amongst the large collection of painted silk cult-banners from about the middle of the 9th to the end of the following century, which were found in a cave temple near Tun-Huang, south-east of the Gobi Desert, several representations of lamellar armour



Fig. 233. Tibetan lamellar armour. Cf. fig. 232: 36, 37. Museum of Anthropology and Ethnography, Leningrad.

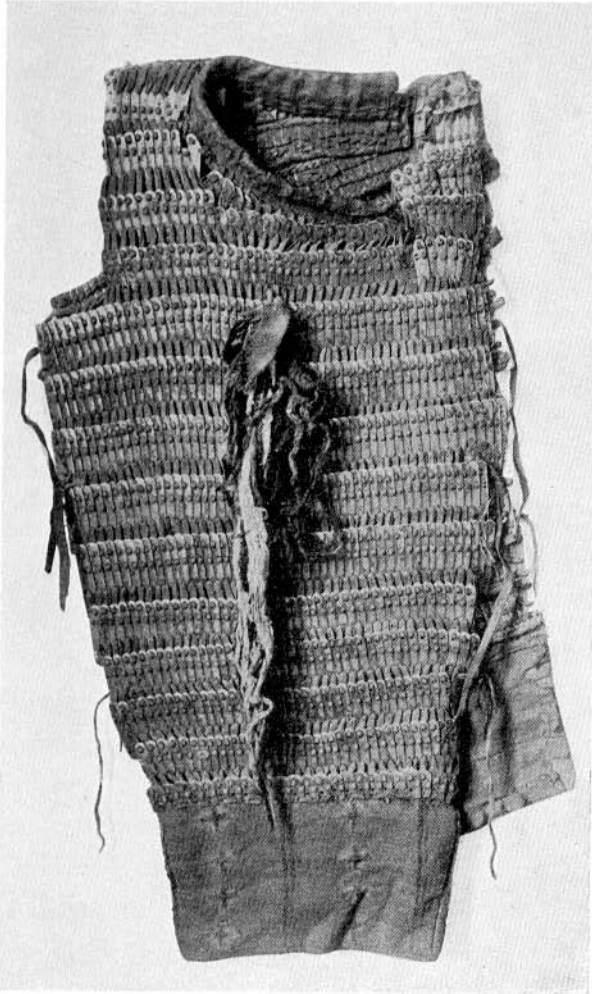


Fig. 234. Tibetan lamellar armour. Cf. fig. 232: 38, 39. Ethnographical Museum, Stockholm.

and a few quite similar lamellae (fig. 232: 25) and also lacquered leather lamellae of ordinary elongated form (fig. 232: 24), through which cords had been drawn according to the Tibetan system, all from northern Turkestan, are stored in the Chosen General Museum.¹⁸⁵ This indicates that we must reckon that at least some of the above illustrations represent armour of this material.

Lamellae of a somewhat different form with two bowed projections on the free long side can be seen on some stucco reliefs from the 8th to 10th century (fig. 247). In the centre of each projection there is a hole. No fastening with thongs is visible, and it may be doubted whether this represents actual lamellar construction. The narrow bands which are drawn between the rows of lamellae may very well indicate another system for joining them together. Several such figures, drawn in a more summary fashion, have been found in a temple at Kara-shar, to the west of Turfan¹⁸⁶; these figures were also wearing helmets of the same construction. The armour almost reached to the heels and was open in front and provided

occur. As a rule only the lower, skirt-like part is of this construction (fig. 245)¹⁸², but armour entirely of lamellae also occurs (Ch. XXVI a. 004, *Serindia* pl. LXXV).¹⁸³ The lacing of the thongs appears most clearly on Ch. lv. 0020 (fig. 244: 4, *Serindia* pl. LXXXIV), where they are drawn vertically between the holes as in the Tibetan armour. Here not only the skirt but also the shoulder guard are composed of lamellae. The same occurs on Ch. 0095 (*Serindia* pl. LXXXII), where there are also greaves of lamellar construction. Otherwise the lamellae are usually made with a little projection¹⁸⁴ at the top towards one side (fig. 245). I know of no counterpart to this in original lamellae. An armour with a lamellar skirt is also to be found on a paper print from the same place, dated 947 A. D. (fig. 244: 6, *Serindia* pl. C). Whole armours of broader, almost square, lamellae can be seen on the banner Ch. 0018 and Ch. XXXVII. 002 (fig. 244: 1, 2, fig. 246, *Serindia* pls. LXXII and LXXIII).

Original lamellae of the latter kind made of lacquered leather have been dug up by Stein on the site of the Tibetan fort of Mirān, just south of Lop-nor, probably from the first half of the 9th century (*Serindia* p. 470, pl. L),

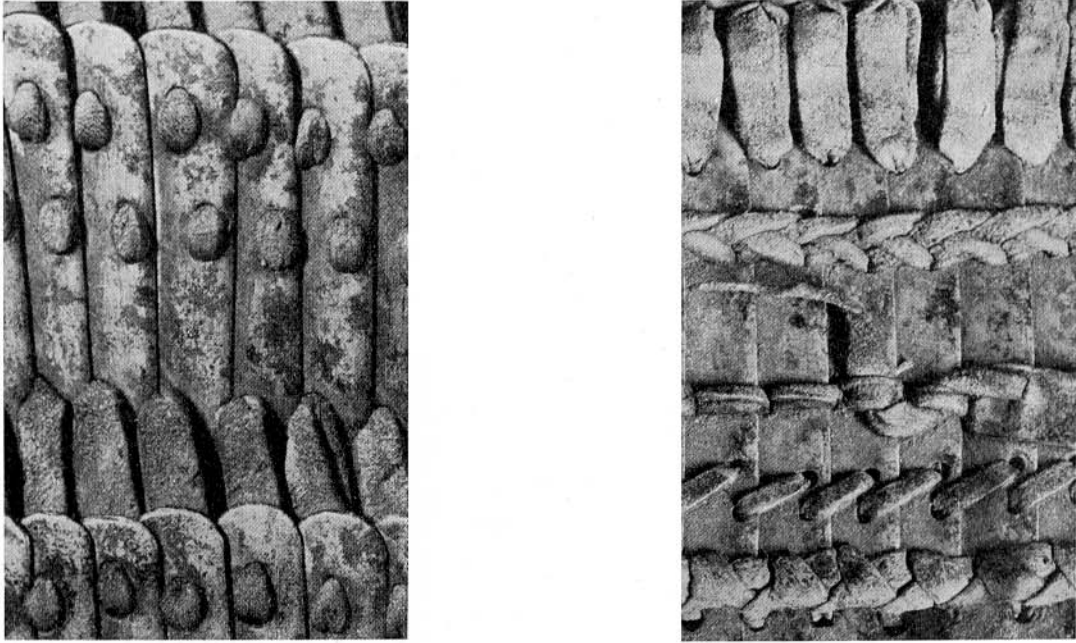
with sleeves. Similar armour is also worn by a figure on a larger scale from Dandān-Uiliq in southern Taklamakan (fig. 248).¹⁸⁷ But here only the lower part of the armour is of this construction, while the part above the waist shows rows of up-turned scales. The latter construction, which is sometimes also found on representations from Tun-Huang¹⁸⁸ and in Gandhara art¹⁸⁹, was compared by Stein in 1907 with Tibetan lamellar armour¹⁹⁰, though from a somewhat incomplete knowledge of it. Whether a real connection exists, or whether we have to do with another construction, I will not venture to decide, since the method of its being joined together is not certain. They are very reminiscent of the Wassu armour



Fig. 235. Armour fig. 234 in use. Niari, Tibet.

(fig. 239), especially the one in Hamburg, and it is, therefore, probable that we have to do with a lamellar construction of leather. Of course, scale-like lamellae occur, but on the other hand pure scale armour with the scales turned downwards also occurs amongst the Central Asiatic representations, and these at present we have no right to associate with the lamellar structure. Perhaps we have here a hybrid form between the two.

Some sporadic finds carry, however, the lamellar structure in Central Asia right back, to the beginning of our era. Amongst the ruins of Niya, far into the Taklamakan Desert whose culture does not seem to have survived the third century A. D., Stein has found a number of leather lamellae (fig. 232: 26), some of an elongated form with the typical perforations (*Serindia* p. 246), and one scale-like (*Ancient Khotan* p. 411). Still older ones (on the whole the oldest iron lamellae I know of) are those which Folke Bergman dug up in the Etsin gol area, on three different sites, in ruins of Chinese frontier fortresses (fig. 232: 27-29).¹⁹¹ Thanks to a wealth of written documents found there, the occupation of the place can be dated to the two centuries round about the birth of Christ. The lamellae are



Figs. 236, 237. Details of armour fig. 234. Outside, inside. Scale about 1:1.

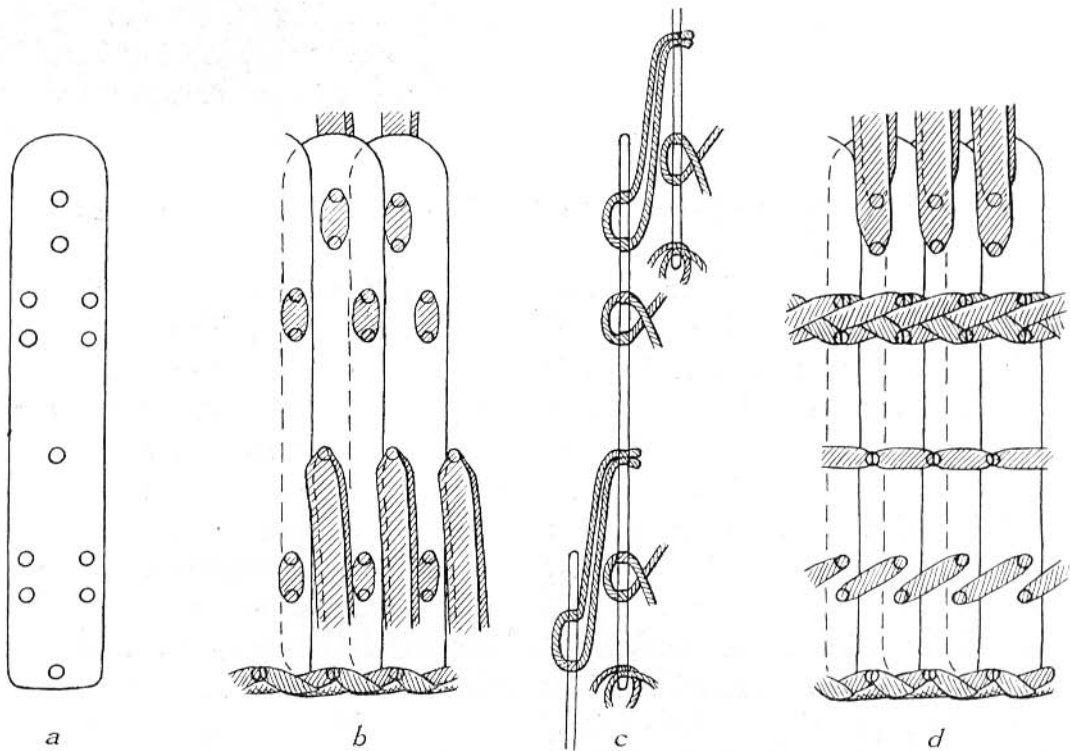


Fig. 238. Diagrams showing the details in figs. 236 and 237; (a) perforation of lamellae; (b) outside; (c) longitudinal section; (d) inside. Scale about 1:1.

partly in scale form and partly elongated, with bowed notches and projections. Also fragments of a perforated black lacquered leather lamella have been found there (fig. 232: 28).

The area over which lamellar armour is spread in Central Asia extends, however, farther to the north and north-west. A very interesting literary account of the manufacture of a Tartar lamellar armour in Mongolia occurs in Johannes de Plano Carpini's account of his voyage to the Court of the Great Khan at Karakorum in 1246¹⁹²: "...Howbeit some of them have all their foresaide furniture of iron framed in manner following. They beate out many thinne plates a finger broad, and a handful long, and making in every one of them eight little holes, they put thereunto three strong and streight leather thongs. So they ioine the plates one to another, as it were, ascending by degrees. Then they tie the plates vnto the said thongs, with other small and slender thongs, drawn through the holes aforesayd, and in the vpper part, on



Fig. 239. Armour of leather lamellae from Szechuen. Museum für Völkerkunde, Dresden.

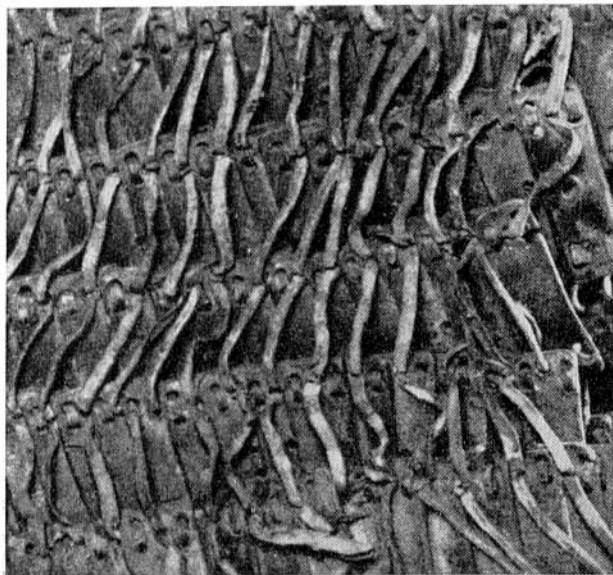


Fig. 240. Detail of armour fig. 239. Outside.

each side therof, they fasten one small doubled thong vnto another, that the plates may firmly be knit together . . ." Similar harness was also made for the horses; but as a rule, according to Johannes, the Tartar armour was made of leather.

This account is beautifully illustrated by some miniatures in a manuscript by Rashidud-Din, made in Tabriz in 1306-12, one of the very few cases where the armour of the Mongols has been distinctly and clearly depicted.¹⁹³ There is no doubt that five of the warriors in the picture here reproduced (fig. 249) are wearing lamellar armour, though

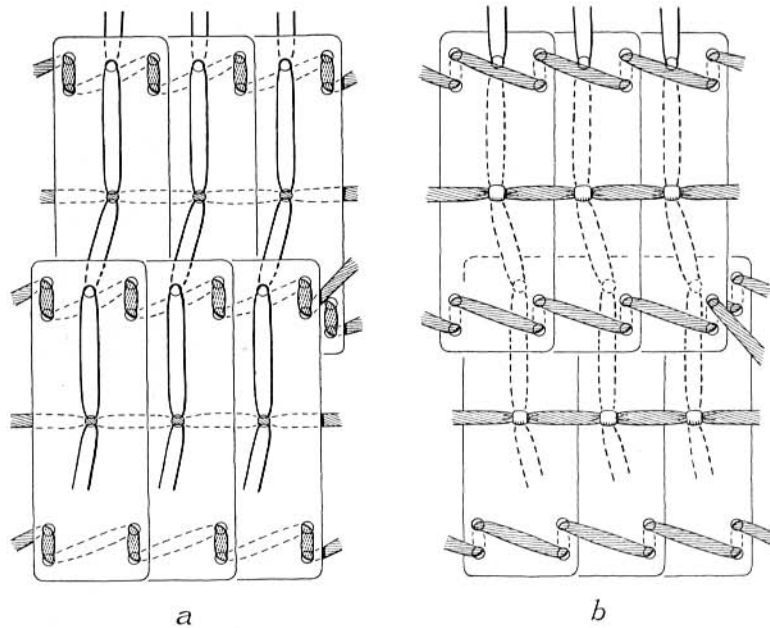


Fig. 241 a, b. Sketches showing the construction of the upper part of the armour fig. 239. Scale 1:2.
(a) Outside. (b) Inside.

the rows, as in the later Japanese armour, overlap from top to bottom. Only the horseman in the middle and the warrior second from the left wear armour of another kind—perhaps with iron plates sewn in, which we find mentioned in other places.¹⁹⁴

Considerably older, from the days of the Migration Period is a rock-carving from Suljek near the source of the River Yenissei, in Southern Siberia (fig. 250).¹⁹⁵ It represents a man on horseback whose armour is marked by short vertical lines, a primitive technique which nevertheless gives a realistic impression of lamellar armour. That such is really intended is confirmed by the pointed helmet, which we find again in precisely the same characteristic form on Chinese grave figurines from about the same epoch (fig. 254), and with lamellar armour amongst the Asiatic peoples (fig. 251). From what Professor A. M. Tallgren has suggested, the picture would represent an Avarian horseman, an assumption which is strongly supported because this people, as we shall find further on, evidently brought lamellar armour with them westward.

THE ARCTIC LAMELLAR ARMOUR.

Farther to the north-east, amongst the Siberian Chukchies and the Koryaks, iron

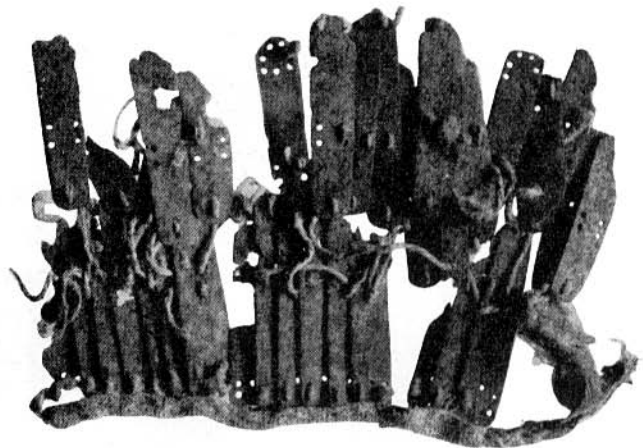


Fig. 242. Find of iron armour lamellae from San Pao, Chinese Turkestan. Scale about 3:10.

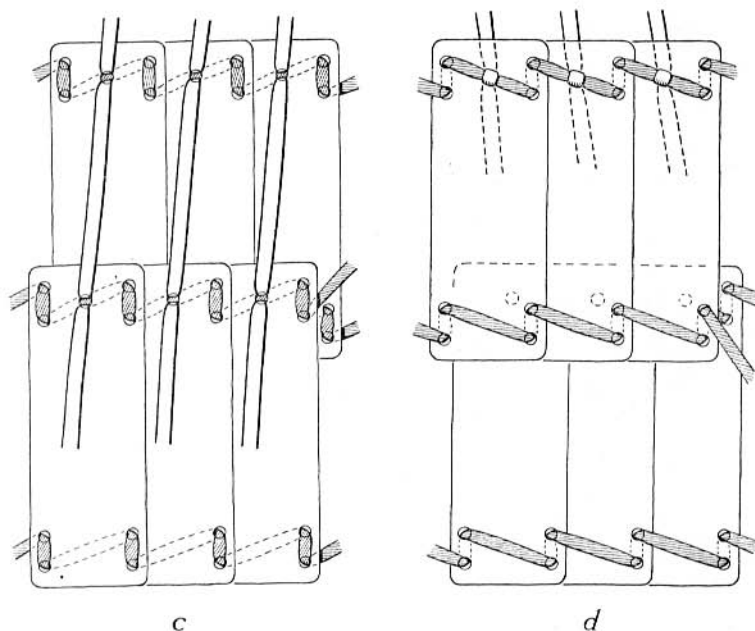


Fig. 241 c, d. Sketches showing the construction of the lower part of the armour fig. 239. Scale 1:2.
(a) Outside. (b) Inside.

armour made of lamellae occurs, whose perforation corresponds to that of the Tibetans (figs. 232: 45-49, 251).¹⁹⁶ These armours consist of seven or eight rows of lamellae which pass round the waist and open on one side. The upper part consists of leather. The construction differs from the Tibetan armour in so far as the lamellae do not overlap sufficiently for the holes on adjacent lamellae to coincide. The thongs are therefore drawn horizontally from one lamella to the next and make short, horizontal lines over the edges of the lamellae on the outside. The principle of the joining together of the rows, on the other hand, is the same. Helmets of similar construction belong to these suits of armour.

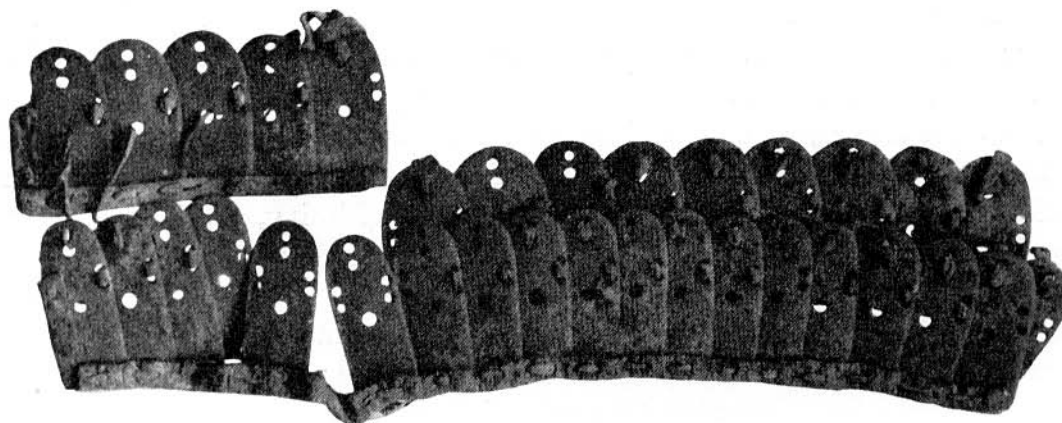


Fig. 243. Find of iron armour lamellae from San Pao, Chinese Turkestan. Cf. fig. 232: 23.
Scale about 3:10.

Several iron lamellae from armour have also been found at Cape Prince of Wales, in Alaska.¹⁹⁷ These are, however, slightly broader than the normal ones, and the perforation is somewhat different, in that they only have six holes, three evenly spaced along each one of the long sides. An extra hole in the middle of one of the lamellae shows that the rows were joined together by the same method as in the suits of armour previously described, though with fewer thongs. The separate lamellae have been joined together with thongs running transversely in the same way as in the Chukchi armour. This example forms a natural transition to the lamellar armour of bone and ivory, which comes from the same arctic region as the iron lamellar armour (figs. 232: 50, 252).¹⁹⁸ The bone and ivory lamellae are generally much larger owing to the nature of the material—on one of the armours in the

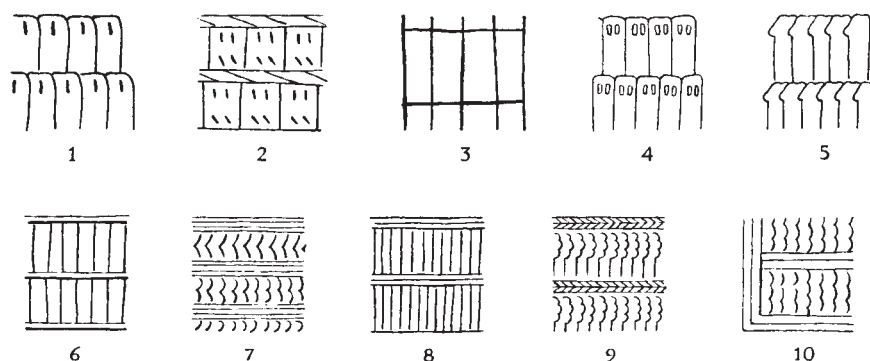


Fig. 244. Details of lamellar armour on figures from Turkestan. (1, 2) Silk paintings; (3-5) silk banners; (6) paper print from Tun-Huang. (7) Mural painting in the Nâgarâja Cave, near Qyzyl; (8, 9) in the temple at Bâzâklik; (10) in Hall E at Murtuq. (1) Ch. 0018. (2) Ch. xxxvii 002. (3) Ch. xxvi a 004. (4) Ch. lv. 0020. (5) Ch. lv. 0046. (6) Ch. 00158.

Helsingfors National Museum the length of some of the lamellae is as much as 41 cm. The perforation occasionally resembles the free arrangement of that of the iron lamellae from Alaska, but sometimes approaches more closely the stricter Tibetan system. As regards the joining of the rows, it happens that these are laced together directly edge to edge, and that they are held together by means of suspension according to the system of the Tibetan armour, though with fewer thongs. Also the joining of the separate lamellae is generally, but not always, done like that of the Arctic iron armour, with horizontal thongs; the one in the Russian Museum at Leningrad follows the Tibetan system in this respect with vertical lacing. With its small lamellae, its system of lacing, and its perforation with two groups of four holes in each lamella, this armour has the appearance of a copy in bone of a Tibetan armour. The opening of this armour is in the middle of the back, although it is generally on one side. It is possible that this bone armour also spread further west within the arctic region, for the one in the Viborg Museum was acquired from a merchant who had commercial relations with Olonets and Far Carelia.

As the Arctic peoples, who, even towards the end of last century retained a Stone Age culture, used and preserved iron armour, so, during the centuries round about the birth of

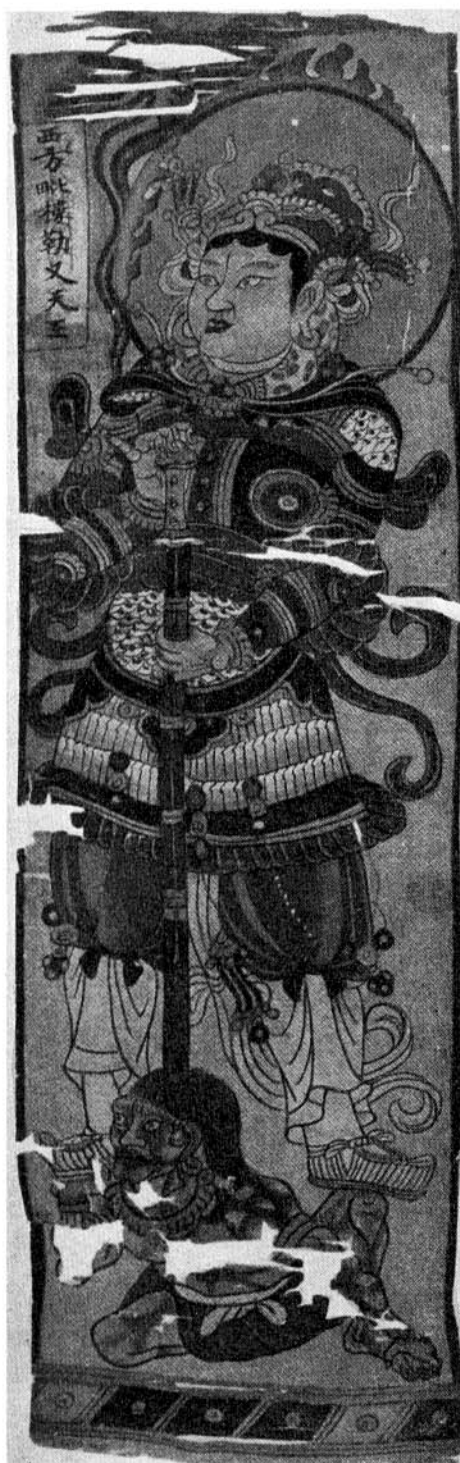


Fig. 245. Lokapāla with combined scale and lamellar armour. Cf. fig. 244: 5. Silk banner from Tun-Huang (Ch. lv. 0046).



Fig. 246. Demon in armour of leather (?) lamellae. Cf. fig. 244: 2. Detail of silk painting from Tun-Huang (Ch. xxxvii. 002).

Christ, the hostile northern neighbours of the Chinese, Tong Hou, probably the ancestors of the Tunguses, wore lamellar armour of iron during their Stone Age stage. Fragments of such have been found by the Japanese investigators R. and K. Torii on deserted Tungus dwelling places, especially in the Shira Mouren area.¹⁹⁹ To judge from one of the fragments depicted by them (fig. 232: 51), the lamellae had a row of closely placed holes along both long sides.

LAMELLAR ARMOUR IN CHINA AND JAPAN.

In the later Chinese armour, which is always of the coat of plates type, only faint traces of a lamellar structure have been preserved²⁰⁰; on the skirt some rows of narrow plates of about the size of normal lamellae appear, generally in slits in the covering.²⁰¹ But these are always riveted to the cover and have no thongs



Fig. 247. Stucco figure of warrior in helmet and armour. From Kara-sar, Chinese Turkestan. British Museum.

(figs. 294, 295:2). That lamellar armour occurred previously in China, is seen from numerous older illustrations.²⁰² Its greatest period seems to have been under T'ang and Ming, though it probably survived into the 17th century. Armour of this construction was also used for horses.²⁰³ The literary documents on the development of Chinese armour have been exhaustively dealt with by Berthold Laufer.

In Chinese pictorial art, representations of lamellar armour are not so numerous as those from Turkestan. On the grand relief tablets which decorate the famous gate in the Nan-k'ou Pass in Chili²⁰⁴, dated 1345, several figures occur wearing lamellar armour, yet without any thong construction being visible. It is the same with the figures on a marble slab from the T'ang period in the Field Museum, dug up in the neighbourhood of Hien-yang in Shen-si.²⁰⁵ Earlier thong-lacing is depicted on the great stone panel from the mausoleum of the Emperor T'ai Tsung²⁰⁶, erected 637 A. D., now in the University Museum at Philadelphia (fig. 253). Below a long outer dress of cloth, the lower part of a lamellar armour is visible, open in front, reaching half way down the shins. The rows of lamellae overlap from below upwards, and at the top of each lamella there is a thong like a short vertical line. The most distinct Chinese lamellar armour belongs to the same period. This is in a painting by the artist Wei-chih I-seng, who was active in the beginning of the 7th century, and represents an enthroned Vaisravana.²⁰⁷ The chief figure wears a long armour open in front,

its lower part showing lamellar construction while the upper part consists of scale armour, exactly the same as in several paintings from Tun-Huang (fig. 245). As in the latter the lamellae have a small protuberance at the top on one side. These similarities with the Turkestan pictures can be explained by the fact that the artist was born at Khotan. It may, therefore, be rather doubtful whether this picture can be considered to represent a Chinese type of armour; the lacing of the thongs is arranged in the same way as on the relief from the T'ai-Tsung Mausoleum.

Another group with representations of lamellar armour is to be found on several small funerary statuettes of fired clay from the middle of the 6th century (fig. 254).²⁰⁸ These recur in quite a stereotyped form and show armour open at one or both sides and held together with straps over the shoulders. The lamellae are as a rule broader than ordinarily, and are especially characterized by an incised line running along the longitudinal axis of the lamella. These lines are probably meant to mark the thongs which according to the Tibetan system hold one row of lamellae to the other. Even helmets composed of lamellae occur. In Korea, too, the lamellar construction seems to have been known, to judge from a find from a grave belonging to the 4th or 5th century, which was found at Kyung ju.

The lamellae were “of gilt bronze, 1 1/4 inches wide and 9 1/2 inches long, with holes for lacing them together at each end and in the middle”; they appear thus to have been double the size of the type usually found in Central Asia. Also pieces of a wide breastplate of gilt bronze were found in the same grave.²⁰⁹

In contrast to conditions in China, lamellar construction has been preserved in Japan right up to the present time though in a very degenerate form.²¹⁰ Japanese armour is mostly, sometimes entirely, built up on the lamellar system. In most cases the separate lamellae have grown into elongated plates, which nevertheless show their origin by their form and shape. This is always, however, most clearly seen from the lacing of the thongs or bands; the Tibetan system of joining the rows is always used. On the outside of the lamellae the thongs or silk ribbons sometimes appear vertically, as on the Tibetan armour, and sometimes diagonally or crossed. The original agreement of the perforations with the Tibetan armour can be best observed on the fragments of very primitive armour from the 9th–11th century, which are known (fig. 232: 52, 53). These lamellae, some of which are very small and scale-shaped, are all metal, while the later armour is lacquered iron or leather.

From this survey we have found that lamellar construction spreads throughout Central, Eastern and Northern Asia, with offshoots across the Bering Straits into Alaska. It occurs earliest in Turkestan and in the western and northern frontier districts of China. This agrees with the fact that the construction typologically becomes more and more degenerate the farther east it is found.²¹¹ This concurs with the conclusion which Laufer has already reached, that the lamellar armour was adopted in China from a prototype of the warlike neighbouring people with which the Chinese were constantly fighting during the centuries round about and after the birth of Christ, struggles which also caused the Chinese to alter their entire system of warfare, chiefly with respect to cavalry.²¹² It is also clear that the flexible lamellar armour is particularly suitable for equestrian armour. It is, therefore, surely not merely due to chance that the oldest lamellar finds are from Chinese frontier fortresses built as a protection against the mounted hordes of Central Asia, no matter whether these remnants are derived from booty taken from the latter or from Chinese armour, copied from them.

Historical evidence also confirms this conception. The Chinese historian Se-ma Ts'ien († c. 85 B.C.) relates that the Huns were all armoured horsemen²¹³, and a Chinese record from the year 262 A. D. states that the tribe Su-shên, which was probably Tungusian,

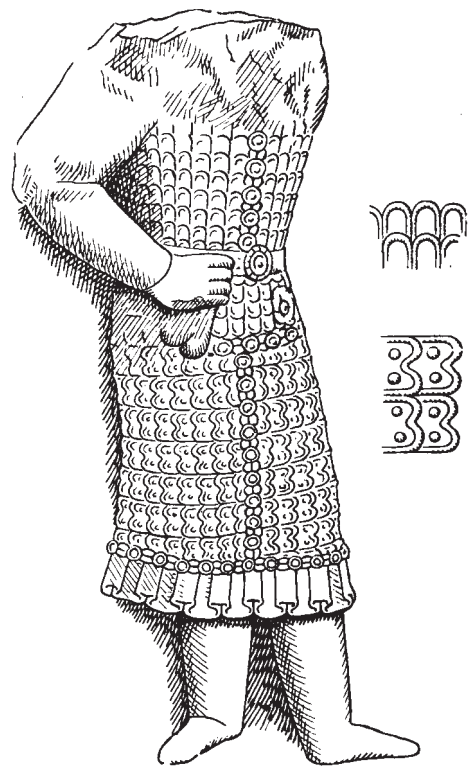


Fig. 248. Stucco relief of Lokapāla in armour; from Dandān-Uiliq, Chinese Turkestan.

paid the Emperor of China a tribute which consisted, among other things, of twenty suits of armour of leather, bone and iron.²¹⁴ It may be considered quite certain that at any rate the bone armour was of lamellar construction, in which case the others were surely also of the same kind.

This must not, however, be interpreted that we should look for the origin of lamellar armour in the Arctic bone armour.²¹⁵ The oldest known iron lamellae, from Etsin gol, is characterized by a grouping of the holes indicating a complicated system of lacing, which must be the result of a long period of evolution. It would be highly improbable that such evolution had already occurred on Central Asiatic or Eastern Siberian soil before the birth of Christ. It would be contrary to the trend of normal historical evolution to assume that the primitive Arctic peoples, who as late as the 'eighties of last century had not risen above the Stone Age culture, two thousand years earlier should have been capable of an invention which in the course of a few centuries, had spread from the extreme East far into Europe.²¹⁶ On the contrary, one may, without risk, assume that the lamellar armour was transmitted by the Central-Asiatic horsemen to the Arctic tribes and also to China and Japan. That it did not, as older investigators have assumed, originate from the Japanese²¹⁷, is seen from the fact that its appearance there cannot be proved until the 9th century at the earliest, and that in earlier periods other forms of armour seem to have predominated.²¹⁸

LAMELLAR ARMOUR IN WESTERN ASIA.

Even if Central Asia formed the centre for the spread of lamellar armour eastward, this does not prove where the construction originated. Before we consider this we must make a survey of its occurrence in Western Asia and Europe. While lamellar armour, as far as



Fig. 249. Mongols in armour. Miniature in Rashidu'd-Din's History of the World, painted in Tabriz 1306-12. R. Asiatic Society, London.

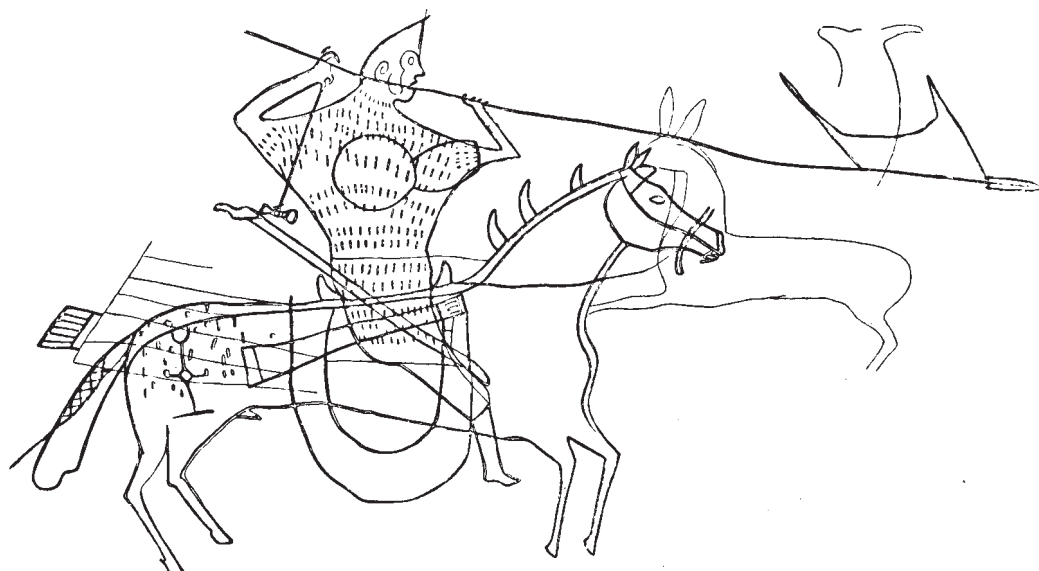


Fig. 250. Avarian (?) warrior clad in armour on rock-carving from Suljek, Southern Siberia.

is known, is altogether absent from Indian culture, there exist several proofs of its occurrence in Iran. An extremely detailed representation of a horse-armour of this construction is to be found on the famous relief on the monument of Chosroes II at Taq-i-Bostan dating from about 620 A. D., which has been more accessible for research by detailed photographs taken by His Royal Highness Crown Prince Gustaf Adolf of Sweden (fig. 255).²¹⁹ The front part of the king's horse, the celebrated Shabdaes, is covered with lamellar armour, decorated with large tassels. The lamellae are arranged in rows, of which the lower seven run horizontally, while the upper rows turn upwards round the neck of the horse. The lower rows are constructed in exactly the same manner as the Wisby armour 25; the row below slightly overlaps the row above, and every lamella has two holes at the top, four holes in the middle and one hole at the bottom, through which the connecting thongs were laced in such a way that, on the outside, they appear as short vertical lines similar to the Tibetan system. Even the shape, with one edge convex, is similar to the Wisby lamellae. As a matter of fact, these two armours actually resemble each other in the method of lacing more than all the other lamellar armours I know. The upper curving rows are reversed in relation to those below; the upper rows overlap the lower one, and consequently, the end of the lamellae with two holes must be at the bottom instead of at the top as in the others. It is not quite clear how the curved upper rows are joined to the straight lower ones. The whole arrangement of the armour coincides closely with the representation of a Chinese horse-armour.

A very large coherent piece of lamellar armour from the same period has been brought to light by an American expedition from Metropolitan Museum, working in the Sassanian fortress of Kasr-i-Abū Nasr, near Shiraz.²²⁰ The armour (figs. 232: 18, 256) was found on the top of the fortress. It lay under the debris of a partition-wall only 70 cm.

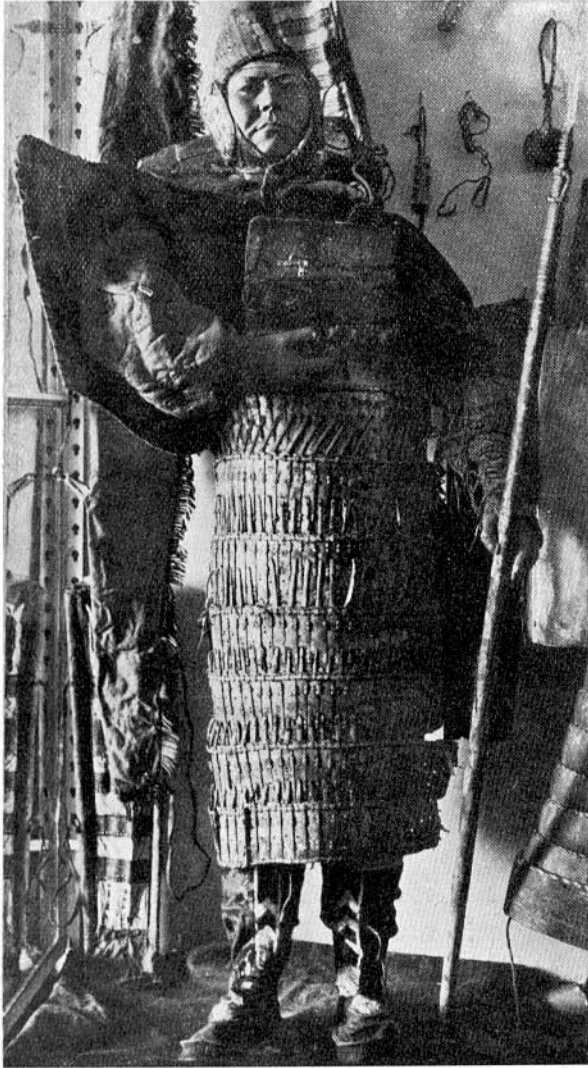


Fig. 251. Chukchi iron lamellar armour. Cf. fig. 232: 48, 49. Museum of Anthropology and Ethnography, Leningrad.

below the surface of the ground. There were no signs of bones with it. Its position at the summit of the fortress near the centre and close to the surface of the hill would seem to date it late in the Sassanian Period near the time when the fortress was abandoned. It can therefore be said to be very nearly contemporary with the Taq-i-Bostan relief, i.e. in the reign of Chosroes II or his immediate successors. The lamellae are rather small, only about 6.5 cm. long, but the perforation agrees exactly with that on the Shabdaes' armour. The upper part of one long side shows a concave notch.

Lamellar armour is also depicted on a couple of Sassanian silver bowls in the Hermitage at Leningrad.²²¹ One of these, which, according to Arendt, dates from the 8th century and represents a Turkish horseman, is rather summarily drawn. The other (fig. 257), from the 5th or 6th century, shows two Persian warriors in armour reaching to the knees, and open in front, the lamellae fully agreeing with those on the somewhat later stucco figures from Kara-shar and Dandān-Uiliq in Turkestan (figs. 247, 248). Nevertheless, the dot in the centre of the lamellae's protuberances is lacking here, while on the other hand the thongs between the rows of lamellae

are provided with rows of dots.²²² Both warriors wear pointed helmets of lamellar construction, with peculiar upright ear-flaps.

In later Iranian miniatures, pictures of lamellar armour are to be found fairly frequently²²³, from which it is apparent that the few earlier specimens from this area, which are known at present, cannot be exceptional cases.

This is confirmed by a find which was unearthed at Dura-Europos, during the excavation season 1932-1933.²²⁴ In the bottom chamber of one of the towers of the city wall there had been stored for repairs three housings, two cuisses, one fine Roman shield and arrow shafts and heads. Thanks to favourable circumstances everything was in a particularly good state of preservation. The housings were all of scale construction, while the

armours were composed of cuir-bouilli lamellae, $4.5 \times 6-7$ cm. in size, and fastened together without backing by a system of rawhide and red leather thongs (figs. 258-260). The construction, and especially the joining of the rows of lamellae to one another with vertical thongs in the upper instead of the lower part of the lamellae, agrees in detail with the Wassu armour from Sze-chuen, in Western China (figs. 239-241). The finds are, from the circumstances of their discovery, to be dated to the middle of the third century; and have been related by F. E. Brown to the picture of a horseman, a graffito, previously found at Dura.²²⁵ Regarding the latter, Rostovtzeff has made it clear that it represents a Parthian *clibanarius*, and there should be no doubt that the armour here belonged to Iranian horsemen. It is especially interesting to find lamellar construction in cuir-bouilli so early at the furthest western frontiers of Asia, similar to that which we have previously found in Central and Eastern Asia. It is apparent from this that the lamellar construction in all its different forms was common to the whole of Asia north of the Himalayas.

We can go still farther back with the aid of another graffito from Dura, dated by Rostovtzeff to about 55 A. D.²²⁶ This, too, represents a Parthian horseman clad in a helmet of lamellar construction, a type which, like the former, shows the origin of "*der Spangenhelm*".²²⁷ These finds and pictures from Dura-Europos can serve as illustrations of the description which Cassius Dio gives of the Parthian *cataphracti*:²²⁸ "The Parthians make no use of a shield, but their forces consist of mounted archers and pikemen, mostly in full armour." Rostovtzeff's assumption that armour was the prerogative of the old Parthian aristocracy is interesting in this connection, and it may under such circumstances be very possible that lamellar armour was preserved in the Sassanian Period from ancient Persian times as a sign of prestige. From Western-Asiatic regions only two further finds of armour lamellae are known, both quite close to the European frontier. One of these comes from a burial ground near the village of Tomilovo on the River Tobol.²²⁹ In the course of an



Fig. 252. Chukchi bone lamellar armour. Museum of Anthropology and Ethnography, Leningrad.

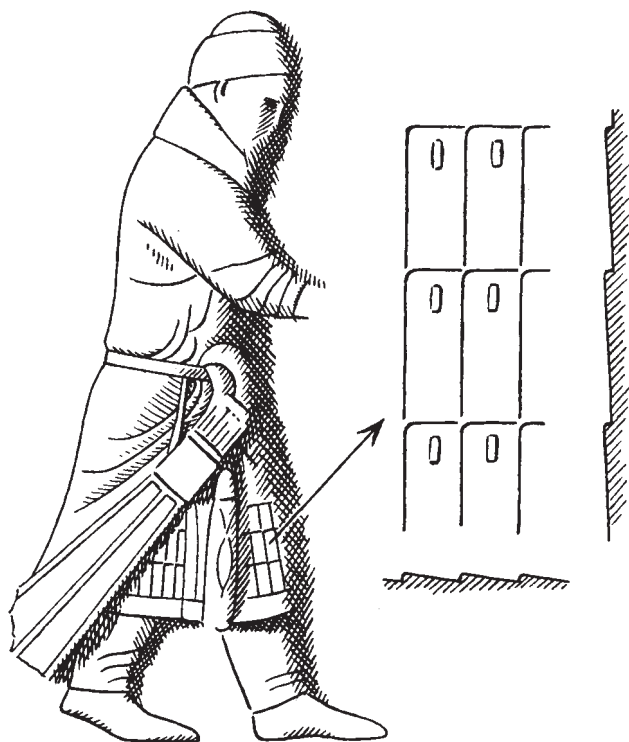


Fig. 253. Warrior on stone panel from the Mausoleum of Emperor T'ai Tsung at Li Ch'üan. University Museum, Philadelphia.

investigation in 1893, A. O. Heikel, the Finnish archaeologist, found fragments of perforated lamellae in three neighbouring kurgans of which, according to a statement by A. M. Tallgren, one can be dated to the 3rd–5th century A. D., while at least one of the others is Sarmatian, from Pre-Roman times. The perforation and form do not agree with the Tibetan pattern, which however, does occur in some iron lamellae, found in a destroyed kurgan at Dchitigarinsk, near Kustanai, on the upper reaches of the River Tobol.²³⁰ Of about two hundred and fifty lamellae which are reputed to have been found, only thirteen were taken care of and handed over to the museum at Orenburg. As regards the perforations, two types occur; one (fig. 232: 17) fully agreeing with the Shabdaes' armour from Taq-i-Bostan and the Wisby lamellae, while the other (fig. 232: 16) differs from them chiefly in that the group with four holes is doubled, as is often the case with

Central-Asiatic armour. Other objects, too, formed part of the discovery, but were not preserved, so that we are in ignorance as to the age of the grave and its cultural and historical connections.

LAMELLAR ARMOUR IN EUROPE.

An important find of armour lamellae from Kertch, in the Crimea, in the State Historical Museum at Moscow²³¹ comes from a catacomb grave, which can be dated by a coin of Emperor Leo (457–473) and contained two armours. Besides weapons and other things it contained two very remarkable helmets of lamellar construction (figs. 283, 284), and a large number of, unfortunately, very rusted armour lamellae of different lengths, all with perforations according to the Tibetan system (fig. 232: 11–15). The majority have the group of four holes doubled, and numerous traces of the lacing show that the thongs on the outside appeared as short vertical lines, just like the Tibetan armour. On the inside, the thongs run diagonally between the holes, and those lamellae which form the end of a row on either side have holes on the outer edge at approximately equal distances, through which double thongs are drawn so that there is a continuous line of lacing, running uninterruptedly from the upper edge of the row round the side edge and to the lower edge, in which they

agree with the Wisby armour 25. Round these edges there are generally leather pipings.²³² The lamellae all have, on the long side that was visible from the outside, a rounded notch so that they recall the lamellae provided with semicircular protuberances on the Turkestan stucco figures (figs. 247, 248) and the silver bowl (fig. 257), belonging to the same period. Even the pipings which edged the rows of lamellae remind us of these representations. According to Wsewolod Arendt, who published this discovery, this might be ascribed to the Avarians who during the latter half of the 5th century invaded the Crimea from the interior of Asia.

In the same museum there is another find of iron lamellae, though these are, unfortunately, so fragmentary that no particular details of construction can be given; nor can the find be dated. This comes from a kurgan near Borsna, in the Province of Tchernigov, on the middle course of the River Dnieper²³³ and is interesting because it gives a clue to the road by which lamellar armour may have travelled northward to the Baltic regions. That lamellar armour took root and survived for a long time in Russia, is seen from the fact that it can be found in Russian miniature art as late as the 13th century.²³⁴

From southern Russia, also, especially from the Crimea, there exist several lamellar finds of different sizes and materials, bone, iron, bronze and even gold, but with a simplified system of perforations and often only held together by metal clamps. They are probably connected with the same construction, but we shall not discuss them further here, because they do not supply any reliable contributions to our inquiry into the spread and origin of lamellar armour.²³⁵

In the year 1928 an Avarian grave was discovered at Kunszentmárton, near Szentes, in Central Hungary. A report was published by D. Csallány and, judging by the wealth of tools and matrices deposited there, it was the grave of a goldsmith. His breast was covered with lamellar armour²³⁶, but since the grave was, unfortunately, not examined by an expert, the details of the composition of the armour cannot be ascertained. The separate lamellae are slightly shorter than usual, but the form coincides with that of the Kertch armour in that a concave notch is to be found on one long side (fig. 232: 10). The perforations, too, are arranged in the same way, but very much simplified; more or less in the middle is the group of four holes and at one end another two holes, but that is all. In comparison with

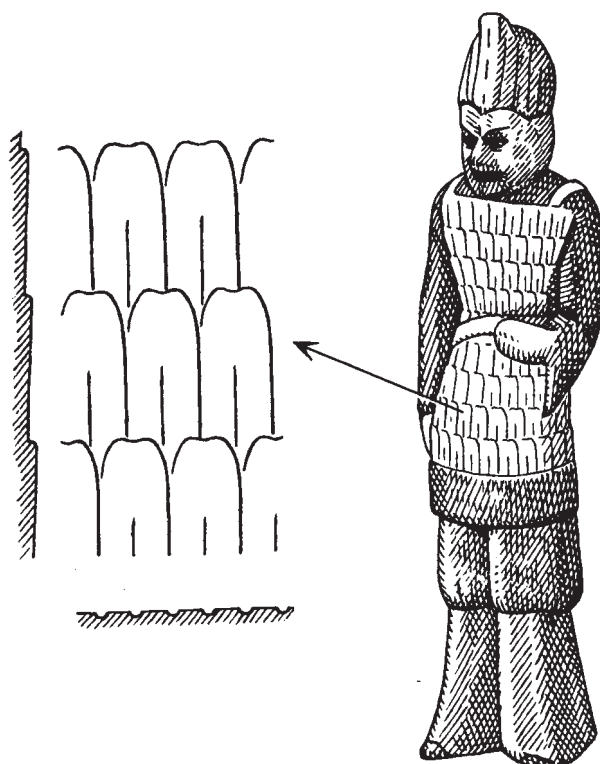


Fig. 254. Clay statuette representing Chinese warrior in helmet and armour. Metropolitan Museum, New York.

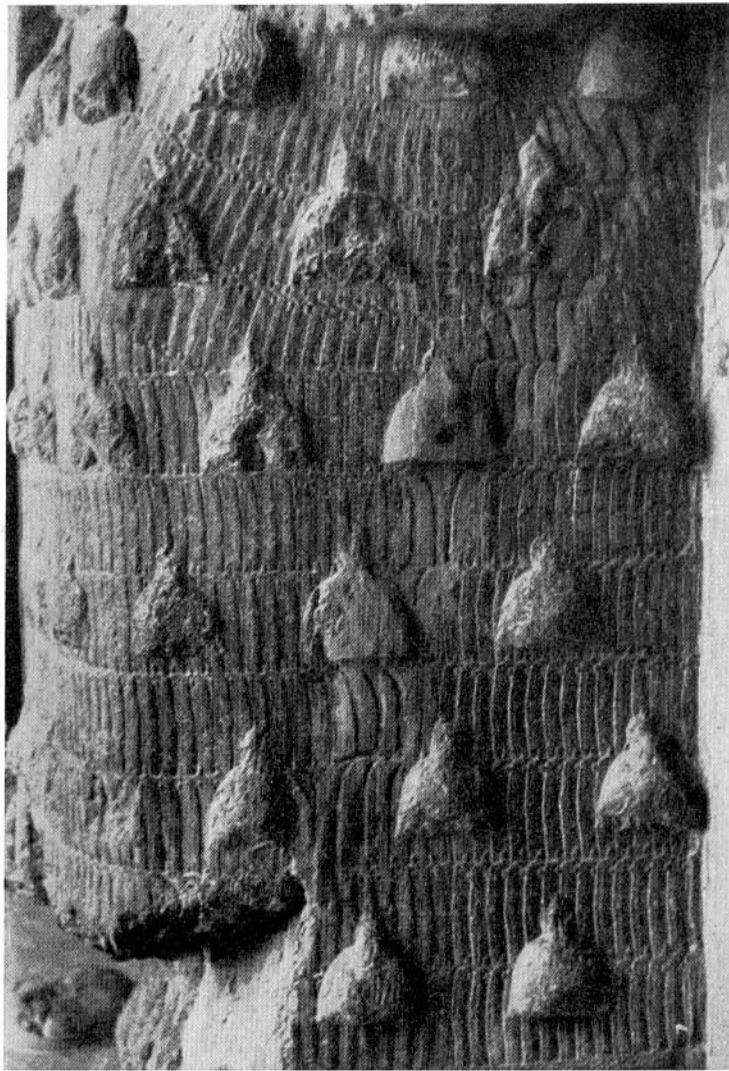


Fig. 255. Detail of horse-armor from the monument of Chosroes II, about 620. Taq-i-Bostan, Iran.

the lamellae from Wisby and in the Shabdaes' armour at Taq-i-Bostan, therefore, the single hole at the lower end is missing. It may, however, be possible that this hole existed, but, owing to the poor state of preservation of the lamellae (which is especially emphasized by Csallány and is clearly apparent from the photograph, which he was kind enough to place at my disposal) it cannot be observed. It is often extremely difficult to notice these small holes in the lamellae found in the soil, because they are generally filled with rust. I will, therefore, assume that the perforation on these lamellae agreed with the Wisby lamellae.²³⁷ The grave is dated by Csallány to the middle of the 7th century.

The Hungarian find is followed chronologically and ethnologically by two lamellae finds from the Longobardian burial ground near Castel Trosino, in central Italy.²³⁸ This place was captured in the year 578 by the Longobards, who came straight from Hungary

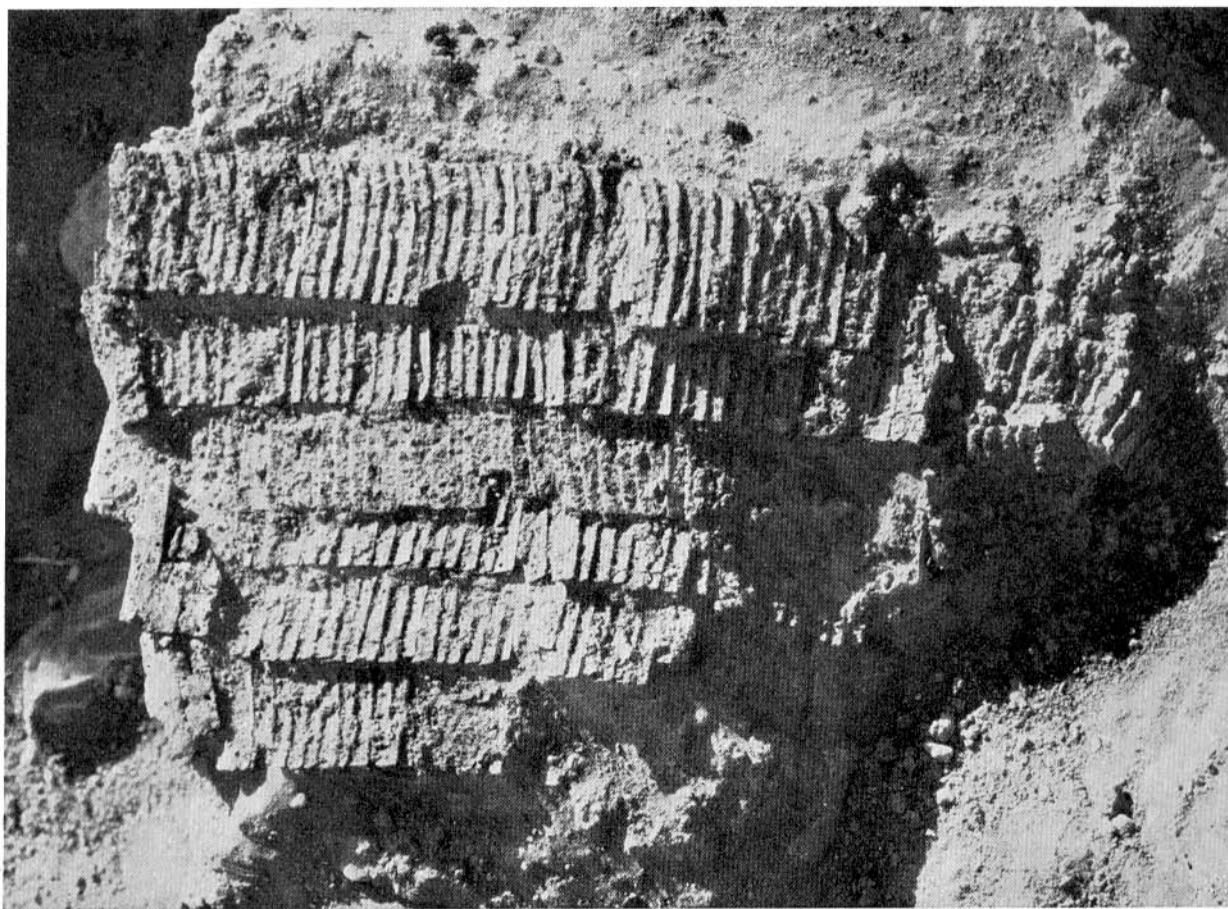


Fig. 256. Sassanian lamellar armour *in situ*. Cf. fig. 232: 18. From the American excavations at Kasr-i Abū Nasr, Iran.

where they had been neighbours and allies of the Avarians. That the form of their objects had been influenced by the Asiatic culture of their Hungarian neighbours, is seen from examples in archaeological material from Castel Trosino. One of the oldest—from the decades round about the year 600—and richest graves of males, grave 119, contained among other things a top mount and eyebrow plate of a helmet of the same rare type as one of the two helmets in the dual grave from Kertch (fig. 283), and, also, some sixty fragments of iron lamellae, very broken, but sufficient to enable one to recognize the typical size and perforations (fig. 232: 7–9). Some of them also display the same concave notch on one long side, which we have previously noticed on lamellae from Kunszentmárton and Kertch. In another grave of a male from the same burial ground, No. 79, a number of similar lamellae have been found. Whether the persons buried in these graves were Longobards or Avarians fighting in their ranks, cannot be decided and is not of very great importance in comparison with the certain fact that the forms of armour and helmets are derived from Avarian culture.²³⁹



Fig. 257. Sassanian silver bowl with warriors in armour.
The Hermitage, Leningrad.

An instructive representation of warriors with lamellar armour comes from the same period and cultural region as these finds. This is the frequently reproduced, ornate eyebrow plate from a helmet (fig. 261) which was found near the ruins of a castle in the Val di Nievole, near Lucca, and which bears the name of the Longobard King Agilulf (590–616).²⁴⁰ In the centre of the plate the king sits with his hand raised in blessing and on each side of him stand two guards wearing helmets, which are provided with cheek-armor and surmounted by the same characteristic, semi-circular bosses which have been found in the Castel Trosino, grave 119, and occur on one of the Kertch helmets (fig. 283). The warriors are, as Gröbbels

has pointed out, clad in armour whose construction can hardly be mistaken even on so small a scale; they may certainly be looked upon as illustrating the armour found at Castel Trosino.

From Nordic regions we have—as well as the Wisby finds—another discovery of armour lamellae. This was found in the course of systematic investigations on the site of the Swedish Viking town of Birka, on Björkö Island, in Lake Maelar.²⁴¹ The place of the discovery is on the slope outside the walled fortress that protected the town, and its character is still doubtful, though it is certainly not a grave. Fragments of mail armour, weapons and sundry objects were also found with the lamellae, and this, as well as the stratigraphical conditions enable them to be dated to the 10th century. Some of the lamellae (fig. 232: 2–6), which are all of iron, are of normal size and perforation, some are slightly smaller, and some are very small (about 4.5×1.5 cm.). Even the perforations in the last seem to be on the same principle, but they differ from all lamellae previously studied in having a ridge in the middle (fig. 232: 6). On comparing them with the Tibetan armour it is evident that they served a definite purpose, e.g. they may have been placed round the neck-opening.

That the lamellar construction survived in the North for centuries after this period is not only proved by the Wisby finds. About six fragmentary lamellae that have rusted together into one mass and come from the medieval castle of Piksborg, in the south of Swe-

den²⁴², can perhaps not be included here, since nothing can be observed regarding perforations or thongs, but otherwise their appearance makes it probable that they belong to this type. More trustworthy is the warrior in a scene depicting the Massacre of the Innocents (fig. 262) on a chased copper antependium from Broddetorp Church, probably made in Vestrogothia at the end of the 12th century²⁴³, which can hardly be explained in any other way than as lamellar armour. The same applies to the armour worn by a warrior in a representation of the same motive on a wall-painting in Skibby Church, in Sjælland (fig. 263), from the middle of the 14th century²⁴⁴, i.e. from the same period as the Wisby finds. These few, and separately not very reliable pieces of evidence, together suggest that the Wisby armour of type VI was not a solitary phenomenon, but that lamellar armour survived from prehistoric times until the 14th century in large parts of the North.

From the other side of the Baltic, too, some 14th century proofs exist of the same phenomenon on three seals belonging to the Baltic

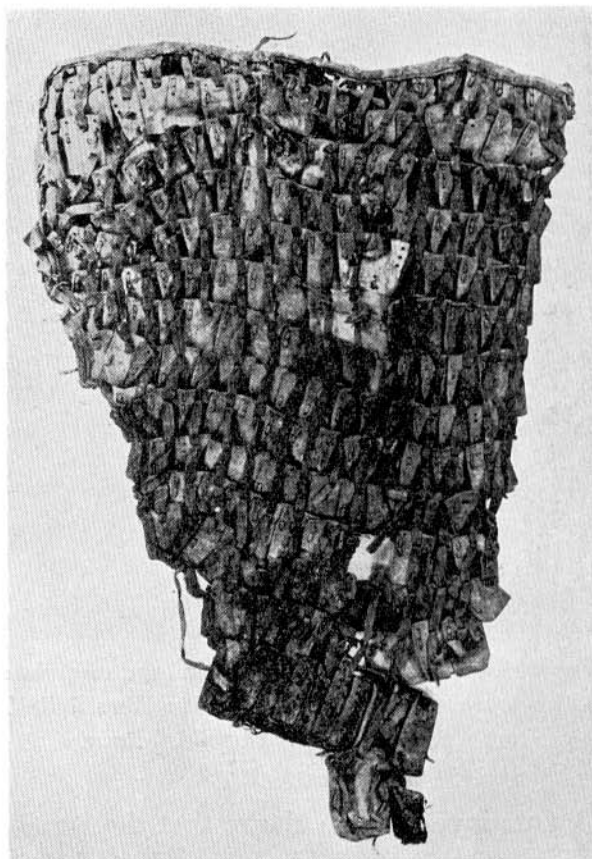
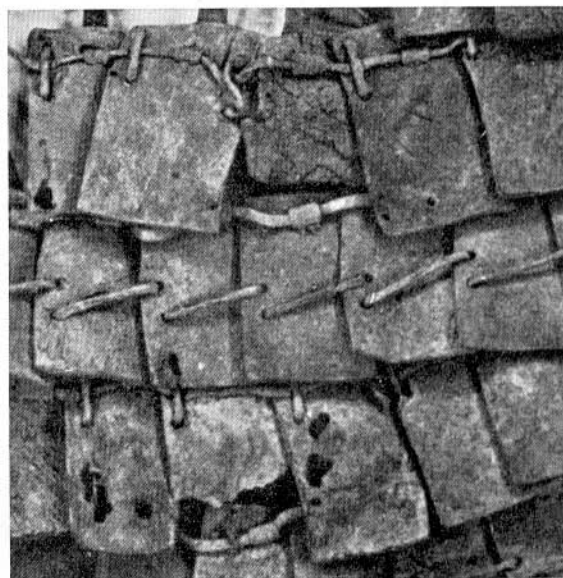
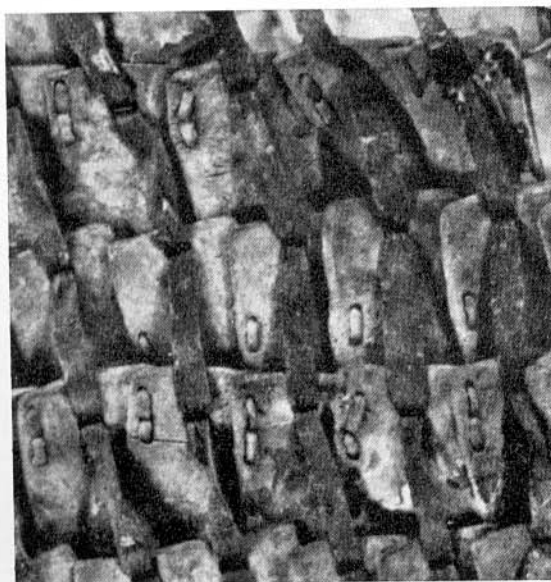


Fig. 258. Part of armour of cuir-bouilli lamellae. From Dura-Europos. Gallery of Fine Arts, Yale University.



Figs. 259, 260. Detail of armour fig. 258. Outside, inside.



Fig. 261. Figures of warriors on eyebrow plate which belonged to the Longobardian King Agilulf. From Val de Nievole. Bargello, Florence.

princes Duke Troyden of Mazovia (died 1341) (fig. 264), his son Ziemowit, whose seal is attached to a document of the year 1343 (fig. 265), and Duke Kynstutte of Trakhen, whose seal is on a document of the year 1387 (fig. 266).²⁴⁵ The first and last of these are so sketchy that they do not supply any information of the details, but Ziemowit's armour is executed in greater detail. It is a short armless coat, open in front, consisting of nine horizontal rows of lamellae; its form reminds one very much of the Wisby armour 24. The pointed helmets, so typical of this period, which are worn by all these three figures, are also very interesting. These are certainly evolved from the conical lamellar helmets which have previously been mentioned.²⁴⁶

ORIGIN OF LAMELLAR ARMOUR.

Our investigation shows that the lamellar armour in Eastern Siberia, China, Japan and Tibet was constructed after a Central-Asiatic prototype, probably adopted during the centuries immediately after the birth of Christ. From our survey of the spread westward of the phenomenon, it has become apparent that even European lamellar armour reverts to the same source, and, thanks to reliable finds, we were also able to establish that it was introduced into Europe by the Avarians. The Siberian rock-carving probably depicts an Avarian; the lamellar finds from Kertch and Kunszentmárton come from Avarian graves. Those Longobards who used the burial ground of Castel Trosino, had been fighting side by side with Avarian hordes, and probably had Avarian warriors in their ranks even as late as the time when they invaded Italy.

However, it is unlikely that lamellar armour originated in Central Asia. B. Laufer maintained in his pioneer study of Chinese armour that the cavalry technique of the Central Asiatic horsemen and their armour originated in Iran²⁴⁷, and he has repeatedly expressed his opinion that both mail²⁴⁸ and lamellar armour came from there, though without any definite proof. As far as I can see, a profounder study of the problem can only confirm the theory that the origin of lamellar armour must be looked for in Western Asia or the countries round the Eastern Mediterranean, even if we are still unable to produce definite evidence to prove that it was invented actually in Iran.

Two discoveries which are of great importance for solving this problem have been made by the Swedish Archaeological Expedition to Cyprus. The older of these finds was discovered in the rich chamber-tomb No. 2 at Amathus²⁴⁹, dated about the beginning of the

6th century B.C., and consisted of a large number of armour scales which had rusted together, each being about 3 cm. long and 1 cm. broad (figs. 232: 59, 267–269). They are cut straight at one end and rounded at the other, and are provided with two holes, along the central axis. Between the two holes is a small ridge. An important fact is that in several places the rust retained distinct traces of the lacing which joined the rows of scales or lamellae, and, thanks to a thorough study by A. Westholm, the system of lacing could be reconstructed. It was done with five thongs, which were alternately passed through the lower hole in the upper row of lamellae, and the upper hole in the lower row in such a way that the same thong binds every fifth lamella in the same row (fig. 269: c). The tiny ridges are to prevent the lamellae from slipping too far over one another, as their edges would then wear out the thongs at those



Fig. 262. The Massacre of the Innocents at Bethlehem, on a copper antependium from Broddetorp Church, Sweden. National Museum of Antiquities, Stockholm.



Fig. 263. The Massacre of the Innocents on a wall-painting in Skibby Church, Denmark. From a copy in the National Museum, Copenhagen.

points where they are drawn through the holes. Westholm assumed that these ridges were on the inside of the armour, and that the rows of lamellae overlapped from the top downwards, as on real scale armour. Possibly, however, the opposite may have been the case, and if so, it would have been like the lamellar construction. It is evident that this is a simplified type of construction which may be the prototype of both the scale and the lamellar armour. Fortunately, the other Cyprus find give a clue to the direction in which it developed.

This find comes from a deposit at Idalion²⁵⁰ and can be dated somewhat later than the former (figs. 232: 54–58, 270, 271). It consists of a very large number of armour scales, most of them iron, but some also bronze. The majority of the former are of approximately the same shape and size as those



Fig. 264. Seal made for Troyden,
Duke of Mazovia († 1341).

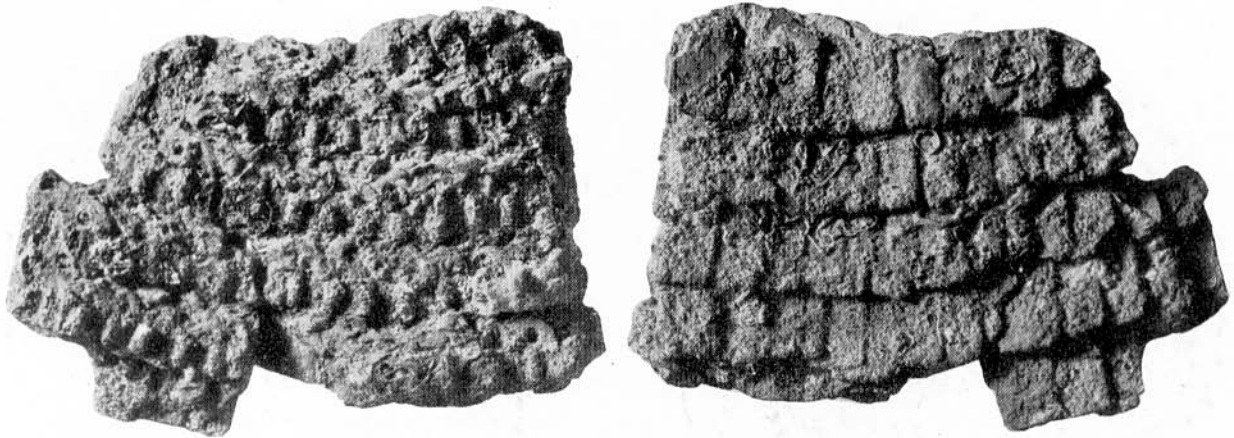


Fig. 265. Seal made for Ziemowit,
Duke of Mazovia (1343).



Fig. 266. Seal made for Kynstutte,
Duke of Trakhen (1387).

just described, but are also provided with four smaller holes, two close to the straight short end, placed slightly obliquely in one corner, and two close to the long side opposite the ridge. Some scales of similar perforation are larger, whereas others of normal size lack one of the holes at the side. The bronze scales partly resemble the iron ones, but there are also some rectangular scales of the same size or smaller, having bosses in the centre with a hole on each side and, on the smaller ones, a hole in each corner. No traces of the thongs have been preserved, and the suggested reconstruction of the lacing, which has been tentatively advanced in the expedition's publication, obviously cannot be correct because it does not enable straight rows to be formed, but would make them oblique, which is unreasonable. Since the lamellae agree on the whole with those in the earlier find, and preserve the same perforations, there is no reason to depart from the method of lacing, which could be reconstructed in these with the aid of traces of thongs which had been preserved, though here, of course, it may have become more simplified or more complicated. We therefore venture to assume that the two holes in the central



Figs. 267, 268. Fragments of lamellar armour from chamber-tomb 2, Amathus, Cyprus. Outside, inside. Cf. fig. 232: 59. Scale 1:1. Cyprus Collections, Stockholm.

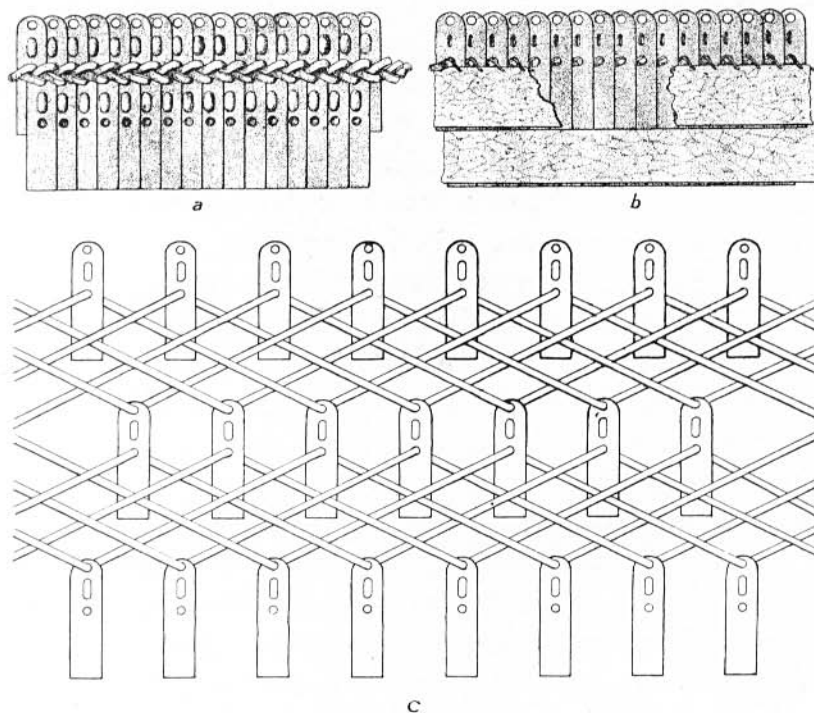
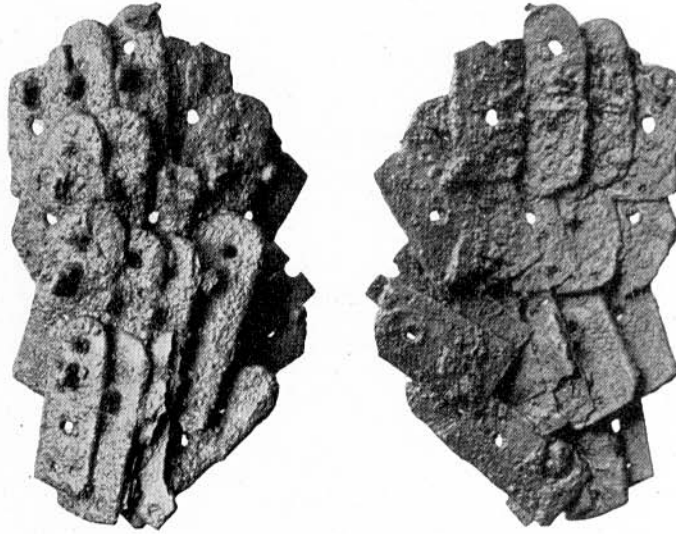


Fig. 269. Reconstruction of lacing in armour from Amathus, figs. 267, 268. Scale 1:2.

axis of the lamella, as in the earlier armour, served to hold together the different rows of lamellae. The correctness of this assumption is also borne out by the fact that, in later lamellar armour, holes in the same position served the same purpose.

The problem then is to decide what task the two added pairs of holes had to fulfil. In my opinion there can only be one answer to this: the thongs (or cords) which held the lamellae in the same row together were passed through them. The older construction, whose



Figs. 270, 271. Fragment of lamellar armour from Idalion, Cyprus. Outside, inside. Cf. fig. 232: 58. Scale 1:1. Cyprus Collections, Stockholm.

system of five thongs simultaneously holding together the lamellae in the same row and the two adjoining rows, must surely, in spite of its simplicity, be considered very effective and very ingenious, but it possessed the drawback that the joining of the armour must have been rather tedious on account of two rows having to be laced together simultaneously. And the work must have been still more clumsy, when many rows were done, for the new rows had to be joined to the already finished part. It must also have been difficult to alter wrong lacings inside the armour and to repair it. There might, therefore, have been an attempt to invent a method which made it possible to lace together the separate rows first and then to join them to one another. Such a method would have been possible if the two additional pairs of holes on the lamellae had served this purpose. It is of course impossible to determine in detail how the thongs had been arranged, since several alternatives

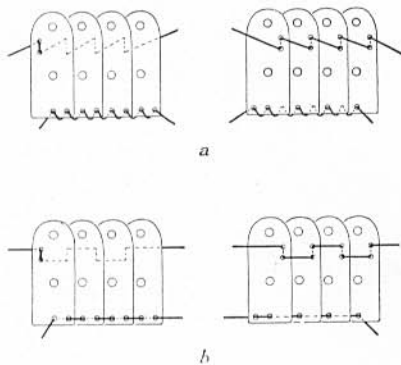


Fig. 272. Alternative methods of lacing the lamellae in armour from Idalion (figs. 270, 271).

are possible. One system is that a thong ran up and down between the holes on the long sides and another thong ran from hole to hole along the short ends of the lamellae (fig. 272: a). The latter thong then prevented the lamellae from assuming a step-like position in relation to each other, which would have otherwise been the case. Such a possibility would be prevented if the former thong were drawn from the lower hole in a lamella to the lower hole in the next, thence to the upper hole in the same lamella and to the upper hole in the next, and so on (fig. 272: b). The ridges

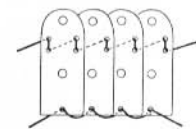


Fig. 273. Method of lacing armour lamellae, later stage of development.

would have been necessary in both cases, because otherwise the thongs would have pulled the lamellae too far over one another.²⁵¹

It is obvious that with this we have gone back to a most primitive stage in lamellar construction, irrespective of whether the lamellae overlapped from the top downwards, as in scale armour, or from the bottom upwards, as in later lamellar armour. We do not know which system was actually employed here, but the former alternative finds support in the North Syrian pictures of armour from Sakche Gözu, dated to about 800 B. C., which are preserved in the Vorderasiatisches Museum in Berlin (fig. 274).²⁵² Apparently these are scale armours, but the construction may very well have agreed with the Cyprus finds. The relation between the latter and lamellar armour is also indicated by the system of perforations, in that the pair of holes in one long side may be said to constitute a preliminary stage of the fully developed lamellar construction characterized by four holes, which have the same structural function as that which we attributed to the single pair of holes. The transition from two holes to four is quite insignificant, and, from a constructional point of view, quite feasible. It must soon have been discovered that greater firmness would

be obtained in the rows of lamellae if the zigzag thong passed through two adjoining lamellae instead of only one at a time, and this was easily arranged by making two holes in that part of the lamella which overlapped the next, so that the two new holes at one edge on the overlapping lamella covered the two already existing holes at the other edge of the underlying lamella (fig. 273). The appearance of the lacing still remained the same. An advantage of this method was that it was no longer necessary to make the small ridge in the centre of the lamella, for the lamellae were now kept apart in their proper position merely by the lacing of the thongs; and it was possible to dispense with one of the holes in

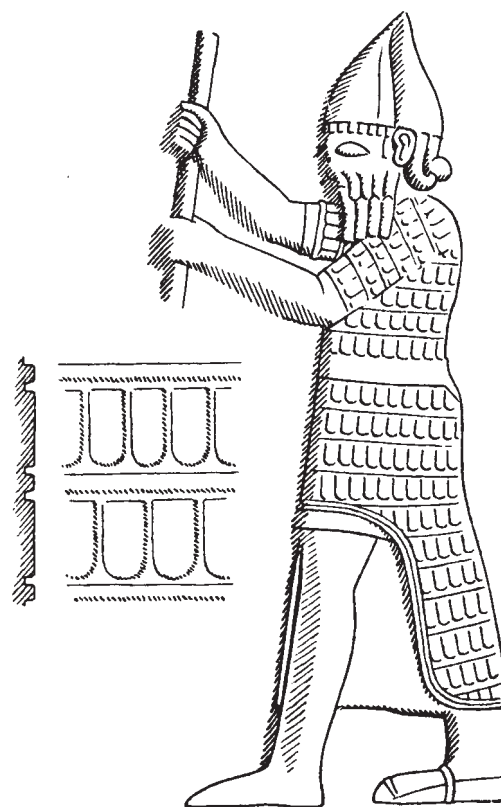


Fig. 274. Warrior in armour on stone relief from Sakche Gözu, Syria. Detail in scale 1:2. Vorderasiatisches Museum, Berlin.

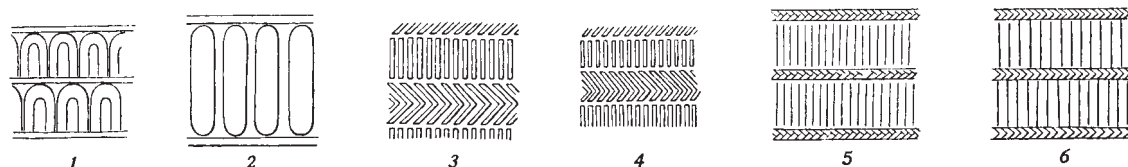


Fig. 275. Details of armour on Assyrian figures. British Museum. (1) Nimrud. Time of Assur-nasir-pal. About B.C. 880. (2) Nimrud. Time of Tiglat-Pileser III, 745-727. (3-5) Nineveh. Time of Sennacherib 705-681. (6) Nineveh. Time of Assur-bani-pal, 668-626. Scale 1, 3-6, about 1:2; 2, about 1:3.



Fig. 276. Sarmatian horsemen in scale armour on the Column of Trajan, in Rome.

the straight short end, for the rows of lamellae were in any case sufficiently steady. Hence the method of construction has, in principle, been developed and brought to the same stage as the Wisby and other armour, and, one might venture to say, this also proves that lamellar construction originated in the Near East.

KINDRED FORMS OF CONSTRUCTION IN ASSYRIA AND EGYPT.

In order to localize more exactly the area of origin of lamellar armour, it is important to state that the Cypriot culture, to which these finds belong, is closely related to that on the Asiatic mainland. There are, from the same period as the earlier Cyprus find, and from the centuries immediately prior to it, various representations of armour in Assyrian art, which are of great interest, although it must be admitted that the construction of the armour cannot be determined in detail and with complete certainty. This investigation is based on the study of the monuments in the British Museum.²⁵³

From Nimrud, from about 880 B. C., there is a representation of an armour reaching far down the legs, composed of nearly forty horizontal rows of upturned, semicircular scales, the rows being separated from one another by narrow bands (fig. 275: 1). Every

scale is drawn with a kind of inner core, which may represent either a ridge or a vertical thong. Somewhat later, dating from the latter part of the 8th century, is another type of armour from the same place (118933) with some rows of large lamellae, rounded at both ends (fig. 275: 2). In this case the rows of lamellae are also separated by smooth bands. Still more remarkable are numerous carvings of armour from Nineveh from about 700 B.C. or the earlier part of the 7th century.²⁵⁴ These armours (124903, 124955, 124956) consist of rows of lamellae which are alternately composed of straight and herring-bone lamellae (fig. 275: 3-5). These rows are separated from each other only by lines. In at least one case (124904), however, there is an armour consisting entirely of straight lamellae, where the rows are separated by narrow bands in a kind of plaited pattern (fig. 275: 5). It is difficult to imagine that this represents anything but the lacing of thongs, uniting the rows of lamellae. A similar representation exists from rather later in the 7th century (124926), in which the bands are separated by a continuous herring-bone pattern (fig. 275: 6). A figure in another relief, (124928), wearing armour with slightly larger rectangular scales, which overlap from the top downwards, also belongs to the same period.

Still earlier, and the earliest traces I know of lamellar construction, are some fragments of armour that were found in the American excavations of the cemetery of Se'n-Wosret I, near Lisht in Egypt.²⁵⁵ Below a large block of stone that had fallen from the northern side of the pyramid, lay a basket containing scrap metal, clearly collected by a coppersmith of the 18th Dynasty, i.e. about the middle of the second millenium B.C. Amongst this scrap were found some armour lamellae of bronze (fig. 232: 60, 61), about 5-8 cm. long and about 2.5 cm. broad. They have a longitudinal ridge, clearly corresponding to the ridge on the armour scales from Cyprus, but the holes are placed quite differently. That the lamellae had been laced together by means of thongs is extremely probable, but, owing to the paucity of the finds no attempt at a reconstruction of the lacing system can be made.

These Egyptian lamellae, like the Assyrian pictorial material, only show that different lamella-like constructions were known early and were in use in the Near East. On the other hand, they supply no information either of the details of the construction or where it originated. The ancient kingdoms in the Near East entertained a lively intercourse with one another, amicable or bellicose, and the fragments of armour which the copper-smith at Lisht had gathered together, need by no means have been of Egyptian manufacture. I need only recall that of the booty taken by Thotmes III after the Battle of Megiddo, in Palestine, in 1479 B.C., besides vast quantities of gold, silver and other valuables,

Fig. 277. Find localities or places of origin:

(1) Chester, England. (2) Greaterchesters, England. (3) Newstead, England. (4) Camp Hill, Somerset, England. (5-6) Cambridge, England. (7) Königshofen, near Strasbourg, France. (8-9) Kastell Weissenburg, Germany. (10-11) Kastell Urspring, Germany. (12-14) Kastell Theilenhofen, Germany. (15) Kastell Aalen, Germany. (16) Mainz-Weissenau, Germany. (17) Dimesser Ort, Germany. (18-19) Rettberg-au, Germany. (20) Aventicum, Switzerland. (21-29) Carnuntum, Austria. (30) Pompeii? (31-32) Surduk, Yugoslavia. (33-34) Vidovgrad, Yugoslavia. (35-37) Sotin, Yugoslavia. (38-45) Sisak, Yugoslavia. (46) Tchiguirin, Prov. of Kiev, Russia. (47) Jourovka, Prov. of Kiev, Russia. (48) Kertch, Crimea, Russia. (49) Crimea, Russia. (50) Tenginskaja, Cuban, Russia. (51) "Seven Brothers", Cuban, Russia. (52-53) Tiflisskaja Stanitsa, Cuban, Russia. (54-55) Vorobji, Prov. of Viatka, Russia. (56) Egypt. (57-60) Memphis, Egypt.—1, 4 in British Museum, London. 48, 57-60 in Ashmolean Museum, Oxford. 16-19 in Städt. Altertumssammlung, Mainz. 56 in Antiquarium, Berlin. 20 in Landesmuseum, Zurich. 30 in Museo Nazionale, Naples. 31-45 in the Museum of Zagreb.—4, 7, 17-20, 37, 39-40, 54, 55, 57-60 of bronze; 30 of bone; 56 of crocodile skin, all the others of iron.

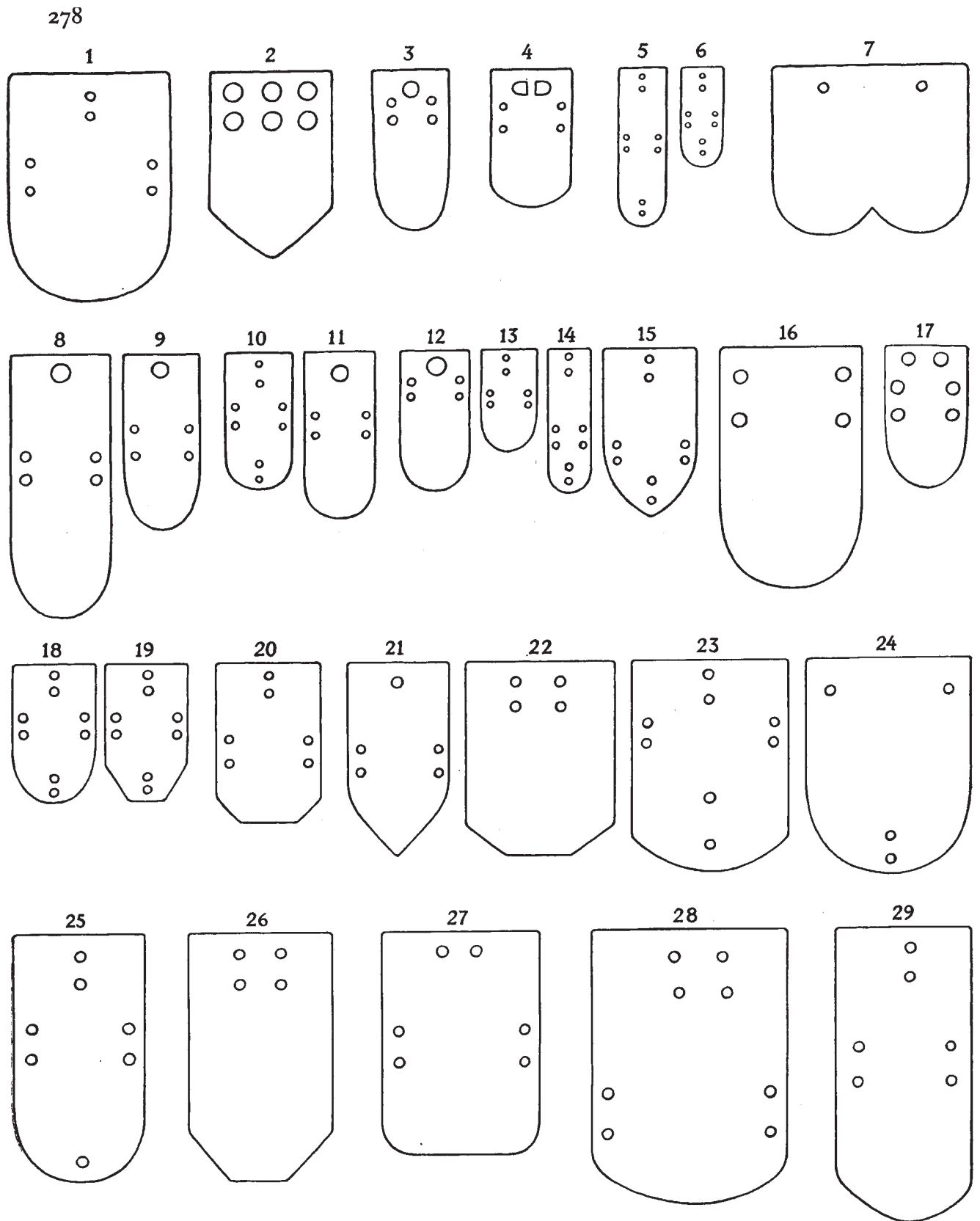


Fig. 277. Types of armour scales. Scale 1:1. For find locality or place of origin, see p. 277.

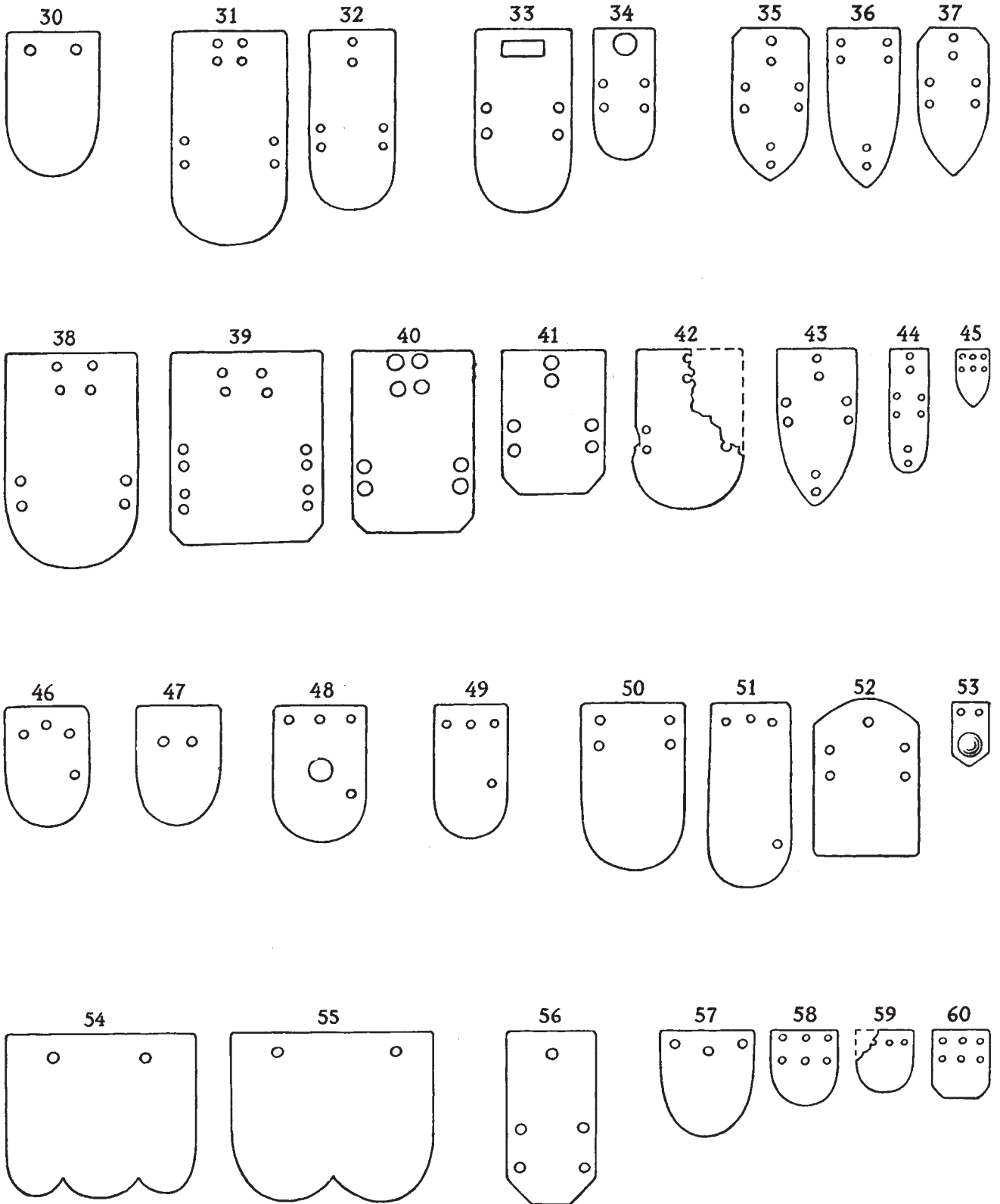
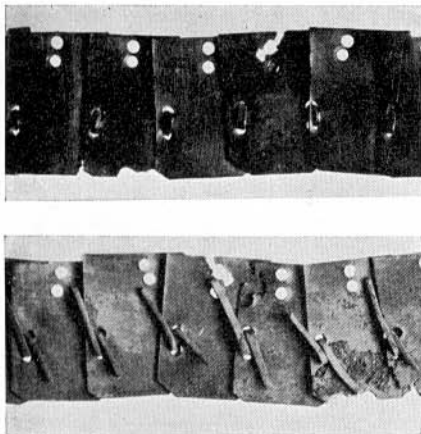


Fig. 277. Types of armour scales. Scale 1:1. For find locality or place of origin, see p. 277.



Figs. 278, 279. Armour scales from Aventicum. Cf. fig. 277: 20. Outside, inside. Scale about 2:3. Schweizerisches Landesmuseum, Zurich.

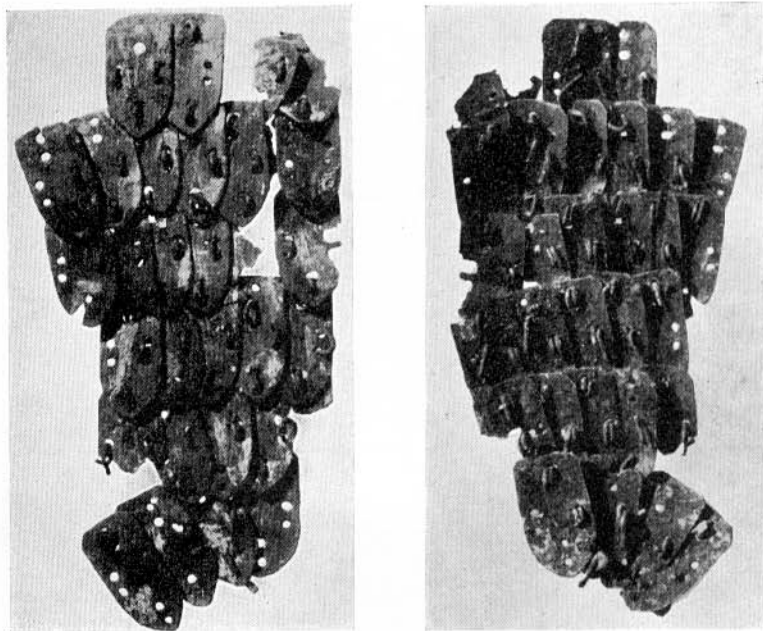
However, it is best, at first, not to try to limit the area of origin of lamellar armour to Iran. In their simplest form these constructions—plates of leather, bone, horn, wood or metal laced together with thongs—are so primitive and akin that they may have originated independently of one another in different cultural areas.²⁵⁸ Laufer has also emphasized that in some form, unknown to us, they may have pre-existed amongst the Arctic peoples in Asia.²⁵⁹ It might, therefore, be more correct for the time being merely to say that during the first and second centuries B.C. in the Near East simple lamellar constructions were in use, which were the prototypes of both the more special lamellar construction, from which this investigation started, and of the scale armour construction.

SCALE ARMOUR.

In our analysis of the lamellar or scale armour find from Amathus, it was pointed out that it might be the prototype of both these forms of armour. Actually, they are so closely connected that a joint origin appears extremely probable. Finds of such armour

there were 924 chariot loads, 2238 horses and 200 suits of armour. And from the more or less tributary kings of Cyprus, Babylonia and Assyria etc. merchandise of all kinds was received, certainly including armour.²⁵⁶

As regards the Assyrian armour, Assyriologists are, if I am correctly informed, not in favour of the theory that metal armour originated in Mesopotamia, and this both for cultural reasons and because of the climate. The Assyrians probably fought as a rule without armour, like the people of the Mycenaean civilization²⁵⁷, only protecting themselves with their shields. In that case the armour which their generals sometimes wear on the reliefs, was probably adopted from prototypes of their highland neighbours, i.e. from Iran. Thus, we have reached the same conclusion as Laufer concerning the place of origin, but by a different route.



Figs. 280, 281. Armour scales from Sotin. Cf. fig. 277: 35. Outside, inside. Scale about 2:3. Museum at Zagreb.

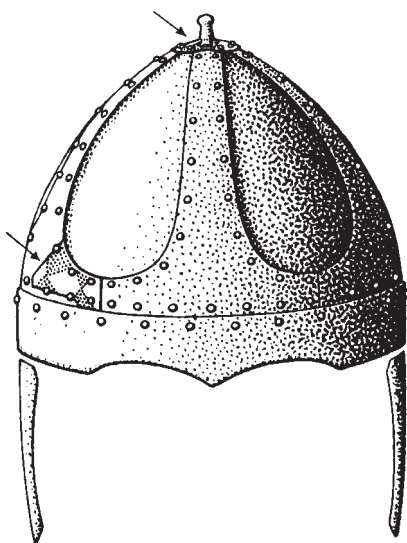


Fig. 282. Helmet. Reconstruction from fragments (marked with arrows) from Tuna, Gotland. National Museum of Antiquities, Stockholm.

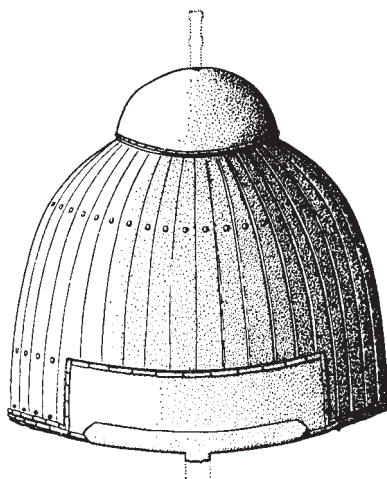


Fig. 283. Helmet laced with leather thongs from an Avarian tomb at Kertch, in the Crimea. Reconstruction. State Historical Museum, Moscow.

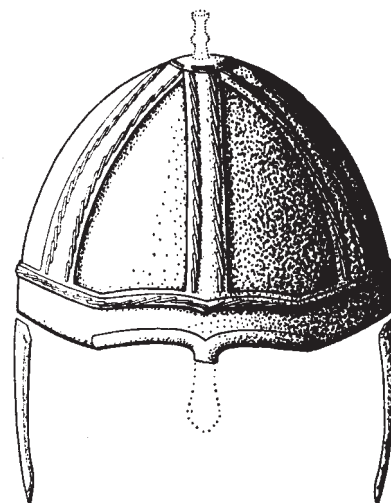


Fig. 284. Helmet laced with leather thongs from an Avarian tomb at Kertch, in the Crimea. Reconstruction. State Historical Museum, Moscow.

scales²⁶⁰ exist in large numbers from the areas around the frontiers of the Roman empire from Great Britain to Southern Russia, where they belong especially to the Scythian culture, and also from Syria²⁶¹ and Egypt (fig. 277).²⁶² Scale armour differs in principle from lamellar armour in that the scales are attached to a foundation of cloth or leather, generally by means of small metal clamps passed through holes in the armour scales (figs. 278, 279). The perforation is, therefore, arranged in such a way that the holes are placed in pairs, generally at the top and on the sides, but occasionally also at the bottom. In the latter case the armour scales become so similar to the armour lamellae that they are scarcely distinguishable from these. This similarity is also striking from the point of view of the construction, when the scales are not only joined to each other in a lateral direction but also the different rows of scales are directly united with each other by means of clamps, passed through the lower holes in the scales of the upper row and simultaneously through the upper holes in those of the lower row (figs. 280, 281). In such cases the whole scale armour becomes directly united so that the base of cloth or leather holding them, is really superfluous in the construction.

As far as I know, all investigators who have dealt with scale armour are agreed in regarding this type of construction as an Asiatic phenomenon, and Rostovtzeff has with authority pointed out Iran as its native land.²⁶³ We thus return to Iran which is the focus of all research into the history of lamellar armour. Of course, the actual traces of lamellar construction from this area are relatively late, dating from the Sassanian Period, but finds and graffiti from Dura-Europos have made us acquainted with fully developed examples, with Iran as their native home in the first few centuries A.D., i.e. little later than the earliest

lamellar finds in Central Asia, from the Etsin gol district. In Iran there also existed a strict military organization—one of the conditions necessary for the development and evolution of such a complicated defensive weapon.

The result of our research is therefore, that the conditions for the lamellar construction existed in primitive forms in various parts of the Near East. Probably during the centuries immediately before the birth of Christ these early forms developed in Iran into the special type to which the Wisby armour belongs. This was adopted before the beginning of our era by the Central Asiatic horsemen, who carried it partly to the north-east, east and south, to the primitive arctic peoples, to China and Japan, and to Tibet, and partly westward, in the 5th century A.D., through the Avarians to Europe, where, as late as the 7th century it survived amongst the Avarians in Hungary and the Longobards in Italy.

SPREAD OF LAMELLAR ARMOUR TO SCANDINAVIA.

Our investigation has not yet revealed when and how lamellar armour was brought to the Baltic region, where it was actually being used in war as late as the middle of the 14th century as is shown by the Wisby finds. Nor can we really answer this question with anything but general surmises. From the lamellar finds at Birka it is seen that the type of armour was introduced into Sweden at the latest in the 10th century. At that time eastern Sweden, and not least the commercial town of Birka, was in direct communication with Eastern Europe right down to the Black Sea and the Caspian Sea, via the great Russian rivers.²⁶⁴ A wealth of finds in the soil, and numerous literary sources bear witness to Swedes seeking the cultured lands in the south-east for mercantile or warlike purposes, and we also know that foreign merchants from these parts of the world visited our shores. In this connection it may be of particular importance that Swedes at this time formed a large and highly esteemed section of the life-guards of the Byzantine emperors. Therefore, it is not astonishing that Asiatic lamellar armour was introduced into the country at this time, and it bears witness to the strong influence which oriental imports had on our culture that it took root and, after centuries, when it had died out and been forgotten everywhere else in Europe, it is still so vital that it influenced the development of the modern Western European military equipment, which had, by that time, been adopted from the south.

However, lamellar armour may have been introduced into the North much earlier. The roads to the south-east had already centuries before the Viking Period been travelled by emigrating Germanic hordes, and cultural elements of decisive importance to the development of the Nordic peoples had returned by the same roads. There exists also a small find, which is associated with lamellar armour, and which perhaps gives us a hint of the period of its introduction. Among the numerous finds from a place of sacrifice near Tuna, in Väte parish, on the island of Gotland, B. Nerman recently distinguished some small fragments, which he has identified as parts of a helmet of the type which, in German literature, is generally termed "*Spangenhelm*" (fig. 282).²⁶⁵ This type of helmet has for a long time been the subject of attention, and investigators have agreed that it should be



Fig. 285. Tibetan helmet laced with leather thongs. Cranmore Ethnographical Museum, Chislehurst, Kent.

traced back to Asiatic prototypes. It is only in its place of manufacture and the way in which it came to Europe that opinions have differed. The latter question has been finally solved by W. Arendt²⁶⁶, who demonstrated that it was developed from forms such as one of the two Avarian helmets from Kertch (fig. 284). This should also solve the problem of its place of manufacture in accordance with the opinion pronounced by Ebert²⁶⁷, that these helmets come from Greek workshops in Pontine towns north of the Black Sea. The construction thus reverts to the lamellar helmets laced together with thongs, which still survive in Tibet, where they are worn with lamellar armour (fig. 285). Under such circumstances it may not be unjustifiable to associate the spread of this type of helmet in Europe with lamellar armour, all the more so since the representations of helmets on the plate from Val di Nievole (fig. 261) have been referred to in this connection by earlier investigators. I also wish to recall that fragments of a helmet, similar to those reproduced on this plate, have been recovered with lamellar finds both from the Avarian grave at Kertch (fig. 283) and from the Castel Trosino grave 119.

The fragments of the helmet from Tuna in Väte, therefore, perhaps give us a clue to the period when lamellar armour was introduced into the North, probably not from south-western or central Germany, as Nerman has assumed in regard to the helmet, but from

the south-east, from southern Russia.¹⁶⁸ According to Nerman the fragments of the helmet from Tuna were deposited in the soil at the earliest during the 6th century or shortly before, a period which in fact coincides extremely well with the earliest appearance of lamellar armour in Europe.

Against the idea that lamellar armour was introduced into the North so early, it might be objected that it is astonishing that no trace of it has been found in graves or in other finds from the whole of the later part of the Iron Age. This can perhaps be explained by a statement made by Arendt in regard to a corresponding circumstance with the Asiatic nomadic peoples.²⁶⁹ Because they believed in the invulnerability of the dead, it was thought unnecessary to bury them in protective armour, but they were constantly given weapons of attack for fresh battles in the life beyond and also as a sign of power. This explanation may be taken for what it is worth. At any rate it is a fact that mail armour also, which was certainly used in the North from Roman times, is very rarely found in prehistoric graves, nor is lamellar armour found during the latter part of the Viking Period, when, according to the evidence of the find at Birka, it was known in the North. It may, however, be assumed that lamellar armour, and every kind of armour, was on the whole very rarely used amongst prehistoric peoples in the North, and when employed, generally as a sign of nobility.

HISTORY OF THE COAT OF PLATES.

OLDER MEDIEVAL ARMOUR.

The body armour in Western Europe at the beginning of the Middle Ages consisted of a hauberk, generally reaching to the knees, made either of mail or covered with scales, which were pointed, square or—more rarely—polygonal. This scale armour²⁷⁰ is found mentioned as early as in the 8th century (fig. 286), is especially characteristic of the 12th century, but survives, although only occasionally, throughout the 13th and into the 14th century (figs. 287, 312; cf. below p. 301). Since our knowledge of this type of armour is exclusively based upon effigial material, we cannot decide with certainty whether the scales were of horn, bone, leather or metal. In any case it probably reverts to the original Asiatic scale armour of antiquity, which we have dealt with above (fig. 276), and which was introduced into Europe by the Scythians. In the Byzantine Empire it may have survived as a direct offshoot of antique armour, and in Eastern Europe it lingered much longer than in the West.²⁷¹

Towards the end of the 12th century a surcoat began to be worn over the hauberk (fig. 303)²⁷², which at first extended below the knees but was gradually shortened (figs. 307, 312) until, in the latter part of the 14th century, it disappeared altogether. It is thought that the surcoat was adopted by the crusaders, partly to prevent the metal from getting overheated under the hot sun of the Orient²⁷³, and partly to protect it from moisture and rust.²⁷⁴ Below this surcoat, and almost concealed by it, the first stage in the evolution of plate armour occurred, which in the course of two centuries, from the middle of the 13th century on, led to the "white armour" of the 15th century. Until the rich discoveries at Wisby revealed the appearance of the armour worn about the year 1360, we were chiefly confined to contemporary representations in the attempt to follow this evolution. As these are relatively scanty, and only show the outside of the armour, leaving us in ignorance of the details and particulars of the construction, or at any rate permit of different interpretations, our knowledge of the way in which it developed must remain rather uncertain.

13TH CENTURY REINFORCED SURCOAT.

The earliest traces of iron armour below the surcoat known to me are to be found on the sculptured figure of St. Maurice in the Cathedral at Magdeburg of about 1250 (fig. 288)²⁷⁵,



Fig. 286. Legislator. From a manuscript containing Germanic laws, compiled in the neighbourhood of Besançon, about 793.

The assumption that St. Maurice's armour was reinforced with vertical plates receives very strong support from a representation a few decades later, where it can be proved with certainty. The armour referred to, has been published by P. Post²⁷⁷, who dates it about 1280. It is found on a sleeping warrior in a Resurrection of Christ, from the convent of Wienhausen, now in the Provinzialmuseum at Hanover (fig. 290). Here, too, the armouring is on the inside of a surcoat reaching below the knees, and the representation is particularly instructive because not only the rivets but also the plates are indicated in colour on the outside of the cloth. They consist in the front—which alone is visible—of three rows of vertical plates placed above one another,

which has already been mentioned (p. 221, fig. 202). This shows a warrior clad in a coif and hauberk of mail. Over the latter he wears a surcoat consisting of a back and a front piece, with a hole for the head. From the front piece two broad flaps run like a girdle backwards and meet over the back piece (fig. 289). The same form of surcoat, a development of the "poncho" type (cf. above p. 221), is worn by the soldiers on an Easter Sepulchre from the end of the century, in the Münster at Constance.²⁷⁶ What gives the figure of St. Maurice its especial interest in this connection is that, along the upper and lower edge of the girdle, and at the same height right across the front, there are two rows of large rivet-heads, which can only be explained as the fastenings for iron plates on the inside of the covering. Also higher up, near the shoulders, on each side of the collar hanging from the coif, there are three rivets, showing that there were also plates on the breast. Since the lower row of rivets cannot reasonably have held horizontal lames, it must be assumed that the upper and lower row of rivets held each end of long, vertical plates, which ran round the trunk just as in the Wisby armour of type II. The rivets in the upper and lower row certainly do not always correspond, but this might be explained by inaccuracy.



Fig. 287. Sculpture on capital from the Cathedral at Burgos (La Capilla de Sta. Catalina). 14th century.



Fig. 288. St. Maurice. Magdeburg Cathedral.
About 1250.



Fig. 289. St. Maurice, detail of back.

fastened at the upper and lower end to the surcoat with one or two rivets. In comparison with the St. Maurice armour it is of interest to note that here, even where the plates are all distinctly marked, in several cases different numbers of rivets occur at the top and bottom of the same plate.

The type of armour from Wienhausen agrees unmistakably with type IV a of the Wisby armour, and it is interesting to note that, in the earliest examples found in Western Europe the coat of plates appears in a fully developed form, which still survives almost unchanged about a century later; indeed, far from representing a primitive form, the Magdeburg armour with its belt-shaped arrangement is a rather advanced type. A construction which from its first appearance, is evidently fully developed, can hardly be the product of a spontaneous evolution, or the preliminary stages would have left some traces. On the other hand, the fact that the armouring is fixed to the surcoat, a garment which had for a long time belonged to western armour, and which appears sometimes with and sometimes without reinforce-

ment with iron plates, is evidence that the coat of plates was not imported from elsewhere in this form, but that the method of construction was taken over and adapted.

ORIGIN OF COAT OF PLATES.

It might be questioned whether the coat of plates construction was not developed from ancient scale armour (fig. 287), which survived into the 13th century, and which seems to have fallen into disuse as the coat of plates came into fashion. The coat of plates is, in principle, like scale armour turned inside out. Is it not conceivable that the iron armouring was somehow transferred from the outside to the inside of the surcoat worn over it? Of course, the surcoat is generally worn over a mail hauberk, but examples of scale armour being worn under the surcoat also exist (fig. 307). This is, however, merely a theoretical speculation, which has no support in finds or contemporary representations, but is rather contradicted by these. If the coat of plates developed from scale armour, one would expect it first to consist of a large number of small plates, but the evidence of both the Magdeburg and the Wienhausen armour and our analysis of the Wisby finds (p. 224) prove that the plates of the earliest types were fairly large and that the course of development was in two directions, certainly, on the one hand, towards larger and larger plates, but on the other hand there was also a tendency towards a diminution of their size and a simultaneous increase in their number, a development diametrically opposed to what one would expect if the origin had been scale armour. It is therefore probable that the coat of plates was imported from abroad.²⁷⁸

Both Charles Buttin²⁷⁹ and E. A. Gessler²⁸⁰ have assumed that this construction was introduced into the countries north of the Alps from Italy. The latter bases his assumption upon the fact that this type of armour is found in two Italian documents, a Florentine war order dated 1259–60 and a mercenary compact for the town of Massa (not far from Carrara) dated 1267. However, neither of these investigators knew, when they advanced this opinion, of the monuments from Magdeburg and Wienhausen, and the Italian documents relate, as Gessler has pointed out, to the armour of German knights who had taken service in Italy. It is therefore not necessary to maintain the Italian origin of the coat of plates, and I have not been able to find anything to support this in the monuments.

We must then look eastward, whence prototypes of western armour have often come; and there is really some evidence that the coat of plates construction was known and used from early times in the Orient.

W. Arendt has drawn attention to two scenes in gold inlay on the church doors at Susdal in Central Russia, dating from the end of the 12th or beginning of the 13th century (figs. 291, 292).²⁸¹ Several armours are drawn in a hard outline technique; they show broad, horizontal bands passing round the body, and a row of dots along each band. The arms are covered with similar longitudinal bands. These representations give the impression of coats of plates, though their construction could perhaps be explained as a primitive method of representing mail. If these armours were quite isolated, perhaps one would



Fig. 290. Sleeping knight on altar-piece from the Wienhausen Monastery. Provinzialmuseum, Hanover. About 1280.

not venture to attribute any very great importance to them, but even in Oriental miniature painting, pictures of armour occur which hint at a covered construction, as, for instance in the Greek *Octateuch* from Smyrna²⁸², which probably belongs to the 12th century and at any rate was written before 1255 (fig. 293), and in Basilus II's *menologium*²⁸³ from the period between 976 and 1025. All these illustrations are earlier than the appearance of the coat of plates in Western Europe.

In Eastern Asia the coat of plates is the most common and in later periods it is practically the only one occurring in China (figs. 294, 295) and Korea²⁸⁴, while Japanese armour—which is really a mixture of various constructions, adopted from various places—also bears traces of influence of this type. Its appearance in the East, however, seems to be relatively late; the earliest evidence that I have been able to find, dates from a Chinese military order of the year 1496, where it is laid down that for “the armour with nails” (*ting kia*), small studs



Figs. 291, 292. Figure scenes in gold inlay on the church doors at Susdal, Russia. End of the 12th or beginning of the 13th century.

with lacquered heads should be used.²⁸⁵ Just as in the case of lamellar construction, the covered construction, therefore, cannot have been invented in China, but this Eastern Asiatic armour is interesting because it was introduced into China in the Middle Ages. The chief garment of the Chinese coat of plates (figs. 294, 295: 1) belongs to the "poncho" type, just like the oldest European examples. Since no traces of it can be found in the earlier Turkestan culture, almost the only possibility is that it was spread by the Central-Asiatic Mongol peoples. Actually this type was also called "Tartarian cuirass" in China in the 18th century.²⁸⁶ That it occurred in Central Asia is proved by two armours from Bokhara in the Hermitage at Leningrad, where they are dated to the 15th century. The time of its appearance in the East and West coincides very well with this hypothesis, as it was during the second quarter of the 13th century that Europe became acquainted with the armour of the Mongols, whose hordes penetrated right into Silesia.

Unfortunately, we know little of the armour of the Mongols. Above, we studied the picture of Mongolian warriors in armour (fig. 249), made in Tabriz in the beginning of the 14th century, from which it is seen that they appeared generally in lamellar armour, but that other types of armour also occurred. A somewhat earlier picture from Japan, the extreme limit of Mongolian expansion in the opposite direction, gives a similar result. It was painted by the Japanese general Takesaki Suyenaga, who played a prominent part in the repulse of Mongolian attack on Japan during the latter half of the 13th century.²⁸⁷ He has, therefore, come into personal contact with the feared warrior people and the representation with its realistic wealth of detail gives a reliable impression (fig. 296). Here, too, lamellar armour occurs, but not preponderatingly. The majority of the warriors wear

smooth armour which it is fairly safe to identify with the armour of cuir-bouilli mentioned by Marco Polo, William of Ruisbroek and others. In Emperor Frederic's manifesto to the King of England, in 1241, it is mentioned that this leather armour was reinforced with iron plates sewn into it.²⁸⁸ Whether one wishes to explain this as a description of coats of plates, though inaccurate or showing lack of knowledge concerning the construction, or whether one wishes to consider the coat of plates as a further development of the construction with plates sewn in, there remains yet the fact that the Mongols, on their invasion

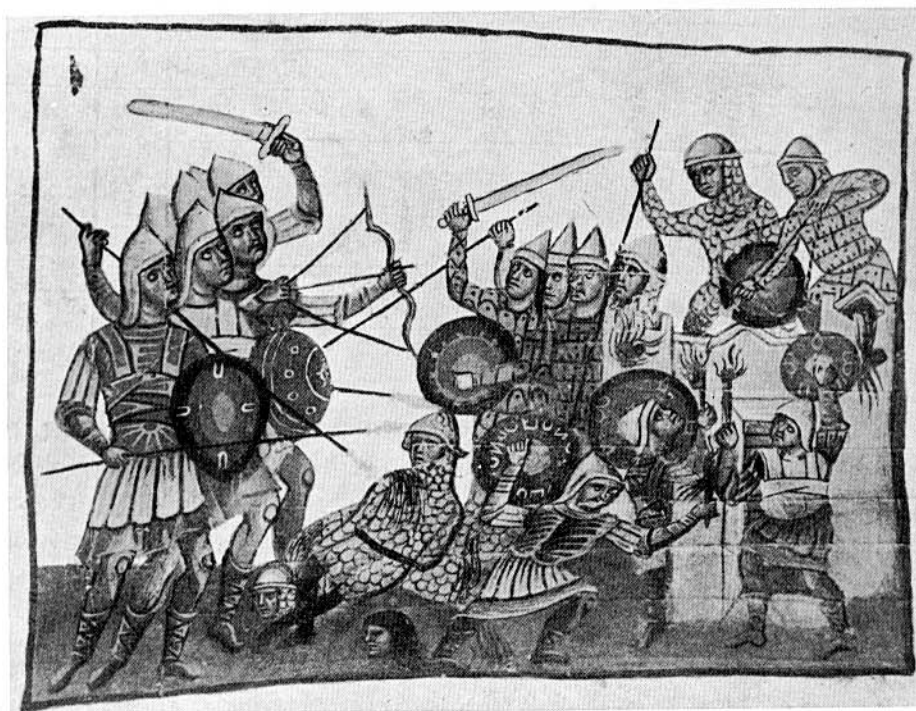


Fig. 293. Illumination in the Greek Octateuch from Smyrna. 12th century (?).

of Europe in the years just before the coat of plates begins to appear, wear armour with iron reinforcement concealed on the inside of a covering. If in the light of this we consider the last but one figure on the right in fig. 296, whose armour is covered with a square pattern of dotted lines, we may venture to conclude that we have here Mongolian armour with iron reinforcing. The lines probably mark the seams with which the iron plates were sewn in, but it is also possible that the dots represent iron rivets and that this is, consequently, a representation of an actual coat of plates. At any rate, in view of this figure it is clear that the step between these two constructions is very short. It is probable that armour of this kind is referred to in a notice in the Russian Ipatiew Convent's chronicles for the year 1287 with the term "an armour of plates", and the same chronicles vividly describe how the Germans, in 1252, were astounded and awed at the armour of the Tartars.²⁸⁹ After this evidence it is not surprising if the knowledge of, or acquaintance with, the construction of the

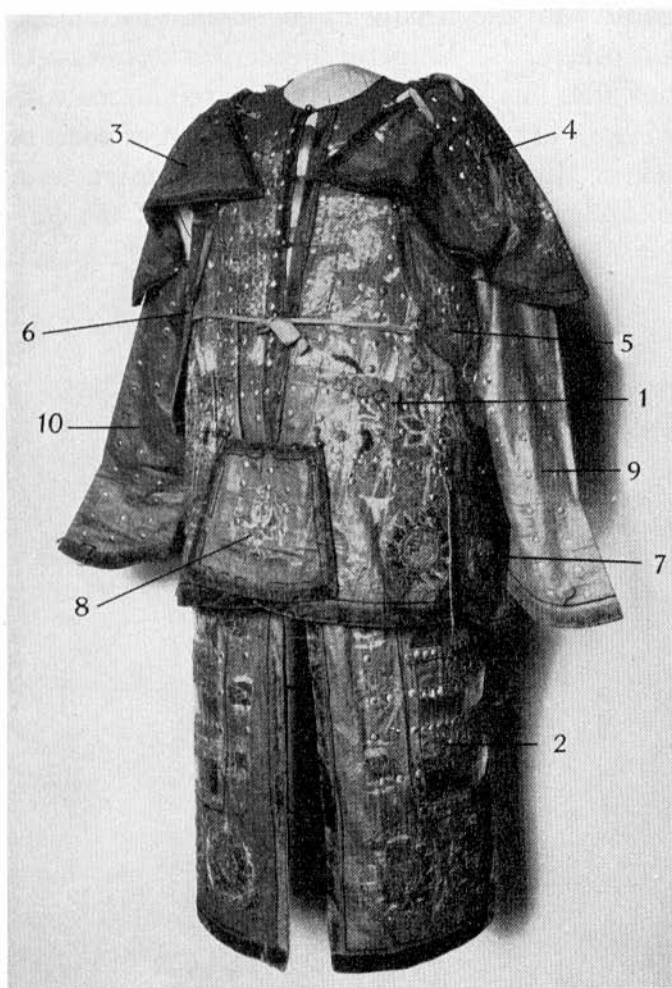


Fig. 294. Chinese armour. Ethnographical Museum, Stockholm. (1) Sleeveless coat, open in front and at both sides. (2) Skirt open at the back and with a slit in the front. (3, 4) Shoulder-guards. (5, 6) Side-guards. (7) Hip-guard on left side. (8) Pudenda-guard. (9, 10) Sleeves with decorative rivets without iron plates.

armour of the Mongols was made to signify an epoch in the evolution of Occidental armour.

We cannot get any farther with this problem and the Oriental origin of the coat of plates and its association with Chinese armour of a similar construction must, therefore, be considered merely as an hypothesis, based upon some coincident circumstances. Nor do we possess any other criteria to judge the question as to whence the Mongols received their inspiration for this type of construction, or if it was invented by them. With the history of the coat of plates we are much more in the dark than in the case of lamellar armour, partly, because its plates do not possess such characteristic forms as the perforated lamellae, and partly because the outside of the armour does not show anything of the construction except the small rivet-heads. Both finds and pictorial material, therefore, leave room for erroneous interpretations, where, indeed, they supply any information at all. The same uncertainty attaches also to a good deal of our material for tracing the further development of coats of plates in Western Europe.

14TH CENTURY REINFORCED SURCOAT.

The two 13th century monuments from Magdeburg and Wienhausen, showed the arming of vertical plates fitted to the inside of the surcoat. This construction seems to have lasted, especially in the Nordic countries, right up to the time when the surcoat ceased to be used, in the middle of the 14th century. Its latest forms are to be found amongst the Wisby armour. This is linked to 13th-century armour by some representations from the first half of the 14th century.

The vertical plates can be clearly distinguished on a Saint Maurice, painted on the inside

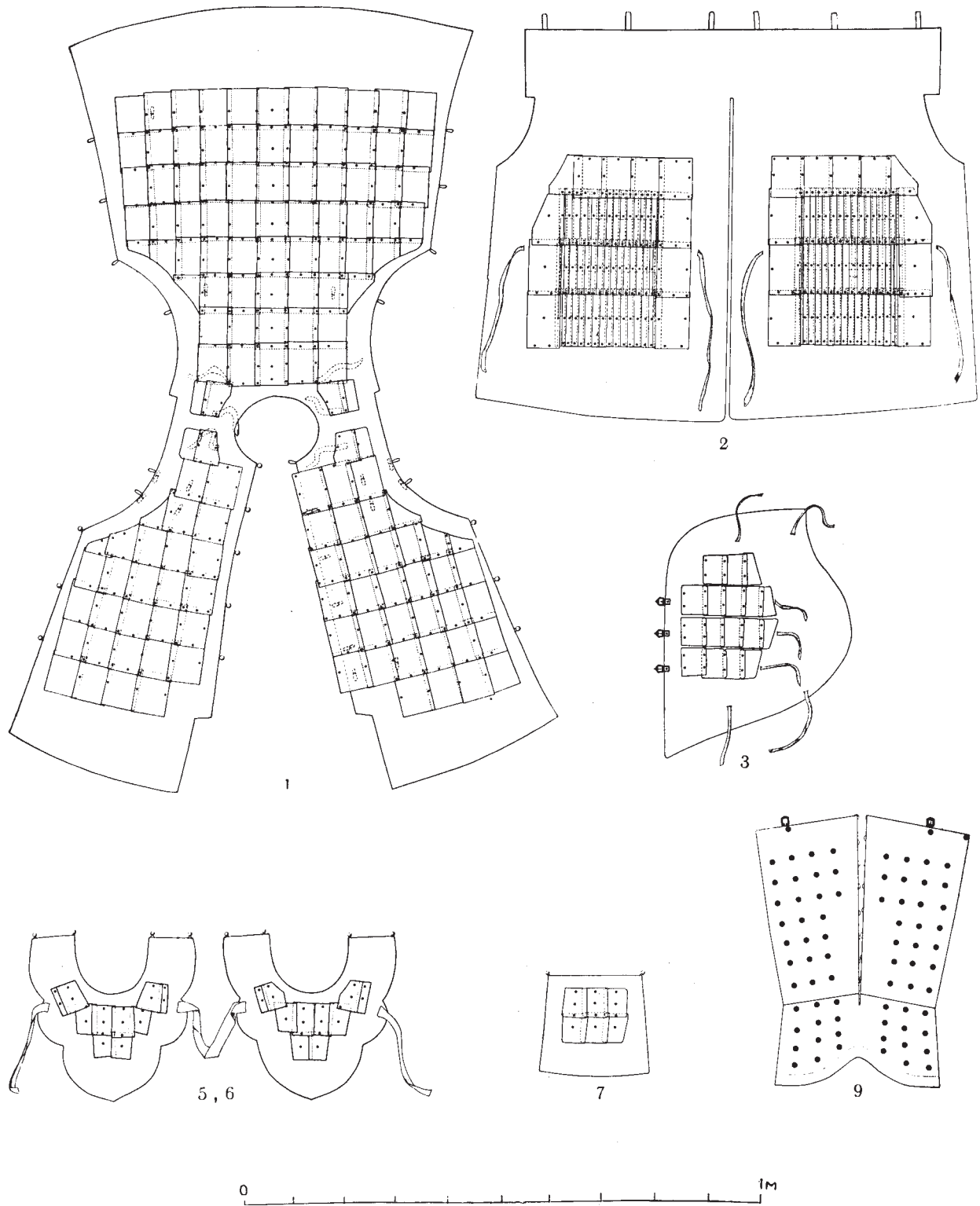


Fig. 295. Measured drawings of the Chinese armour fig. 294, showing the iron reinforcing.

of the door of a reliquary from the Convent of Lögum, in Southern-Jutland—probably about 1300 (fig. 297).²⁹⁰ The surcoat is here still half-length, and on the front the vertical plates and three rows of rivets are indicated with colour. As the plates are also marked below the lowest row of rivets, it must be assumed that a further row of rivets existed, though it is concealed by the belt. The front would thus have been armoured with three rows of vertical plates, like the Wienhausen figure and the Wisby armour of type IV a. On the figure of a St. George on the same reliquary, we see, on the outside of the surcoat, two rows of rivets, but we are here unable to decide whether the plates were horizontal or

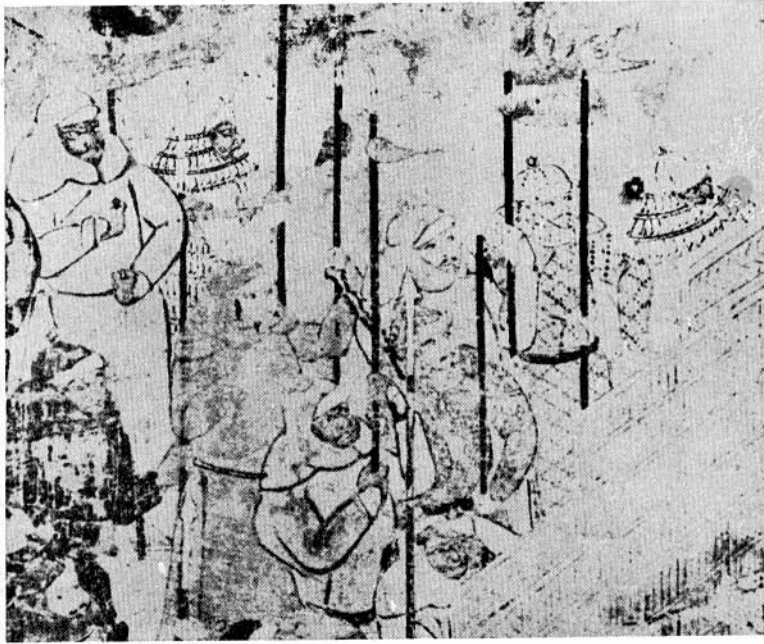


Fig. 296. Mongolian warriors in 13th century. From a painting by Takesaki Suyenaga.

vertical. The same applies to a stained-glass figure, a guard at the Easter Sepulchre from Ardre Church, Gotland, where there are four rows of rivets.

On a monumental effigy in St. Mary's Church at Sigtuna (fig. 298), erected to Nils Jons-son, a knight who died between 1316 and 1319²⁹¹, he wears a surcoat over a hauberk of mail, which reaches below the knees, and which is decorated on its front with bands and diamond-shaped ornamentations, probably embroidered. Between these we find, in three horizontal rows, small rings or circles, which probably represent rivet-heads and indicate that vertical plates were attached on the inside of the cloth. The same applies to the figure of a knight—Valerianus in the martyrdom of St. Hippolytus (fig. 299)—belonging to the series of paintings, dated 1323, in the Church of South Råda, in Värmland.²⁹² Here we notice two rows of rivets on the surcoat, one of them placed so low that, as is also the case with St. Maurice in Magdeburg, it can hardly have belonged to a horizontal lame. The garment is very much curtailed in front and forms two small skirts, which, to judge from the fall

of their pleats, are not armoured; otherwise they remind one very much of the skirt of the Wisby armour 24.

In the paintings from the wooden church at Björsäter, in Ostrogothia²⁹³, which have been preserved in the National Museum of Antiquities in Stockholm, there are two figures of warriors, unfortunately now very indistinct, wearing armour of small, vertical plates (figs. 300, 301). This series of paintings is dated by Andreas Lindblom to the third quarter of the 14th century, and is therefore contemporary with the Wisby armour. The two warriors wear surcoats reaching to the knees, the fronts covered with rows of small, vertical plates, fastened to the covering along one side by means of two or three rivets. This armour thus reminds us of the Wisby armours 23 and 24.

While all these examples of armouring of the surcoat have been taken from Sweden and Denmark, all the others known to me come from Italy. On one of Simone Martini's famous frescoes from 1333-36 in the lower church of S. Francesco at Assisi²⁹⁴ we find two warriors standing on guard at the Emperor Julian's tent, clad in long surcoats, which are decorated in front with rivet-heads arranged in groups of four and four. One of them (fig. 302) has on the breast two round rosettes or plates from which chains issue. The plates which these rivets indicate cannot have been placed vertically; but it is possible that they may be broad, horizontal lames, which stretch across the whole breast and are fastened at the top with two rows of rivets like the Wisby armour 3. But I think it very probable that the armouring in this case consisted of smaller plates arranged in such a way that each group of four rivets held one plate, which at the sides and bottom met and overlapped.

Another armoured surcoat is represented in a magnificent Italian manuscript from 1335-1340, an address to Robert of Anjou from the town of Prato in Tuscany.²⁹⁵ Here LEX is symbolized by a warrior who, over this hauberk of mail, wears a surcoat that is much shorter than Simone Martini's, and is richly ornamented with gold rivet-heads. These, too,



Fig. 297. St. Maurice from a reliquary in the Lögum Monastery, Denmark. About 1300.



Fig. 298. Monumental effigy of Nils Jonsson († 1316-19). St. Mary's Church, Sigtuna, Sweden.



Fig. 299. From paintings in South Råda Church, Sweden, dated 1323.

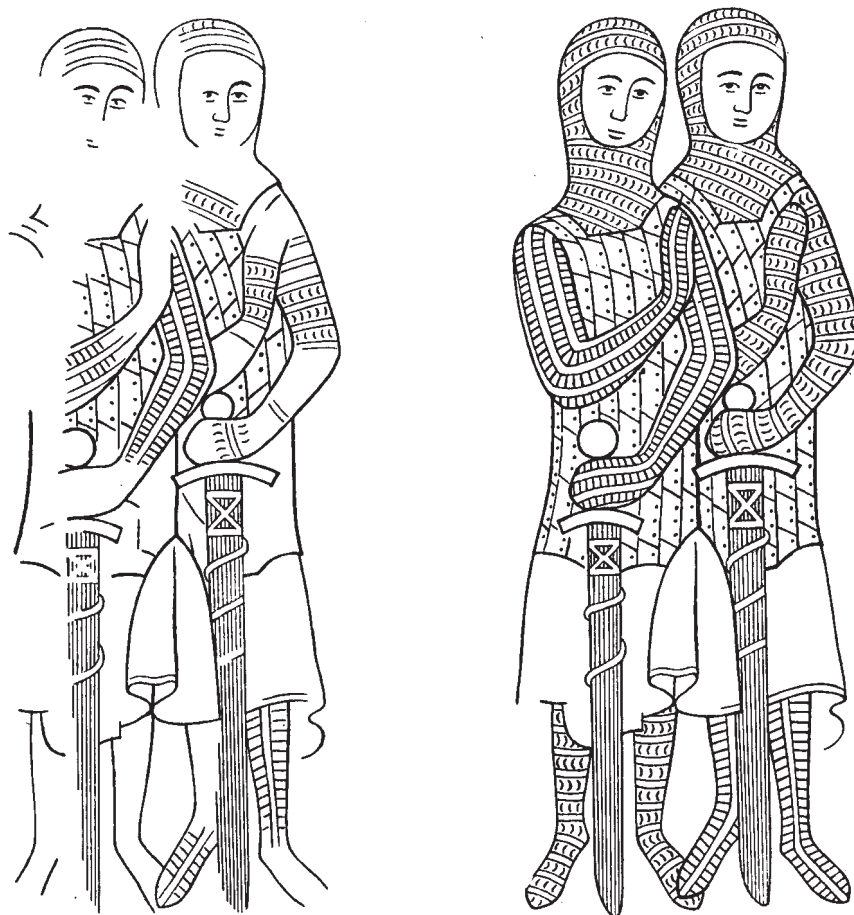
cannot indicate vertical plates, because they are in a diagonal line; and here, too, one gets the impression of smaller plates.

Some further examples of armoured surcoats come from Italy²⁹⁶, all from paintings, but it is curious that none have been found on monumental effigies.

ARMOURED PLASTRON DURING FIRST HALF OF 14TH CENTURY.

Even if no armouring of the surcoat can be proved in Central Europe during the 14th century, this does not mean that the development and evolution of the coat of plates was interrupted. The armouring was attached instead to the garment which is occasionally worn between the hauberk and the surcoat. This garment, which we call the plastron, is

concealed beneath the surcoat, and it is, therefore, in the majority of cases impossible to observe its armouring in the reproductions. As several investigators have pointed out²⁹⁷, one can with a certain amount of probability deduce its occurrence in those cases where the armour is provided with chains fastened on the breast for the helmet,



Figs. 300, 301. From paintings in Björsäter Church, Sweden. National Museum of Antiquities, Stockholm
Third quarter of the 14th century. Fig. 300. Present condition. Fig. 301. Reconstruction.

sword and dagger (or in exceptional cases for the mace). The earliest information of these devices is to be found in a description of the tourney at Chauvency, in 1285²⁹⁸, where the knights had “chascuns son hiaume en sa chaaine”, and the earliest representation of it—a brass in Trumpington Church, near Cambridge, of Roger of Trumpington, who died in June, 1289 (fig. 303)²⁹⁹—shows that the chain for the helmet was at first attached to the belt. In the 14th century a change was made, and the chains were fastened to the breast. These could not easily have been fastened only to the soft mail of the hauberk, but would need a steadier base, preferably an iron plate of considerable size.³⁰⁰ It is very commonly seen that the surcoat has slits on the breast, through which the chains are drawn, which indicates clearly that the chains were attached beneath the surcoat, probably to an armoured plastron.

Occasionally one can see on pictorial and sculptured representations, in the side-openings on or below the surcoat enough of this garment to observe some of the rivets which fastened its armouring. This occurs, for example, on the so-called *l'Homme du Beffroi* in Ghent from the year 1338 (fig. 304), unfortunately now rather damaged and indistinct³⁰¹; also on the monument of Ulrich de Werdt († 1344) in Saint-Guillaume at Strasbourg, which has been the subject of extensive study by Charles Buttin³⁰², and on a soldier in the Easter Sepulchre in Strasbourg Cathedral, an approximately contemporary representation³⁰³, which has been thoroughly dealt with by B. Engel³⁰⁴ from the point of view of the history of armour. On this figure the breast plates were obviously horizontal. On warrior No. 2 there is, also, on the shoulders and the side-portions of the breast, a reinforcing applied to the outside, probably a widening of the small plates placed on top of the covering, like that on the Wisby armour 21. The rivets stand out very well on the monument to Gottfried von Bergheim at Münstereifel, who died in 1335 (fig. 305).³⁰⁵ The surcoat opens in the middle of the front nearly up to the breast, and as it falls away from the figure at both sides, one can see the lower part of the plastron, ornamented with horizontal rows of rivets, which may indicate an underlying armouring of horizontal lames. On the breast we notice the two chains coming from round openings in the surcoat. From England there are examples on the monumental effigies of Sir Oliver Ingham († 1340) in Ingham Church, Norfolk³⁰⁶, and of Sir Humphrey Littlebury (about 1360) in Holbeach Church, Lincolnshire³⁰⁷.

Parts of an early armour with fastening for chains, probably just such a plastron, were found during the excavations of the castle ruins of Reichenstein, in Silesia, and were published by Rudolf Prihoda³⁰⁸. The armour was composed of a number of plates, some of which seem to have been placed vertically, others horizontally. Their precise arrangement cannot be determined, except in the case of two, which on one side show the characteristic curve that indicates that they had been attached close to the shoulder. As they are of different lengths, the shorter was probably attached on the back and the longer one on the breast. The latter is provided with a large, rosette-shaped boss or button of brass, which was riveted on, and which is considered by Prihoda to be the fastening for a chain. According to tradition, the castle was destroyed in 1281, and it certainly vanished *nicht viel später als um das Jahr 1300*. Since the earliest evidence of the use of chains—which at first seem to have been fastened to the belt—only date from the year 1285, it is hardly likely that this armour can be dated to the 'seventies, and the earliest date we can venture to give it is about 1300. But its vertical armouring—of which no other 14th-century example has been found on the Continent—shows that it is rather early.

Towards the middle of the century a peculiar fashion was introduced into Western Europe which revealed rather more of the plastron, in that the front part of the surcoat sometimes did not reach further than the waist, while the back part still covered the thighs. In this way the lower part of the plastron was exposed, and is seen to be covered all over with rivets. The earliest example known to me is the monument to Sir John D'Abernoun, who died in 1327, in Stoke Dabernon Church, Surrey. Below the front edge of the surcoat the lower part of the plastron with rosette-shaped studs is visible. It is possible that

these, as Hewitt explains³⁰⁹, have held a padded garment, not one reinforced with iron. Possibly one need not always assume that the rivet-heads on the outside of the plastron indicate iron plates on the inside, but it may be taken for granted that this is so in most cases. Such representations are not uncommon from the two decades round about 1350, all of them showing horizontally placed armouring (fig. 306).³¹⁰



Fig. 302. From the fresco by Simone Martini in the lower church of S. Francesco, Assisi. 1333-36.

Examples of the plastron also exist with iron plates on the outside of the covering; and in some cases it is probably scale armour, surviving from the earlier Middle Ages, worn below the surcoat.³¹¹ In some cases also it is conceivable that the reinforcing on the shoulders was outside, judging from the Wisby armour 21, and that it covered a considerable part of the armour. We have already encountered an example of this in warrior No. 2 in the Easter Sepulchre at Strasbourg.

In the convent church at Schönthal a.d. Jagst there is a monumental effigy of Albrecht von Hohenlohe-Möckmühl († 1338)³¹², who wears, beneath a short surcoat and over an hau-



Fig. 303. Monumental brass of Roger of Trumpington († 1289) in Trumpington Church, Cambridgeshire.



Fig. 304. *L'homme du Beffroi* in Ghent. 1338. Musée Lapidaire St. Bavo at Ghent.

berk, a plastron, which seems to be covered all over with rather small iron scales, which show on the right side of the breast and also extend over the shoulder (fig. 307). A similar mounting of small iron scales appears below the bottom edge of the surcoat on the monumental effigy of a knight in St. Peter's Church in Sandwich (Kent)³¹³. In Ash Church nearby there is another effigy, probably of Sir John Leverick³¹⁴ and by the same master who was active during the second quarter of the 14th century, in which the surcoat is laced together with a stout cord on the right side. In the oval openings between the lacing the armouring on the plastron can be seen (fig. 308); this consists of horizontal iron plates or scales which are riveted to the plastron and overlap from the top downwards. The armouring is, therefore, on the outside of the plastron, and its representation must be perfectly accurate, be-



Fig. 305. Monumental effigy of Gottfried von Bergheim († 1335) in Münstereifel Church, Rhine Province.



Fig. 306. Monumental effigy of an unknown knight. About 1350. Cast at Musée de la Porte de Hal, Brussels.

cause the monument has been executed with the utmost realism in all its details. Here, too, the armouring seems to project over the shoulder where it forms a kind of short sleeve.

The approximately simultaneous appearance of scale armour in England and on the Continent and in illuminated manuscripts from the same period (Manesse manuscript, *The Romance of Alexander*, fig. 312) should probably be associated with a highly interesting notice in "*Limburger Chronik*" for the years 1350–1352³¹⁵, noted and commented upon by Post: "Item, in der selben zit da vurgingen di platen in disen landen unde di reilige lude, herren, ritter unde knechte furten all schopen, panzer unde huben. Da achte man reilige lude an hondert oder zweihondert man mit huben. Item di manirunge unde gestalt von den schupen halten bescheiden lengde . . ." As Post points out, this gives us information

of a previously unknown atavistic and chance return to scale armour, though the words of the chronicle to the effect that plate armour (i.e. coat of plates) for some time had been altogether ousted, must be interpreted as an exaggeration. This fashion soon disappeared; after the middle of the 14th century authentic representations of scale armour are difficult to find. The reviving interest in this form of construction at this period may have contributed towards the tendency to transfer the armouring from the inside to the outside of the covering. At any rate, the phenomenon is very characteristic of the time and illustrates its fumbling attempts in all directions to find an effective form of construction.³¹⁶

An extremely remarkable plastron is worn by Thomas II of Savoy on his effigy from about 1340, in the cathedral at Aosta.³¹⁷ This is divided from below the left arm to the belt (fig. 309) and the front and back are fastened together by two hinges. The breast part is perfectly smooth, while the back part, the skirt below the belt, and what is visible of the plastron on the right side (fig. 310), are divided into broad, horizontal bands, which overlap each other from below upwards. No rivets are visible, but the way in which the bands or strips overlap, agrees with the system for an armouring on the inside of the covering. But what is the explanation of the hinges? The inference must be that the front of the plastron had the character of hard armour, for otherwise the construction with hinges would have been quite unintelligible. It is most unlikely that before the middle of the 14th century armourers should have advanced so far as the forging of the breastplate in a single piece of iron.³¹⁸ Therefore, if the generally accepted dating is not much too early, the most probable explanation of this is that the breast-armour was of cuir-bouilli. We might also assume that this material was used in several cases where a smooth and rounded plastron is suspected beneath the surcoat in representations from the 13th and earlier part of the 14th centuries, and armour of cuir-bouilli was probably sufficiently firm for the fastening for the chains.

As Francis M. Kelly has shown³¹⁹, this plastron of cuir-bouilli occurs in the 13th century on two English monumental effigies. One, from about 1280, is in Pershore Abbey, Worcestershire³²⁰, and represents a knight in mail with a surcoat. In his deeply cut-out right arm-hole is seen the right side of a smooth plastron, which is divided into a breast and a back piece, fastened together with three buckles. A very similar plastron is worn by a Knight Templar, reputed to be Gilbert Marshall, Earl of Pembroke, on his monument from the end of the century in the Temple Church in London (fig. 311).³²¹ This differs from the Pershore monument only in that the straps which hold together the breast and back pieces do not appear to be held with buckles, but with some kind of hinges. Kelly points out that the smooth, even surface and the arrangement of the straps indicate that this is armour of cuir-bouilli, and, though no rivets are visible he suggests the possibility that the plastron had been partly armoured with iron plates, though this could not be seen on the small surface that was exposed. It might even be imagined that iron plates were sewn below the lining on the inside of the leather armour, as in the armour of the Mongols.

We are here faced with the question whether, with this apparently reinforced armour of cuir-bouilli we have reached a primitive form of the coat of plates in Western Europe, as it had been adopted, perhaps from the Mongols, perhaps through the crusaders, and

from which it had subsequently developed, partly as a plastron and partly as an armoured surcoat. The answer to this question must, however, remain a mere speculation until fresh material gives an opportunity to gain detailed knowledge of the form in which the coat of plates of the 13th century appears—just as the finds from the warrior graves at Wisby tell us of the 14th century.



Fig. 307. Monumental effigy of Albrecht von Hohenlohe-Möckmühl († 1338) in the convent church at Schönthal an der Jagst, Württemberg.

ARMOURED PLASTRON ABOUT THE MIDDLE OF THE 14TH CENTURY.

We have tried to make a survey of the armouring of the plastron and the surcoat up to the period in the middle of the 14th century when the latter begins to disappear. A good illustration of the appearance of armour on the Continent is supplied by the hundreds of warrior pictures in the illuminated manuscript of the Romance of Alexander, which is in

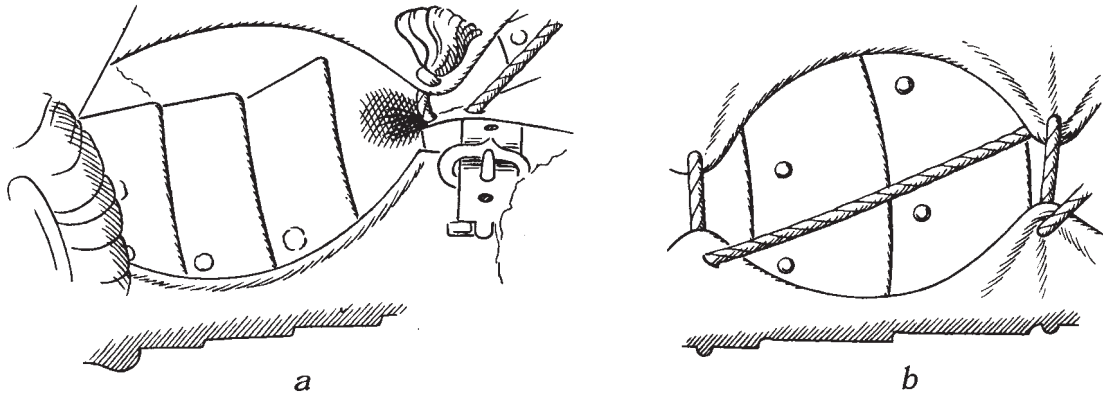
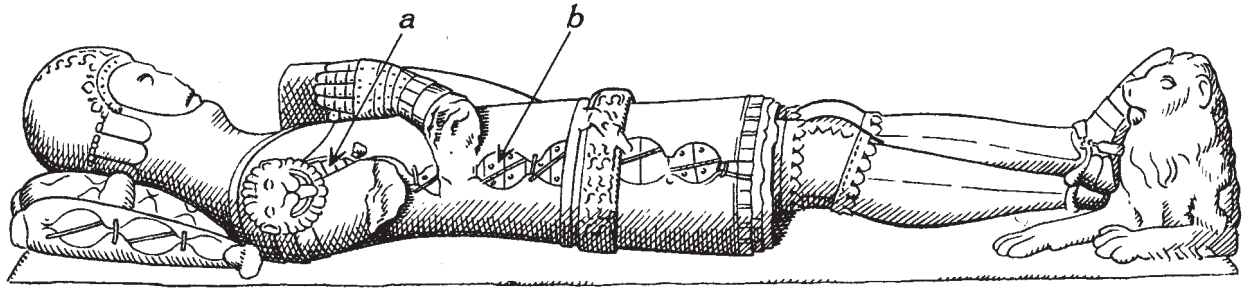


Fig. 308. Monumental effigy of John Leverick (?) in Ash Church, Kent. About 1340. (a) and (b) scale 1:2.

the Bodleian Library at Oxford.³²² This manuscript was finished on the 18th December, 1338, and the illumination, which is signed by the Fleming, Jehan de Grise, was ready on the 18th April, 1344. Armour is shown in these illustrations in three main forms, always over the hauberk of mail. (1) The surcoat, either half-length on both sides or short in front; this garment is never armoured. In the side openings or in front, if the surcoat is of the short type, we often, but not always, see a plastron (fig. 312). (2) The plastron, invariably with horizontal lames riveted to it on the inside; a single figure, (fol. 66 r), shows these on

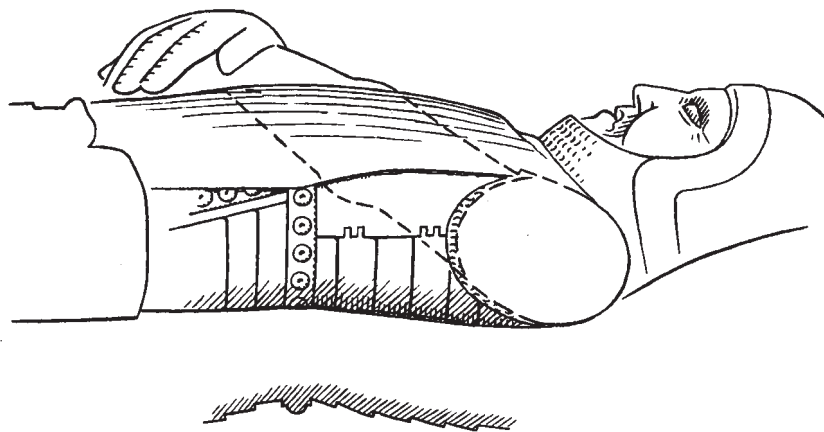


Fig. 309. Monumental effigy of Thomas II of Savoy in the Cathedral at Aosta. About 1340-70. Left side.

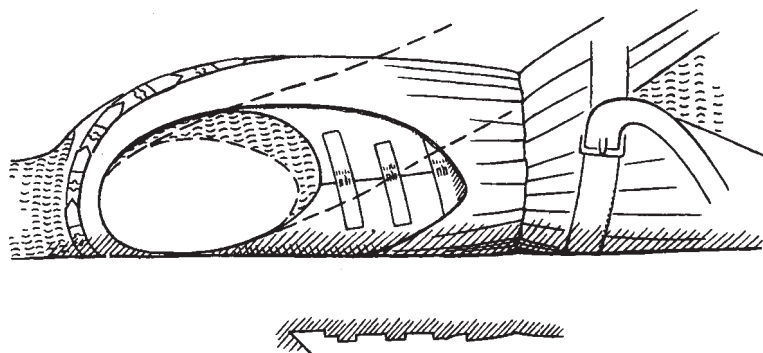


Fig. 311. Monumental effigy of Gilbert Marshall, Earl of Pembroke, in the Temple Church, London. End of 13th century.

the inside divided into smaller, rectangular plates. Occasionally, (fol. 43 v), round the arm-holes, semicircular ornamental plates are found, similar to those on the Wisby armours 21, 22 and 24. The garment reaches below the hip and is generally finished at the bottom with semicircular scallops; occasionally it is worn beneath the surcoat (fig. 312), but usually without one (fig. 313). No difference in type can be noted in either case; it is quite clear that the plastron is shown when the surcoat is removed. In spite of the vast number of pictures which occur of this garment, I have only been able to find one which clearly shows the appearance of the back, (fol. 66 r, fig. 347); it is also provided with horizontal rows of rivets, and is buckled together in the middle with four buckles in a manner which will be described later. (3) Scale armour with the reinforcing on the outside of the garment (fig. 312). This occurs very seldom (I have only noted three reliable examples, fol. 51 v and 59 r). The scales are square, in one case with the bottom corners cut off. This armour is worn without a surcoat (cf. p. 301).

The plastron, consisting entirely of horizontal lames, probably united at the sides by smaller rectangular plates, with which we have become familiar through the illustrations in the Romance of Alexander, can be studied in detail on contemporary sculptures on a larger scale. Made probably during the same decade as this manuscript is the Easter Sep-

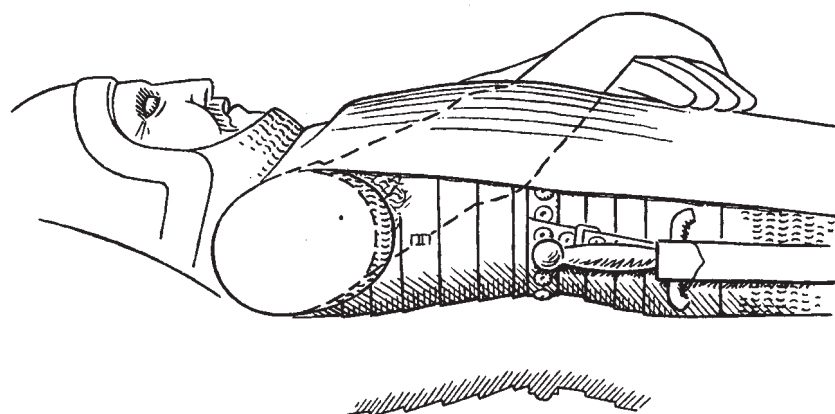


Fig. 310. Monumental effigy of Thomas II of Savoy in the Cathedral at Aosta. About 1340-70. Right side.



Fig. 312. From the Romance of Alexander (1338-1344). Knights, two with reinforced plastron and surcoat, one wearing scale-armour (extreme left).

ulchre in Freiburg Cathedral, whose five soldiers present to the student of armour, examples of various details of armour from this important transitional period (fig. 314).³²³ The warrior farthest to the left (fig. 315) wears a short plastron whose horizontal lames can be distinguished clearly by the modelling of the covering, and are well marked by the rows of rivets. The continued existence of the type during the 14th century is shown, for instance, by the representation of a warrior from the Levitic pew at Verden (figs. 316, 317)³²⁴, to which we shall revert; also by the monument of Sir Miles Stapleton, who died in 1364, formerly in Ingham Church, Norfolk³²⁵, a painting in Skibby Church, in Sjælland (fig. 263; cf. p. 269), from the middle of the century³²⁶; and figures of Gideon

on the choir stalls in the Cathedral at Lund and at Scharnebeck, from the 'seventies.³²⁷

More important still in the history of the evolution of the coat of plates is the type which we already know from the Wisby finds (type I), with horizontal lames covering the lower part of the front, and vertical plates across the breast. The appearance of this type during the second quarter of the 14th century is proved by the remarkable find of armour from the Castle of Küssnach, in Switzerland, which was destroyed in 1352, and which has been so cleverly reconstructed and published by E. A. Gessler (figs. 318-323).³²⁸ The reconstructions, which are certainly not based upon the position of the find but merely upon analogies with contemporary representations, are so convincing that we are justified in assuming their correctness in their main features. Of the two armours which could be mounted, the front of one (II) consists only of five horizontal lames, but the upper part is missing; it was probably similar to armour I, whose front also consists of a lower part of five horizontal lames, but above these, the breast was covered with three vertical plates, the two outer ones

being shaped to fit the shoulders. It agrees thus in its construction with the Wisby armour 1. In contrast to the latter and other Wisby armour of type I the back portions of the two Küssnachs armours consist of smaller plates, arranged in horizontal rows. Above these on armour I, Gessler has placed three vertical plates like the breast plates in front.³²⁹

As is seen from the Wisby armour 2 the vertical breast plates show a tendency to unite with the plate below into a larger breast armour. Even before the middle of the century this development seems to have resulted in the upper part of the breast armour merging into a single plate, to judge from the effigy of Count Otto von Orlamünde († 1340) in the convent of Himmelkron, in Upper Franconia (figs. 324, 325).³³⁰ The breast armour which, as far as one can see, consists of a single plate, probably corresponds to the three vertical breast plates and the uppermost horizontal lame of the Küssnach and Wisby armour. The lower edge is straight and below it are six horizontal lames. The same type of armour is shown by the monuments to Rudolf von Hürnheim († c. 1280) in the convent church of Zimmern (fig. 326), to Walter von Bopfingen († 1359) in Bopfingen Church, both near Nördlingen (fig. 327)³³¹, and to Rezzo von Bechlingen († 1320) in Bächlingen Church, in Württemberg (fig. 328)³³², surely all belonging to the same period, about 1350–60. It is very doubtful whether the armours portrayed on these South-German monuments, which evidently all come from the same studio, reproduce actual coat of plates, or whether the iron armouring is already riveted on to the outside of the leather coat. Already the borders between the various plates are marked so clearly and sharply that they can hardly be only pleats or folds on the covering. Also, in the arm-holes, two contours can be seen, with the rivets following the inner one, and it appears to have a foundation of leather, which extends beyond the inner contour of the superimposed iron reinforcing. But one thing, in my opinion, definitely proves them to be coats of plates; the coat is finished off at the bottom with large scallops, a decoration suitable only to leather, which must have been visible at least right up to the bottom edge of the next plate above. But on the effigies from Zimmern and Bächlingen rivets are clearly shown on this very portion, and this is proof that the reinforcing was on the inside of the leather. As it is not likely that the bottom plates lay underneath, and the others on top of the leather, it may be assumed that the effigies are



Fig. 313. From the Romance of Alexander (1338–1344). Knights with reinforced plastron without surcoat.

represented with coats of plates. This is also confirmed by the rivet-heads being visible everywhere, for if the iron had been on the outside, the rivet-heads would have been turned inwards. Such is clearly the case with the smaller iron plates which are placed on top of the shoulders in the majority of these armours in close agreement with the Wisby armour 21. Even the appearance of the shoulder-guards are very like the Wisby finds; the scalloped edge on Walter von Bopfingen's shoulder-guards remind one of our plate *Rx 1* (fig. 102: 3), and the ones worn by the Count von Orlamünde are like those which belong to armour 25 (fig. 388).

There is also evidence that this group of monumental effigies represents actual coats of plates in a figure of Goliath from the choir stalls at Scharnebeck from about 1370 (fig. 329)³³³, as the armour reproduced is of exactly the same type as the ones previously studied. That the iron really lies below the covering, is clear, because the breast-chains pass through a slit in the leather to their points of attachment on the breastplate, which here is straight at the bottom and certainly made in a single piece.

14TH CENTURY BREASTPLATE.

A breastplate, rounded off at the bottom, is worn by Johannes von Falkenstein († 1365) on his tombstone in the Cistercian Convent of Arnsburg, in Wetterau (fig. 330).³³⁴ Here, too, there are horizontal lames below the breastplate, but these are narrower and more numerous. A similar breast armour³³⁵ is shown in the famous statue of St. George in the Hradschin Place at Prague (figs. 331–333). For stylistic reasons an attempt has been made to maintain that the present beautiful equestrian group must have been recast at the beginning of the 16th century from the monument which was cast in the year 1373 by the brothers Martin and Georg von Klausenberg³³⁶, so that this work of art must be used with caution as an historical document. It must, however, be stated that the armour itself falls perfectly within the 14th-century history of evolution, and it would be very astonishing if it had been possible at the beginning of the 16th century—even with the original as model—to produce such a faithful copy of 14th-century armour. The plates have, except at the bottom of the front, been broken up into a system of small plates which articulate with each other, and we see clearly the prototype of the 15th- and 16th-century brigandine. This armour is fastened at the back by several buckles. To armour of a similar kind, though probably open on one side, the plates belonged which have been discovered during the excavations of the Castle of Helfenstein, in Würtemberg, and published by Werner Fleischhauer.³³⁷ The most remarkable thing here is the heart-shaped back plate, which, as Fleischhauer remarks, would suggest a similar breastplate, though I believe that this was considerably larger than he assumes. Otherwise the armour, like that of St. George in Prague, consisted of rather small plates and a few longer lames which Fleischhauer probably rightly places at the bottom of the front.

At this point of development the coat of plates is connected with the plastron of cuir-bouilli. We have seen that Thomas of Savoy on his monument at Aosta was represented

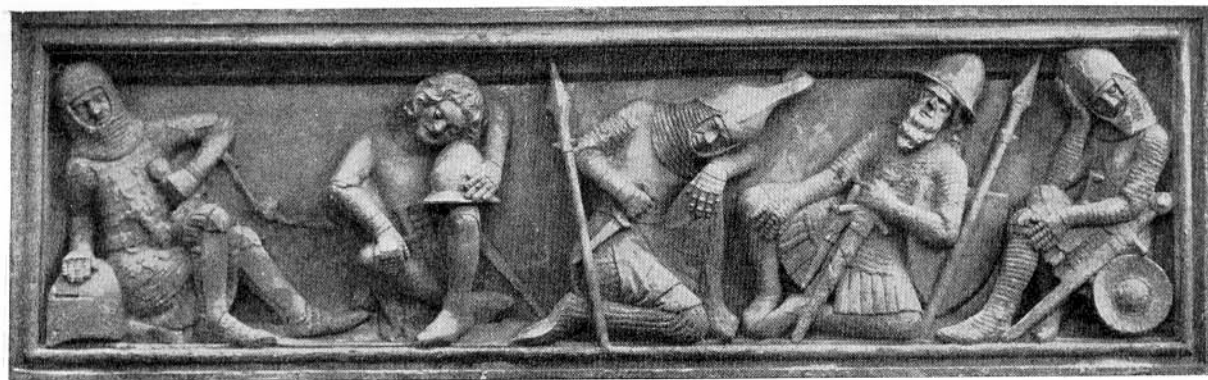


Fig. 314. Easter Sepulchre in Freiburg Cathedral. About 1340-50.

with a breastplate in one piece, which was articulated to the back armour with a hinge, and which was assumed to be made of cuir-bouilli (p. 302). It has also been assumed that the flat breast armour, which is probably beneath the surcoat prior to the middle of the 14th century, might be made of this material. In the sixties of the 14th century, however, on German effigies domed breastplates consisting of a single plate begin to appear, with a skirt riveted fast at the waist.³³⁸ Such armour, with a smooth skirt, is worn by Heinrich von Seinsheim († 1360)

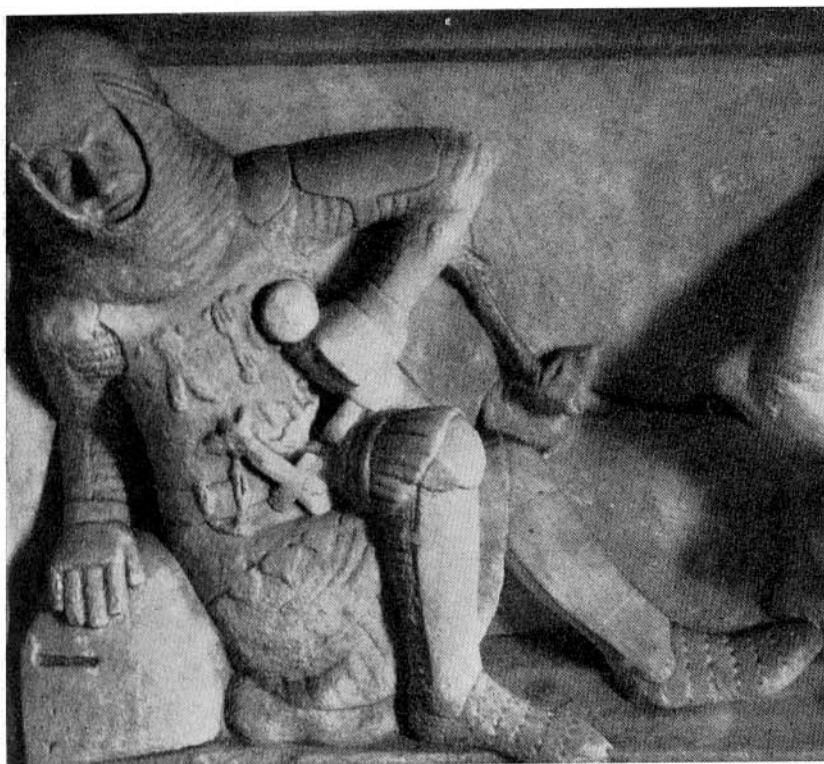


Fig. 315. The soldier on the extreme left on the Easter Sepulchre in Freiburg Cathedral.

on his monument in Würzburg Cathedral³³⁹, and similar armour, but with skirts of horizontal lames riveted to the inside of the covering, are to be found on the monuments to Günther XXV of Schwarzburg († 1368) in the Liebfrauenkirche at Arnstadt³⁴⁰ and to Konrad von Seinsheim († 1369) in St. John's Church at Schweinfurth (fig. 334).³⁴¹ James G. Mann in his learned study on the evolution of plate armour in Germany³⁴² has assumed that the solid iron breastplate is fully developed at this period. It cannot be said with absolute certainty whether the material is iron or cuir-bouilli, but



Fig. 316.- Knight from the Levitic pew at Verden Cathedral. About 1360-70. Front view.

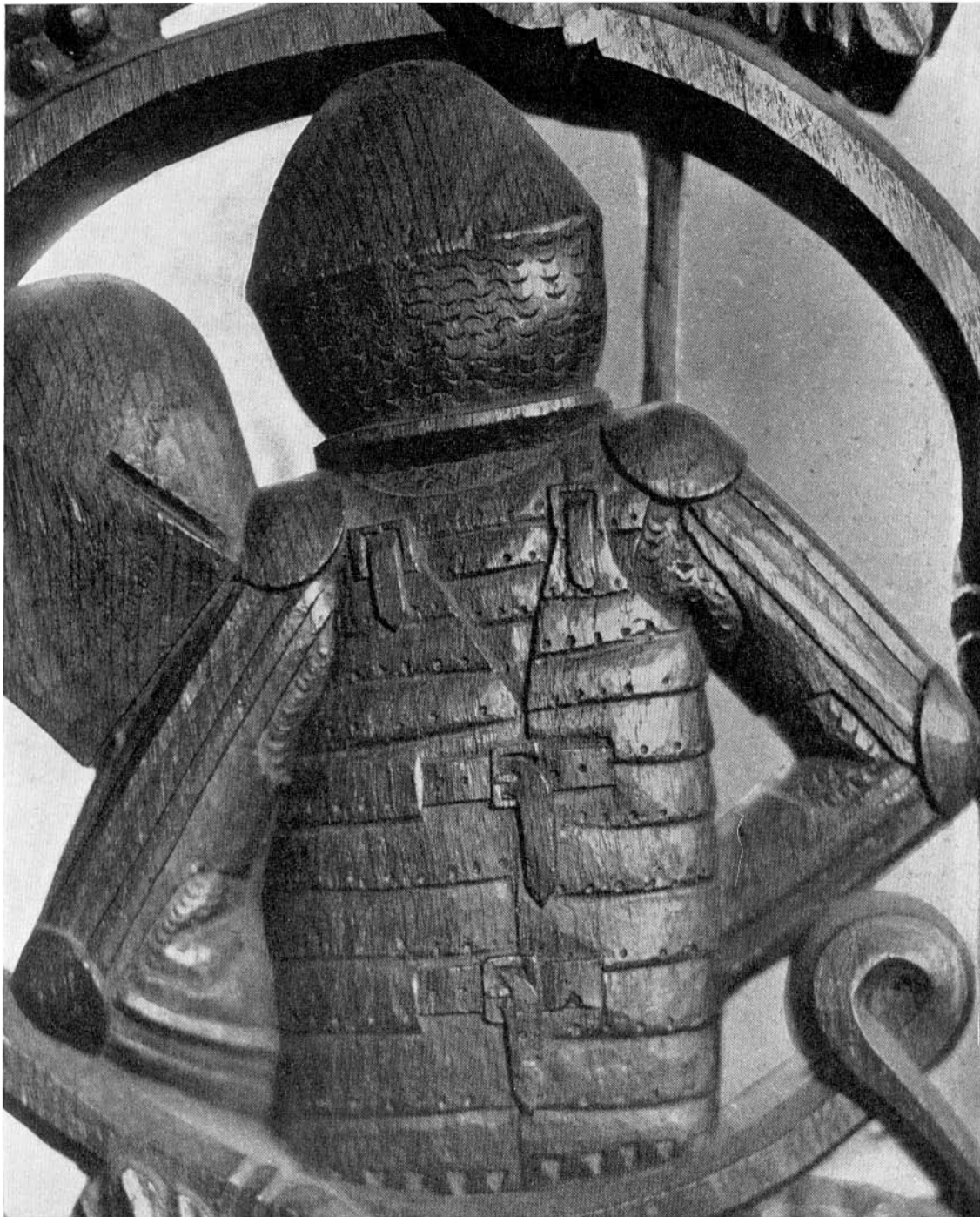


Fig. 317. Knight from the Levitic pew at Verden Cathedral. About 136c-70. Back view.



Figs. 318-320. Armour No. I from Küsnach, Switzerland. Second quarter of 14th century. Schweizerisches Landesmuseum, Zurich.



Figs. 321–323. Armour No. II from Küssnacht, Switzerland. Second quarter of 14th century. Schweizerisches Landesmuseum, Zurich.



Figs. 324, 325. Monumental effigy of Otto von Orlamünde († 1340) in the Convent Church of Himmelkron, Bavaria.



Fig. 326. Monumental effigy of Rudolf von Hürnheim († c. 1280) in the Convent Church of Zimmern, Bavaria. About 1350–60.



Fig. 327. Monumental effigy of Walter von Bopfingen († 1359) in Bopfingen Church, Württemberg.

we have a certain example from the next decade of a breastplate of iron in the armour of Beringer von Berlichingen († 1377), on his monument in Schönthal an der Jagst (fig. 335).³⁴³ As Mann points out, the medial ridge certainly proves that the material was metal. An identical armour with a skirt of horizontal lames riveted to the inside is worn by Dieter von Hohenberg († 1381) on the effigy from Hohenberg Castle, now in the Bayrisches Nationalmuseum, at Munich.³⁴⁴

To the type of armour which had developed in this way, belongs a breastplate³⁴⁵ covered with coarse linen and with red velvet over it, in the same museum (figs. 337, 338). On the inside of this covering, six narrow (3.2–3.5 cm.), horizontal iron lames are riveted to the bottom and on the left shoulder there are three small iron plates and an ornamented mount with a pin intended to secure the backplate (fig. 339). On the right shoulder a piece of leather with a hinge is riveted. The inside of the breastplate is stamped with a crowned R.

A series of nine lames belonging to a similar armour comes from the remarkable find from Tannenberg Castle³⁴⁶, which was destroyed in 1399, and a similar lame of the kind which occurs on the left shoulder of the Munich armour, has been found at the Royal Palace of



Fig. 328. Monumental effigy of Rezzo von Bechlingen († 1320) in Bächlingen Church, Württemberg. About 1350-60.



Fig. 329. Goliath on the choir-stall at Scharnebeck Church, Hanover. About 1370.

Alsno Hus, in the neighbourhood of Stockholm (fig. 340: 1 a)³⁴⁷, which was probably attacked by an armed force in the beginning of the last decade of the 14th century. Some similar strips have been found at the Castle of Alt-Titschein, in Moravia³⁴⁸—dated to the end of the 14th century—and the Castle of Hammershus, on the Island of Bornholm, in the Baltic (fig. 340: 2)³⁴⁹; but none of these finds showed any trace of a breastplate, and it is possible that this was still occasionally made of cuir-bouilli. At any rate, the spread of the type of armour over the whole of Central and Northern Europe appears to have occurred in the last decade of the 14th century, and the armour at Munich might be classed as one of the two or three armours which have been preserved above the soil from that century.

In the 'eighties, perhaps even somewhat earlier, armour begins to develop further, in that the breastplate loses the reinforced skirt. To this type belongs the armour analysed

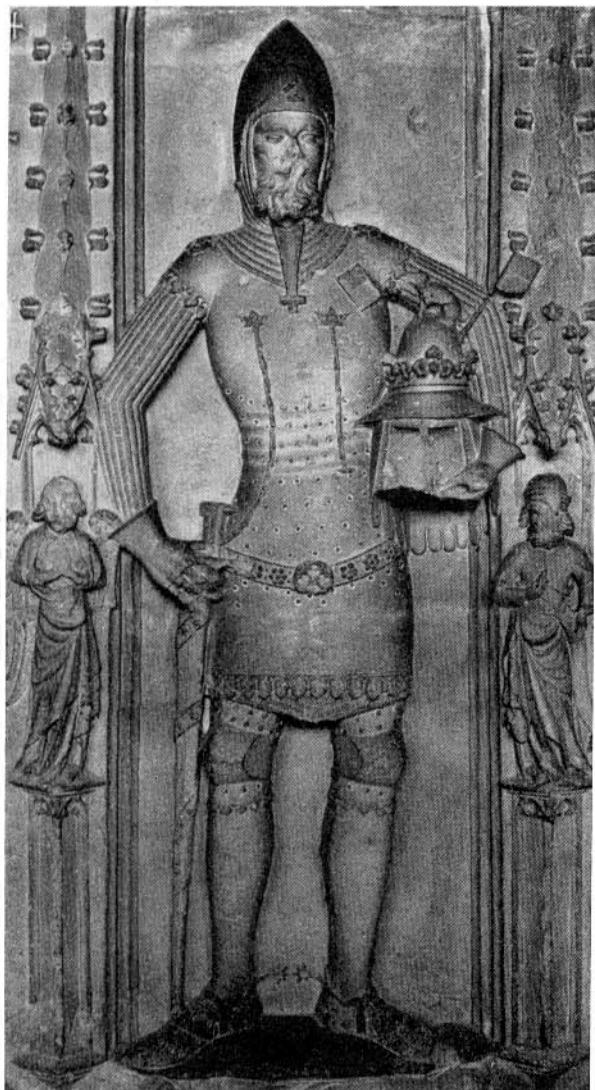


Fig. 330. Monumental effigy of Johannes von Falkenstein († 1365) in the convent church of Arnsburg, Hesse.

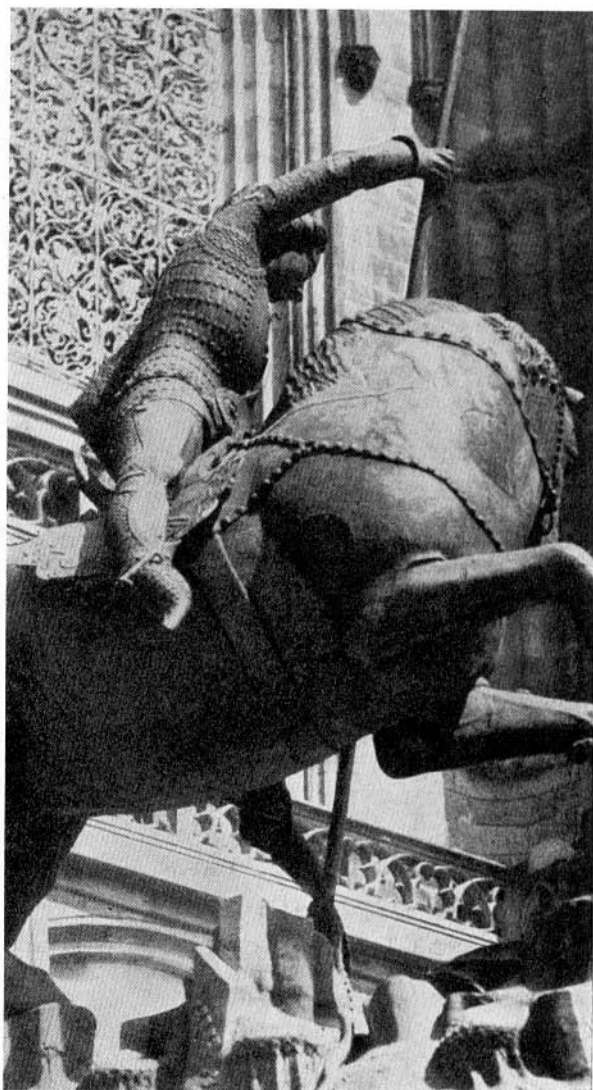


Fig. 331. Statue of St. George at the Hradshin, Prague. 1373 (?).

in detail by E. A. Gessler, which is worn by Walter von Hohenklingen, who fell in the battle of Sempach, in 1386, and is represented on the tombstone which has come to the Schweizerisches Landesmuseum in Zurich from the Convent of Feldbach.³⁵⁰ It is clearly seen that the breastplate is of steel not only from the medial ridge but also from the lance-rest. As Gessler has pointed out, a back-plate probably corresponded to the breastplate, and these two were buckled together at the sides over a leather *lentner*, perhaps armoured, which in its turn covered a hauberk of mail. Other examples of similar armour are to be found on the monuments of Wilhelm Wilkart († 1379) at Awans, in Belgium³⁵¹, Burkart von Massmünster († 1386) in Basle Cathedral (fig. 336)³⁵², Heinrich von Erbach († 1387) in the church



Fig. 332. Statue of St. George. Hradschin, Prague. 1373 (?).

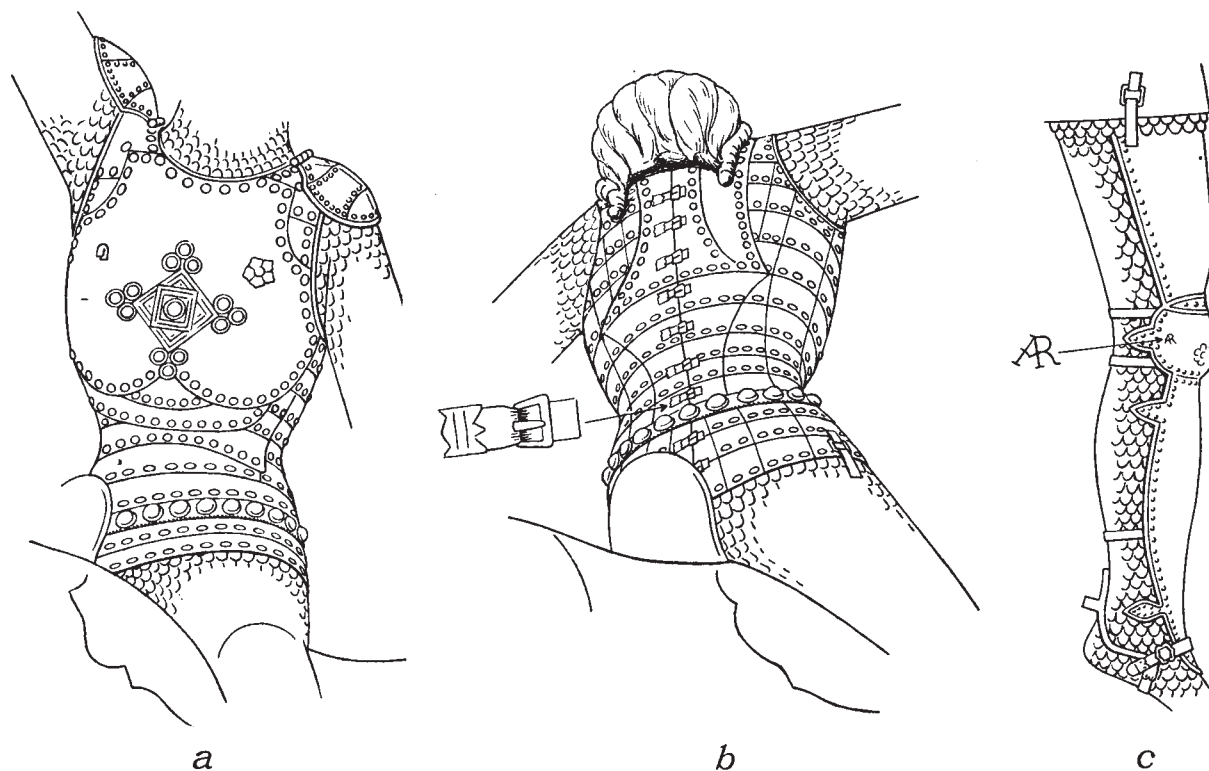


Fig. 333. Statue of St. George. Hradschin, Prague. (a) Front view. (b) Back. (c) Greave.

at Michelstadt, Odenwald³⁵³, and Sir John de Montacute († 1389) in Salisbury Cathedral³⁵⁴. With this exposing of the breastplate follows the evolution of the “all white” armour. On the figure at Salisbury the breastplate, which on one side is joined to the back piece by hinges, is still covered by a jupon, but it is most probable, that both Walter von Hohenklingen’s and Heinrich von Erbach’s breastplates were not covered. This assumption is confirmed by a contemporary coat of arms in the Historical Museum at Basle in which there is a warrior wearing a breastplate of this type.³⁵⁵ The original painting, which is well-preserved, shows clearly in the colour of the iron, as Gessler has pointed out, that there was no covering. In agreement with this Charles Buttin, in his careful study of records, finds that it is in the ’eighties that the terms *poitrine d’acier*, *pièce d’acier*, *plate d’acier* designating *le harnois blanc* first appear.³⁵⁶

The round breastplates found on Johannes von Falkenstein’s monument and on the statue of St. George at the Hradschin, introduce, however, still another line of development which already in the ’seventies had led to the exposing of the iron reinforcing. Two knights on the choir-stalls in the cathedral at Bamberg from about 1370 or perhaps a little later³⁵⁷ wear armour with large, oval plates, which cover the whole breast (fig. 341). Although the armouring, marked by large, closely placed rivet-heads is here, as usual, on the inside of the covering, the breastplates are riveted to the outside. No rivet-heads are visible along the edges of the plates, which are also clearly marked. Two chains for the sword and dagger



Fig. 334. Monumental effigy of Konrad von Seinsheim († 1369) in Schweinfurth Church, Bavaria.



Fig. 335. Monumental effigy of Beringer von Berlichingen († 1377) in the Convent Church at Schöenthal an der Jagst, Württemberg.

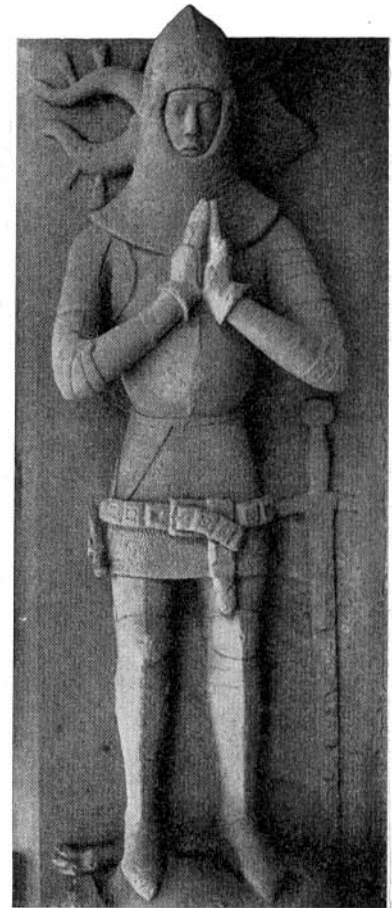
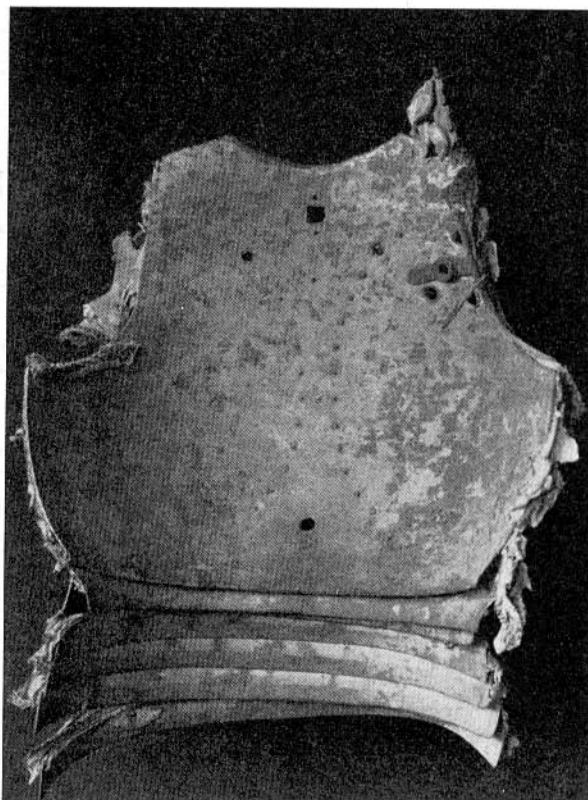


Fig. 336. Monumental effigy of Burkart von Massmünster († 1386) in Basle Cathedral.

are fastened to the breastplates. This is the earliest example I know, of outside armouring of the coat of plates, and it is certainly not by chance that it is connected with an arrangement for attaching the chains to the breast. It is possible that such plates, riveted fast to the outside of the plastron, occurred still earlier, concealed below the surcoat and it is very probable that the transfer of the breastplate from the inside of the surcoat to the outside followed the introduction of exposed minor parts of the armour, such as the metacarpal plate of the gauntlet and the protection for shoulder, elbow and knee.

This outside attachment of the breastplate very soon developed into an independent breastplate, quite separate from the plastron. This is seen from the monument to Albert von Limpurg († 1374) at Burg Komburg, in Württemberg (fig. 342).³⁵⁸ Here the breastplate is fastened by means of buckles to the plastron, the rest of which is reinforced as usual on the inside, and not riveted to it as was probably the case with the Bamberg figures. The



Figs. 337, 338. Breastplate. Bayerisches Nationalmuseum, Munich. About 1400. Outside, inside.

plate also was shaped to fit the arms. This was a very important advance towards the white breastplate as an independent garment. Armour of this type is also worn by Konrad von Limpurg, who died two years later, on his effigy at the same place (fig. 343), but it has undergone some characteristic changes; the bottom edge of the breastplate, which was previously convex, is straight or even concave at the waist, and the surface has been hammered out into two vertical facet-edges, corresponding to the medial ridge which was a characteristic of the type of armour from the latter part of the 'seventies. And more important, still, the inside reinforcing of the plastron—as far as I have been able to find out from the photographs that have been at my disposal—has disappeared; there are no longer

any rivet-heads on the outside and the plastron clearly has lost its importance. If the breastplate instead of being strapped on to the plastron is strapped to a corresponding backplate, the plastron may just as well be dropped and we then arrive at white armour.

But this step was not taken at once. On the monument to Burkhard von Steinberg († 1379), in the church of St. Martins at Hildesheim³⁵⁹, the breastplate is still fastened to the outside of a leather surcoat and

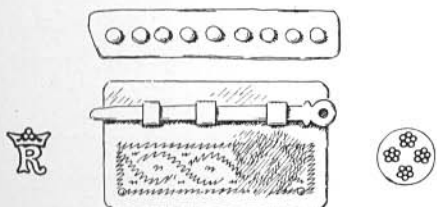


Fig. 339. Details from the breastplate figs. 337, 338.

below the breastplate the horizontal plates of the skirt have been transferred to the outside of the covering (fig. 344). This skirt tapers sharply downwards, so that the lower parts of the leather coat which hold the whole together, project on both sides. The breastplate is now fully developed with a straight bottom edge at the waist and medial ridge and its surface is hammered into big bosses.

Probably connected with this trend of development is the armour of about a decade later, which belongs to the collections at Churburg and which is probably the earliest white armour preserved.³⁶⁰ This consists of a vertical breastplate which is more or less rectangular, and on either side vertical plates which pass round the body but do not meet at the back (figs. 345, 346). The metal parts are still riveted to a foundation of leather, and the belt-like arrangement of the side plates is the same in principle as on St. Maurice at Magdeburg (fig. 288) and in the Wisby armour of type I–III. Arms, gauntlets and basinet also belong to this remarkable suit. If the construction of the Bamberg armour is in principle comparable to the Wisby gauntlet 3, the Churburg armour can be compared with the Wisby gauntlet 5, another proof that changes tend to occur first in the subordinate parts of armour and does not appear in the body armour until later.

The further evolution of white armour which begins with the bared breastplate of the eighties of the 14th century, and of the brigandine, which is the direct successor of the coat of plates, is not within the scope of this investigation, the purpose of which was only to show the general European background for the finds of armour at Wisby. Instead, a retro-spection and summary will be given of the various directions in which the coat of plates developed, taking special account of these finds.

POSITION OF WISBY ARMOUR IN THE DEVELOPMENT OF COATS OF PLATES.

Apparently suddenly in the middle of the 13th century the coat of plates appears in Germany in the form of armouring of the surcoat with vertical plates, and remains there in the same form during the latter half of the century, though to what extent it is difficult to judge because of the scantiness of the material. In the same form—as vertical armouring of the surcoat—it survives and develops further in the Nordic countries, and only there, during the first half and third quarter of the 14th century. Owing to this apparently exclusive limitation of the spread of this form to the North, the Wisby armour of types II–V must be considered as especially Nordic. The analysis of these types, which has already been made (p. 224), shows that they spring, in two lines of development, from type IV a, which is open on both sides and is therefore in reality nearer the original form than even the earliest German example, the St. Maurice from Magdeburg. This representation, typical of the first line of development, is associated with the Wisby armour type II, in which the reinforcing of the front has spread out at the sides and surrounds the back like a girdle, with an opening in the middle of the back. The other line of development of the Wisby armour reinforced by vertical plates embraces types IV b and V, which is also evolved

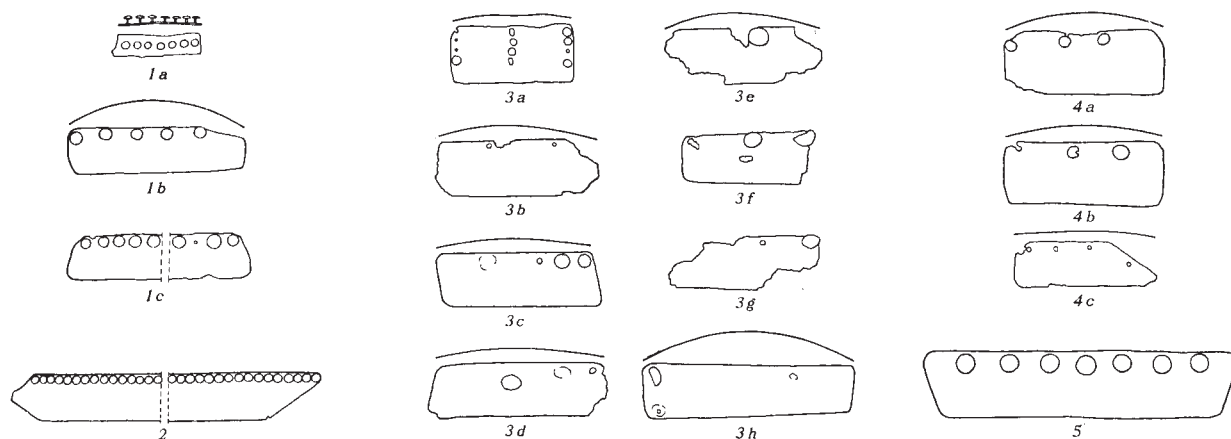


Fig. 340. Details of armour finds from the latter part of the 14th and the earlier part of the 15th century. (1) From Alsnö Hus, Sweden. (2) From Hammershus, Bornholm. (3) From Falkenbergshus, Sweden. (4) From Boringholm, Denmark. (5) From Aranäs, Sweden. (1, 3, 5 in the National Museum of Antiquities, Stockholm, 2, 4, in the National Museum of Copenhagen.) Scale 1:4.

from type IV a, with an opening at both sides between the breast and back plates; here the side-opening moves gradually to the middle of the front, and the plates diminish in size, probably under the influence of lamellar armour. This is, therefore, an earlier parallel to the development of the brigandine, which also begins with the plastron reinforced with horizontal plates, and leads on to small plates arranged horizontally. But the association of the brigandine with the coat of plates has not been elucidated in detail.

The Wisby armour with vertical reinforcing—types II–V—has developed from the surcoat, and it may be assumed that some, perhaps all, have had longer or shorter skirts of cloth without any reinforcing. That this form still occurred during the third quarter of the century in the North, is illustrated by representations of warriors from Björsäter (fig. 301), which display a long surcoat reinforced with small plates, similar to the Wisby armours 23 and 24.

In the North no traces of a continued development of the coat of plates reinforced with vertical plates can be found; on the contrary, the finds from Alsnö Hus and Hammershus (fig. 340: 1, 2), and other finds of horizontal armour plates from the latter part of the century and the beginning of the 15th century from Aranäs and Falkenbergshus, in Sweden³⁶¹, as well as Boringholm in Denmark³⁶², (fig. 340: 3–5), show that the North had adopted the types developed on the Continent.

The coat of plates found on the Continent during the first half of the 14th century consists no longer of a surcoat reinforced with vertical plates but of a plastron with horizontal lames, at first worn below the surcoat. Unfortunately, material is lacking to elucidate the association between this and the Magdeburg and Wienhausen armour. Possibly the Reichenstein armour, with its apparent mixture of smaller horizontal and vertical plates, forms an intermediary link, but it is of little help as it can neither be reconstructed in detail nor can it be decided if it forms a plastron or a surcoat. Was the reinforcing of the plastron trans-



Fig. 341. Knight from the choir-stalls at Bamberg Cathedral. About 1370.



Fig. 342. Monumental effigy of Albert von Limpurg († 1374) at Burg Komburg, Württemberg.



Fig. 343. Monumental effigy of Konrad von Limpurg († 1376) at Burg Komburg, Württemberg.

ferred from the surcoat or does it revert to the plastron of cuir-bouilli? That it must be associated with the surcoat in one way or another, is apparent from its general form, of which, unfortunately, we have very few examples.

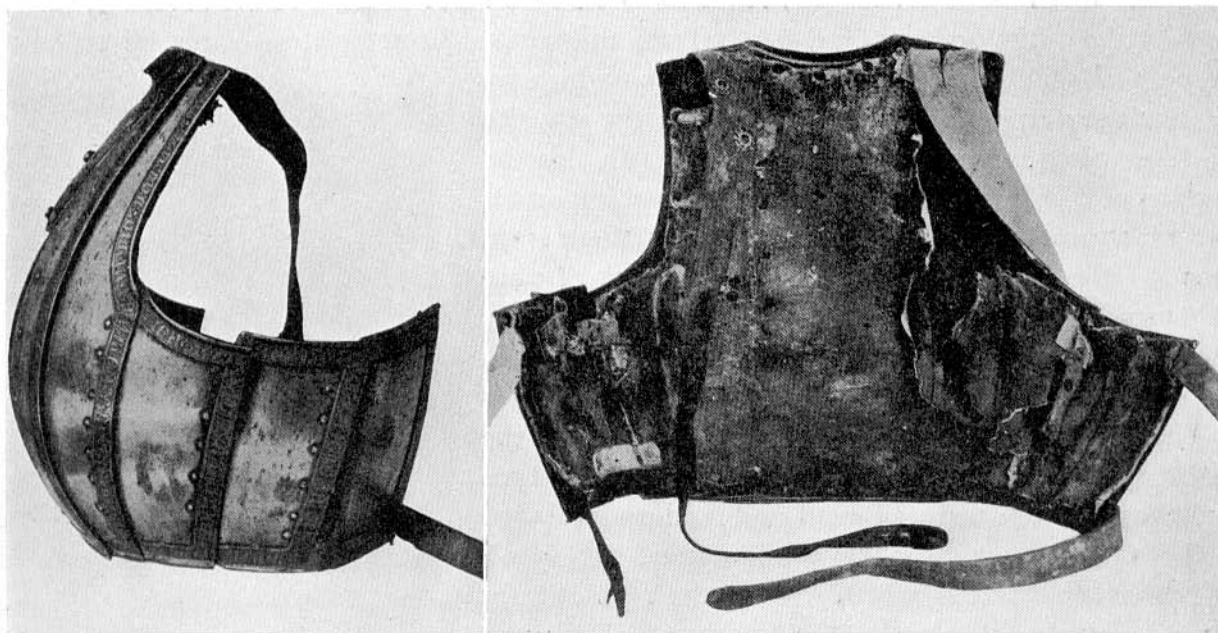
In the Romance of Alexander, i.e. from about 1340, there are two pictures which show the buckling-together of the plastron, one, (fol. 73 r), very scanty but yet sufficiently distinct to show that in principle it coincides with the other, (fol. 66 r, fig. 347). This shows that the form of the garment so far agrees with that of the Magdeburg armour, in that the front extends round the body on both sides, forming a sort of girdle which meets in the middle of the back, fastened by means of two buckles. As on the Magdeburg armour the front continues over both shoulders down the back, but this back piece is, to judge from the convergent edges, much shorter. The construction shows also a further development from the Magdeburg armour in that the side pieces in the two upper corners, which

meet on the back, each have a buckle, which are fastened to two straps, attached to the back piece just below the back of the neck. This is a construction fully corresponding to the iron loop close to the opening in the back on the Wisby armour, and confirms the correctness of the interpretation we have put upon it, (p. 212). It is still more closely akin to the arrangement which we have reconstructed on Wisby armour 4 with its two buckles (pl. 22: 4).³⁶³

Another advance is shown by two other representations of armour. One is an equestrian figure in a crucifixion group by Bernardo Daddi († 1350?), in the Louvre (fig. 348), the other is the warrior on the Levitic pew at Verden a.d. Aller from about 1360 (fig. 317) which has been dealt with already. The armour of the Alexander manuscript showed a straight upper edge on the two side pieces covering the back. On the two latter figures, on the other hand, these side pieces have been prolonged upwards in a point, and reach just below the top of the shoulders, where each is



Fig. 344. Monumental effigy of Burkhard von Steinberg († 1379) at St. Martin, Hildesheim.



Figs. 345, 346. Armour. About 1390. Castle of Churburg. Side view and inside.



Fig. 347. From the Romance of Alexander (1338-1344). Back of armour.

fastened with a buckle. It is clear that it is now only a matter of time before the side pieces will join the back, so that there will be an opening running right down the middle of the back (cf. fig. 204: 6 a). This is done in the armour of the St. George at Prague in the year 1373 (fig. 333: b). It is impossible to see whether the breast and back parts are still fastened together over the shoulder with buckles, which in that case are concealed under the shoulder plates, or whether they are connected in such a way that the armour forms a kind of reversed jacket.

However, from this it is clear that the evolution of the Continental plastron is associated with the reinforced surcoat, and I think it very probable that this is an example of the superposition of various defensive elements so characteristic of the evolution of armour during

the end of the 13th and the first half of the 14th century, and which has been analysed by Charles Buttin in such a convincing manner.³⁶⁴

As far as we have been able to see, the construction of the plastron on the Continent is entirely dominated at first by the horizontally placed reinforcing. It is, however, not from the armour entirely composed of horizontal lames, as shown for instance by the knight at Verden (fig. 316), that the development goes on, but partly from the oval or round breastplate which we may assume to have originated as a fastening for the chains, and which, in the knights at Bamberg (fig. 341) from its position on the outside of the covering, points towards the white armour, and partly from the vertical breast plates—a reminiscence of the vertical reinforcing of the 13th century—which by the tendency to unite in one piece pave the way for the breastplate forged from a single plate. In this the plastron of cuir-bouilli has certainly played an important part as a prototype. On the other hand there is no trace on the coat of plates of any influence of pure scale armour; these types seem to have existed side by side, independent of one another, until the middle of the 14th century.

The rapid transformation of the coat of plates in the sixties to the eighties of the 14th century led to three new types, which were adopted and further developed in the 15th century; the brigandine (figs. 349, 350), held together by cloth, which even in the 16th century has a breastplate³⁶⁵, closely akin to that which is worn by Otto von Orlamünde, who died in 1340; the cloth-

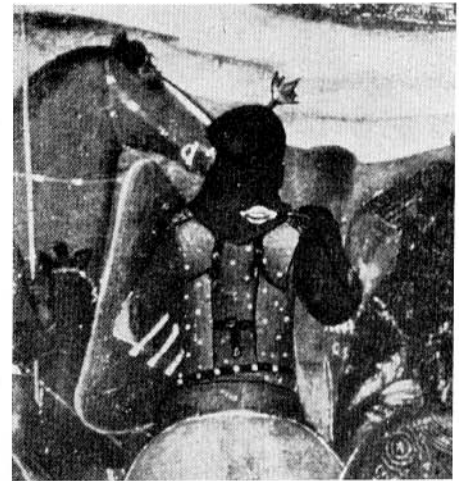
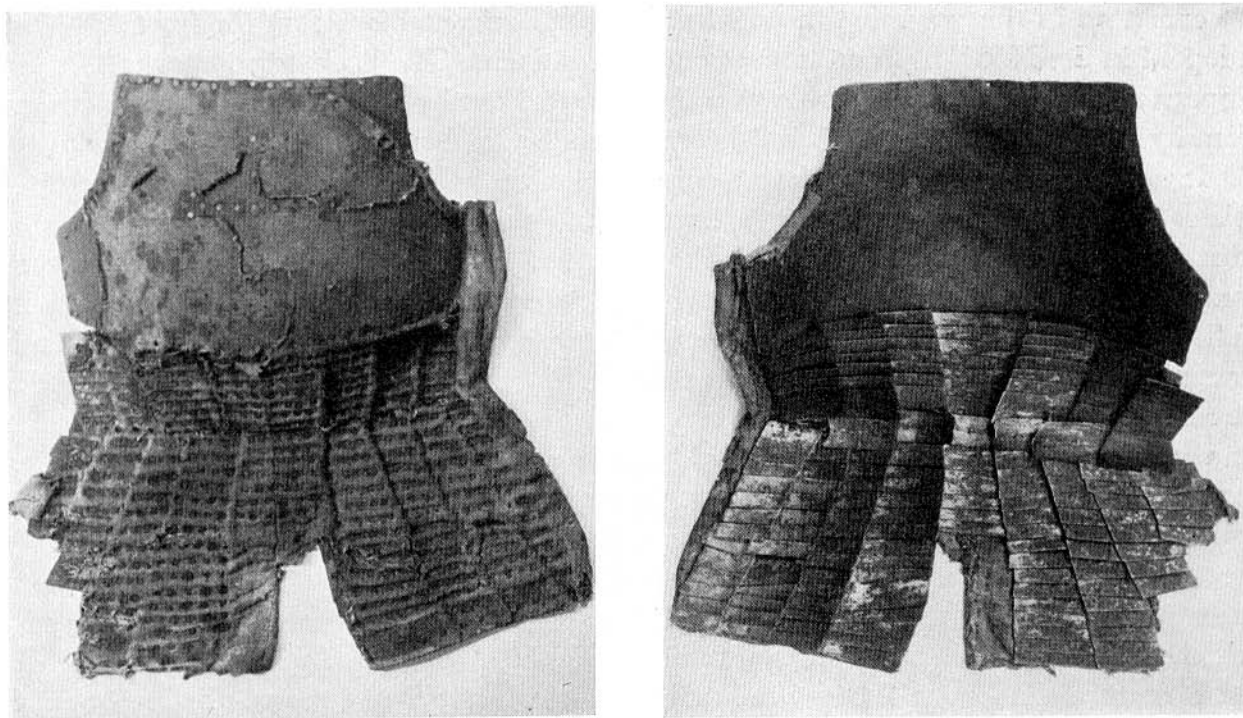


Fig. 348. From crucifixion group by Bernardo Daddi († 1350?). Back of armour. Louvre, Paris.



Figs. 349, 350. Brigandine. 15th century. Zeughaus, Berlin.

covered breastplate (figs. 337, 338), of which the Munich armour is an example³⁶⁶; and, finally, polished armour (figs. 345, 346) which was almost universal during the following centuries.³⁶⁷

Now, what is the position of the Wisby armour, (type I), reinforced with horizontal lames, in the development of the plastron in Central Europe? To start with, it is remarkable that no larger breastplate has been found; only armour 2 shows, by the riveting together of the central breastplate and the uppermost horizontal lame, a tendency to increase the size of the plates. The same tendency is shown in the decrease in the number of plates and increase in their size, of which armour 7 supplies the most notable example. In spite of the difficulty of giving a general judgment when there is so little material for comparison, the impression is gained, that this type of armour proves to be slightly more backward than one would have expected. Nor can any counterpart to the method employed in armour 7 and in several other instances, to obtain reinforcing by larger plates, be found in the south. The armour of type I differs chiefly from that on the Continent by its reinforcing of the back with vertical strips. As has been pointed out before, there does not exist on the Continent, nor in England, the least trace of a continued development of vertical reinforcing in the 14th century, and although care must be exercised in view of the extreme scanty material which can give an indication of the construction of the back, the conclusion is very probable that the reinforcing of the back of type I has been copied from the vertically reinforced armour of type II. If this conclusion is right, type I must also be a Nordic form, or perhaps it might

be expressed in this way, that the reinforcing with horizontal lames on the front has been adopted in the North from prototypes on the Continent. The back, less important for the appearance of the armour, has, however, been carried out by the Nordic armourers in conformity with the system which had become familiar to them.

It remains for us, finally, to devote our attention to the question as to where the coat of plates developed. The first traces of it have been found in Germany, and it is very probable that the invention, if such a word may be used, had its origin there. This is further confirmed by the fact that the most direct line of evolution from the primitive forms can be followed in the North. The Nordic countries have, as we have seen, developed along their own lines, partly retarded, partly by southern influence, as in the plastron reinforced with horizontal lames, partly astonishingly independent and effective, anticipating later forms, as in the brigandine-like armour of small plates. The impulse for the method of construction came most probably from the East, but throughout the Middle Ages there survive old types in sterile stagnation; no traces of further eastern influence can be seen. In Italy³⁶⁸ coats of plates developed into the brigandine, but the parallel evolution to the white armour does not appear to have occurred in Italy. The chief contribution of Italy, and especially of Milan, to armour begins with the creation of Gothic armour in the second decade of the 15th century. In Spain³⁶⁹ there are hardly any traces of coats of plates. In England³⁷⁰ it was considerably used, but this country took no leading part in its development, and the general impression is that the fully developed forms were adopted from abroad. There remain only France and Germany. In France the pictorial and sculptural material and original examples are incomparably fewer than in Germany, and the preceding survey also shows that the regions on the upper Rhine, especially, occupied a leading position in its development. A study of records, collected and dealt with by Charles Buttin for the illumination of the history of armour in the 14th century, shows, however, that France during this epoch, which was so significant for the evolution of armour, must have had an equal share in the development and progress. Mutual influences between France and Germany in style and technical methods certainly encouraged the development of coat of plates during the 14th century.

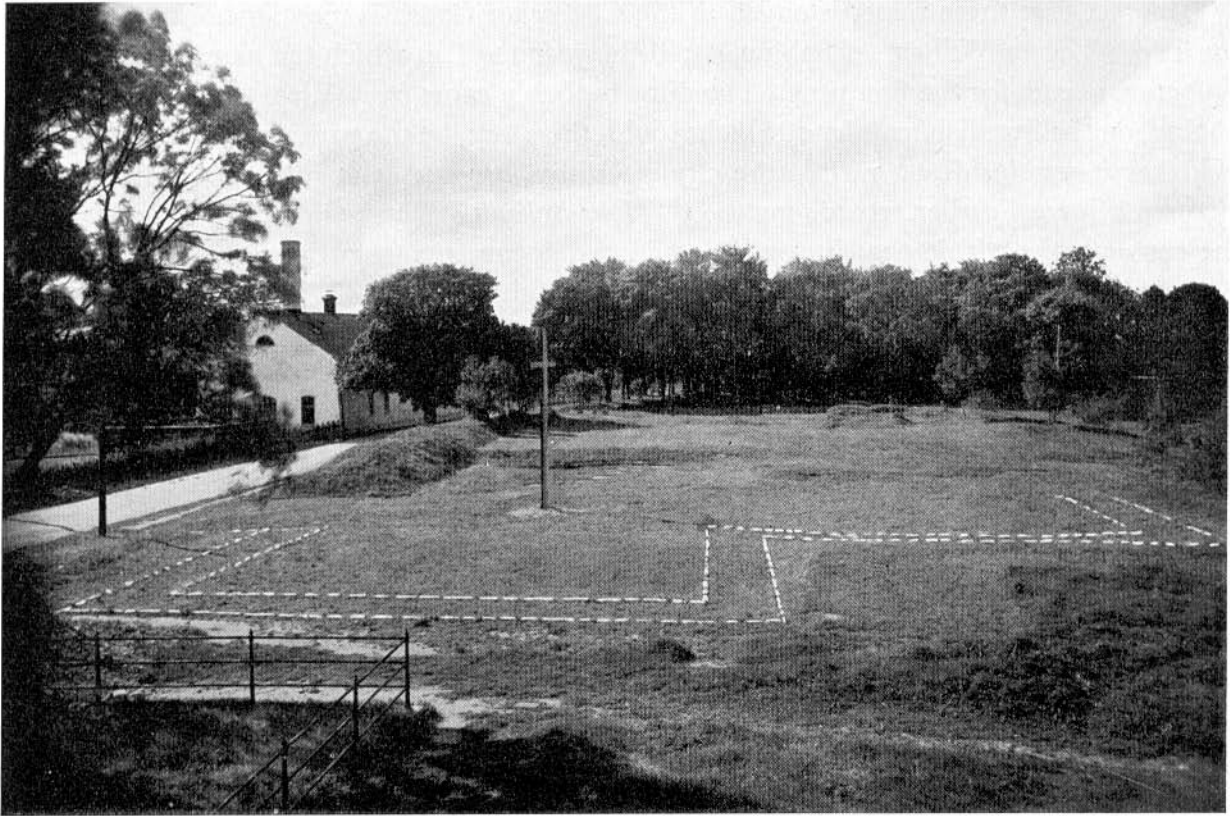


Fig. 351. Site of Solberga convent from the north after the conclusion of the 1930 excavations.

CHAPTER IX.

SOLBERGA NUNNERY.

THE NUNNERY IN MEDIEVAL SOURCES.

Solberga Nunnery, where a supplementary investigation was undertaken at the time of the excavations of the warrior graves, is mentioned various times in medieval records.³⁷¹ From a letter from Bishop Laurentius of Linköping, to whose diocese Gotland belonged, dated from Wisby the 15th August, 1246, we learn that at the request of the Gotlanders he had sent some nuns to Gotland.³⁷²

Since Laurentius became bishop in 1233 the convent was probably founded between 1233 and 1246, even though it is not expressly stated that these nuns were the first to occupy the convent. But one may venture to assume that the missive was closely connected with the foundation itself.

The fact that these nuns belonged to the Cistercian Order is mentioned in a letter from the Papal Legate William of Sabine, dated the year 1248, in which the name "*Mons Solis*", Solberga, occurs for the first time. The nuns probably came from Vreta Convent, near Linköping, on the Swedish mainland, which would, therefore, be the parent convent of Solberga. Whether it was inside or outside the city of Wisby, has been the subject of different conjectures. Several earlier records mention "*Mons Solis in Wisby*", which would indicate that the convent was within the city walls, but in two documents from the years 1349 and 1367, Solberga Nunnery is mentioned "*circa*" (in the neighbourhood of) Wisby, which distinctly implies the contrary. However, it may be assumed that "*in Wisby*" need not necessarily mean that the convent stood within the walls but merely that it belonged to the city.

This explanation is, nevertheless, contradicted by a letter from the year 1420, where mention is made of "the nuns living in the town of Wisby near the Church of St. James". As we know that St. James' Chapel stood within the city itself, and that there was not more than one nunnery in Gotland, one may conclude that the Solberga nuns between 1367 and 1420, probably because of growing uncertainty in the vicinity of the city, perhaps especially on account of the fearful proximity to the warrior graves from the year 1361, wanted to move to a safer place and had been given this St. James' Chapel, which in the year 1272 is mentioned as deserted ("*derelicta*"), and which is then handed over to the parish priest of the near-by Trinity Church. It is also possible that a fire or some other catastrophe had devastated the place and given a further reason for removal.

Otherwise we know very little about the nunnery. From some letters and documents that have been preserved, we learn that it had received various estates, both within the city walls and in the Gotlandic rural districts, and even on the Island of Öland and on the mainland. As the nuns, in conformity with the oldest statutes, were not allowed to possess anything, the convent also received their personal property and possessions. That these were sometimes fairly considerable, we gather from some extant wills, which leave large inheritances to nuns in Solberga nunnery by relatives and friends abroad. Amongst the patrons of the convent we also find Ivar Axelsson Tott, the captain of Wisborg Castle, the citadel of Wisby, erected in the beginning of the 14th century, who showed his interest by presenting, on three occasions, a barrel of ale to the nuns. Nor was it only countrymen who were generous towards the nuns at Solberga, for in the year 1409 they received ten marks from the Grand Master of the Teutonic Order.

But the convent itself seems to have been very small; according to an ancient statement there would have been room for only ten nuns, besides the abbess.³⁷³ That there were lay sisters, at least occasionally, is seen from a letter from the year 1515. Three names of abbesses or prioresses have been preserved, viz. Christina Wipperförd, 1387, Gertrud Herentreu, 1469, both of Westphalian birth, and a Mistress Eringard, during the latter part of the 15th century. Several of the nuns, also, seem to have come from Germany; two of them, whose names are known, were from Lübeck, and, furthermore, one source mentions that in the year 1406 two marks were paid to the captain of a ship who had brought two nuns to Gotland, probably from Danzig.

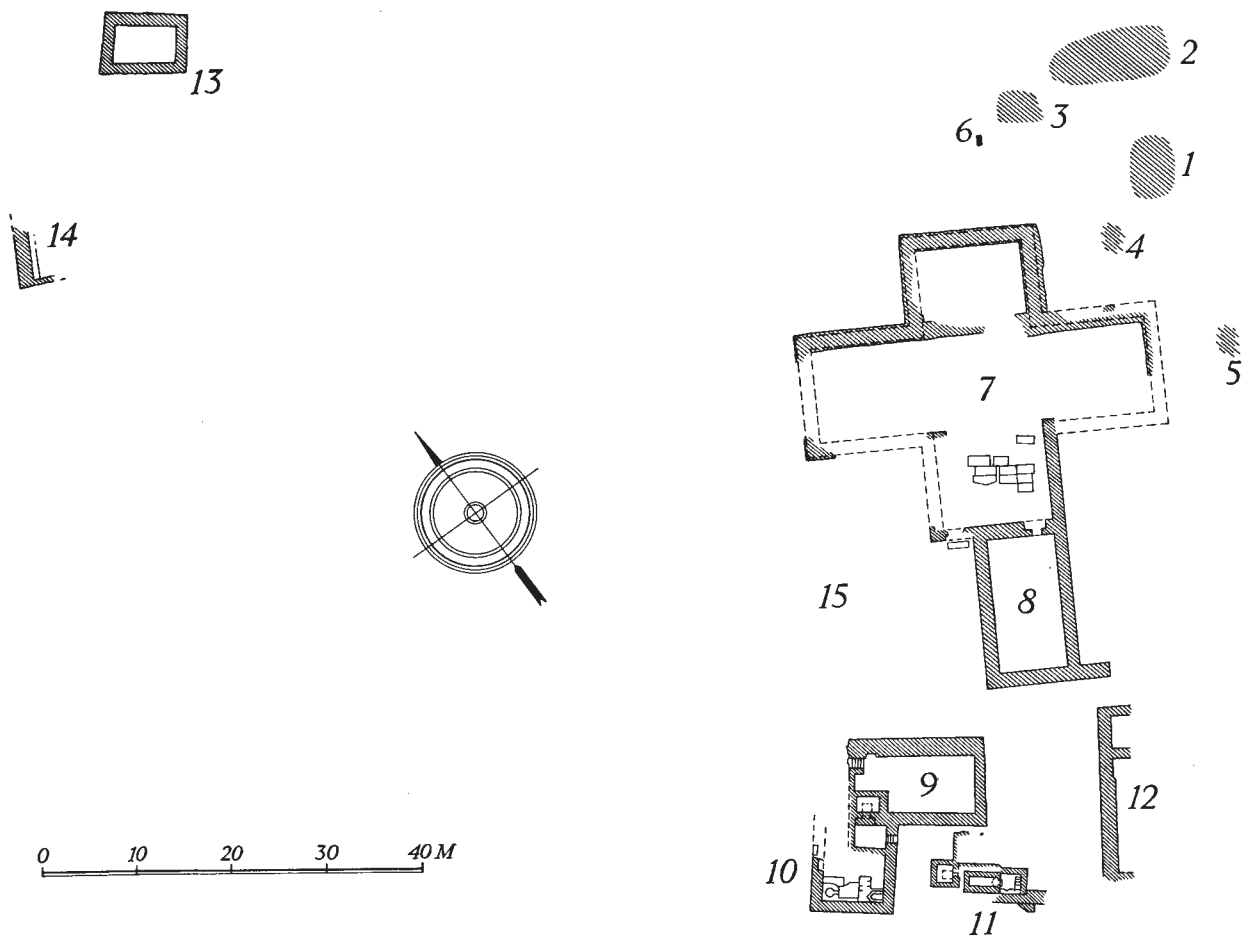


Fig. 352. Plan of Solberga convent area according to the excavations. (1-5) Common graves 1-5. (6) Memorial Cross commemorating the fallen of 1361. (7) Convent Church. (8) Dormitory. (9) Refectory. (10, 11) Kitchen with ovens. (12) Building of unknown use. (13) Janitor's house(?). (14) Building (?) of unknown use. (15) Convent court.

SITUATION OF CONVENT. — EXCAVATIONS.

Since early times Korsbetningen has been pointed out as the place for Solberga Convent; but doubt was thrown upon this by some investigators during the latter part of the 19th century on account of the conflicting evidence of the records. The opinion that the nuns had always lived within the city walls was adopted by such prominent investigators as Hans Hildebrand³⁷⁴ and C. G. Styffe.³⁷⁵ But in the year 1895 C. J. Bergman³⁷⁶ demonstrated the probability that they had moved to the city, and gave it as his considered opinion that their previous domicile had been near Korsbetningen, though he stated that he doubted if the position of the convent could ever be fully elucidated, because, according to an antiquarian recorder of the first half of the 19th century, the walls of the church had been pulled down "to the very foundations, as is still visible from the deep graves".³⁷⁷

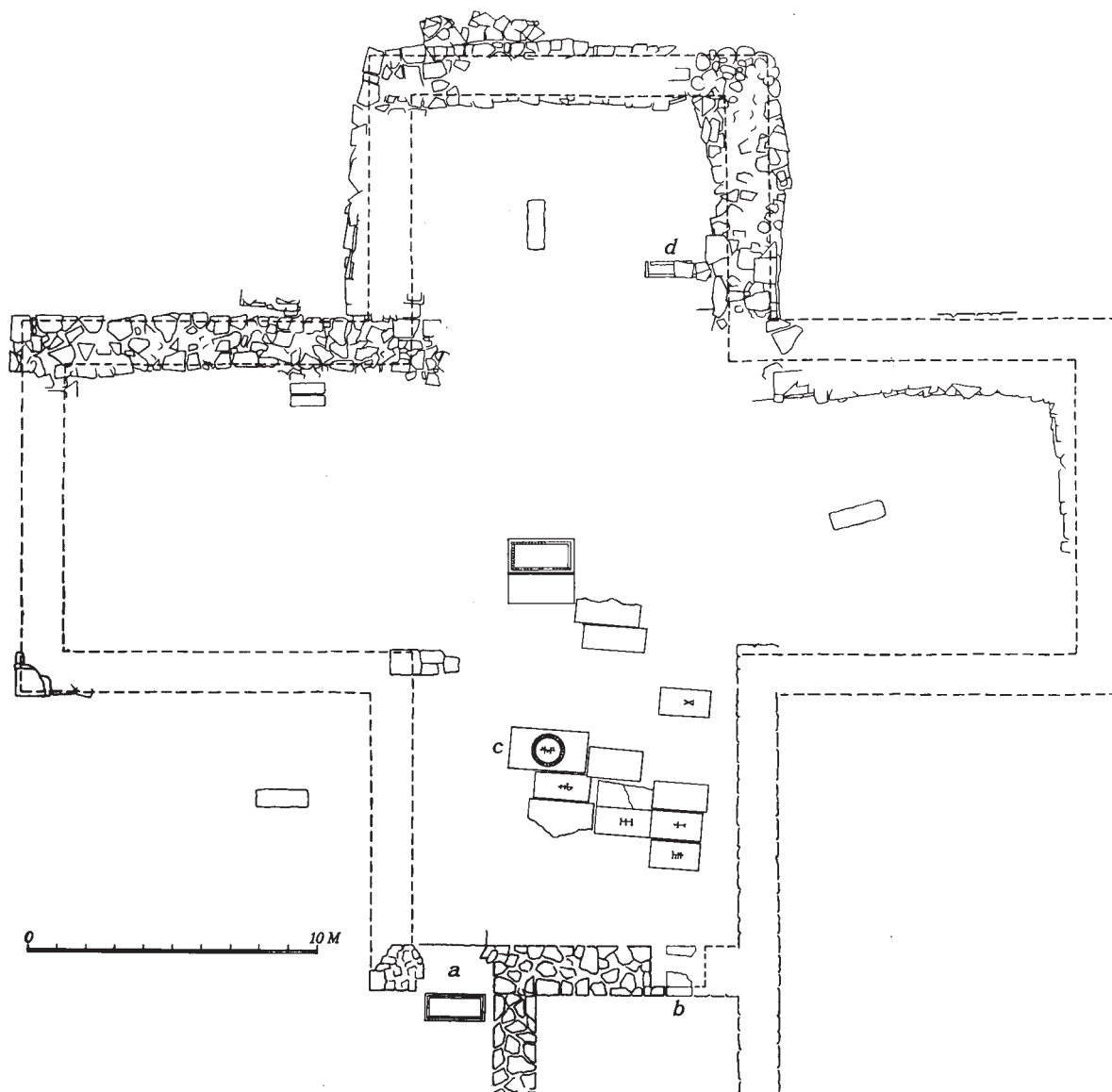


Fig. 353. Plan of Solberga Convent Church according to the excavations. (a) Door between church and convent court (fig. 359). (b) Door between church and dormitory (fig. 358). (c) Tombstone over Tideman Wrede, 1382 (fig. 355). (d) Cist-grave (figs. 356, 357).

Bergman's opinion as to the position of the convent was confirmed during the excavations which Dr. O. V. Wennersten carried out during the years 1905–1909 in connection with the investigation into the warrior graves, and at the same time, this investigation showed that a great deal more of the walls of the building had been preserved below the soil than had so far been assumed. Among other things, parts of the domestic offices were discovered, to judge from several bricked ovens which were found (fig. 352: 9–11), and also a floor which was paved with plain slabs of stone, as well as square tombstones.

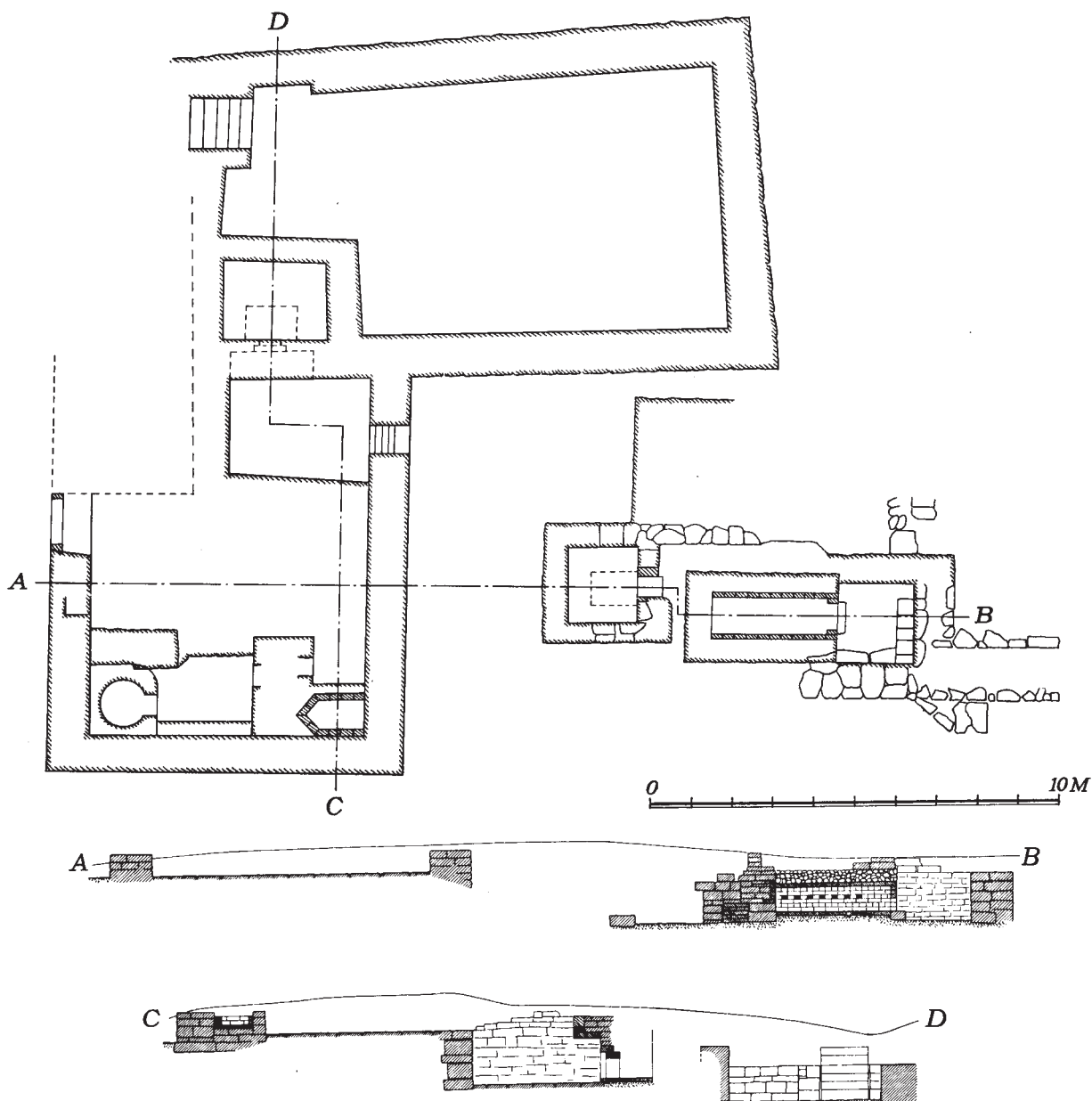


Fig. 354. Solberga Convent. Plan and sections of refectory and domestic offices (fig. 352: 9-11).

In the year 1928 the excavations were continued within the convent area; several trenches were dug in the ground around the memorial cross in a direction approximately north by south, with the dual purpose of finding out whether some more, as yet unknown, common graves were there and to ascertain the direction of the walls that might exist.³⁷⁸ Some ten metres to the south of the cross there was found, at a depth of about 1.5 metres, a foundation wall of very rough and irregular construction. Its course was followed in both directions, and finally the whole northern transept and the northern wall of the nave were laid bare to

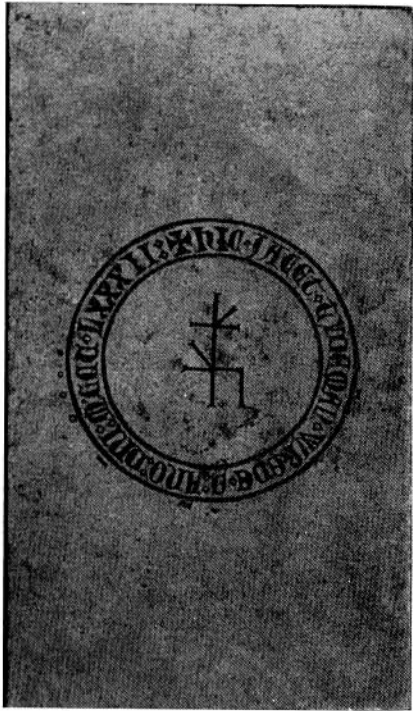


Fig. 355. Tideman Wrede's tombstone (fig. 353: c).

the northern corners of the eastern and western ends. On measuring this on the plan it was found that the measurements of the north transept agreed with the measurements of the area with the grave-stones excavated in 1905, so that, added together, they formed a church built in the form of a cross with approximately equally long and broad transepts, the previously excavated portion of the church forming its south transept (fig. 352: 7). After supplementary investigations in the summer of 1929 the area was put in order, the foundation walls concealed in the soil being marked with limestone flags placed on edge. The excavation of the Solberga area was intended, not as a complete elucidation of the convent, but only as a general reconstruction, in order to gain a rough idea of the convent buildings and the position of the warrior-graves within the convent area.

CONVENTUAL ESTABLISHMENT.

The church was the dominant building of the whole establishment. In the course of centuries apart from the nuns, certain persons interested in the convent were buried in the church. Through the excavation, several of their tombstones were discovered, in 1905, among others, a very handsome and perfectly preserved stone over a man named Tideman Wrede, who died in the year 1382 (figs. 353: c, 355).³⁷⁹ The skeleton in the grave lay on its back with arms crossed over the abdomen. Round the hips lay some remains resembling leather and near each femur a round bronze buckle without any trace of a thong; this had clearly been of iron. The position of the buckles is interesting because it agrees with what has been found in the common graves (cf. above p. 117). Other tombstones and parts of such occur with owner's marks or fragmentary inscriptions.

In the north transept, close to the east wall, a cist-grave was uncovered in 1928 (figs. 353: d, 356). It is somewhat tapering toward the foot-end and has a niche for the head (fig. 357), an arrangement rather common in the 12th and 13th centuries. Near this grave some scattered parts of skeletons were found, probably dislocated when erecting the cist-grave, and with them lay a simple bronze ring with a blue stone. The other finds within the convent area are rather trivial and are of interest mainly in so far as local history is concerned. They consist of simple dressed fragments of buildings, parts of a piscina, flooring tiles (partly ornamented), roofing tiles, some combs, keys, scissors, knives, bronze needles of the same type as fig. 152, and so on.³⁸⁰

In the church, as always, the High altar, probably consecrated to the Virgin who is said to have been the patroness of the church, was in the sanctuary. All who worshipped in the

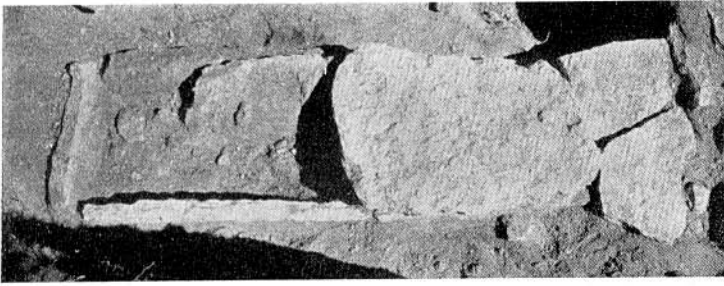


Fig. 356. Cist-grave (fig. 353: d) in northern transept of convent church prior to removal of covering slabs.

a door and a couple of steps (fig. 353: b). Whether this house was one or two stories high, is uncertain. As a rule the chapter-house, parlatorium, store-room etc. were located on the ground floor of the corresponding premises in Cistercian convents. In view of the small size of the convent it is, however, probable that this was only a one-story structure. In that case it merely served for the nuns as a dormitory, which was usually on the first floor. The direct communication with the church facilitated the visits to divine service, especially to the nocturnal masses. The worn steps bear evidence even today of the constant use of the way thus kept open (fig. 358).

In the angle between the church and the dormitory a gate is situated (figs. 353 a, 359), leading from the south transept to the open convent court (fig. 352: 15). Along its south side extended a building whose cellar is now exposed (fig. 352: 9); a small staircase close to the north-western corner leads up to the level of the courtyard. This building was probably the refectory; in the south-western corner is a bricked and arched oven, which was stoked from a small room in an adjoining building (fig. 352: 10), which has two more bricked ovens close to its southern end, (fig. 354), and which therefore probably contained the kitchen quarters. Near-by are two more large ovens (fig. 352: 11). All this is now again concealed beneath the soil. Some stretches of wall which can be more or less distinguished in the adjacent ground (fig. 352: 12) show that several buildings once stood there; but as to their function, nothing can be ascertained or deduced. The western side of the courtyard has not been excavated, so that we do not know if there were also buildings there. This courtyard, as was usually the case, was probably surrounded by buildings, which may have been made of wood. In that case, the west side could have contained the living quarters of the lay sisters, store-rooms and similar premises. Wells were, of course, an essential part of convents, and one such, more monumentally built, would be in the courtyard itself. A well, constructed of carefully dressed stone, was found here during earlier excavations; but its precise position is not known.

church during the divine services which were held in her honour, received, according to a letter from Bishop Bengt, dated the year 1287, forty days' indulgence. Probably, there were also several minor altars consecrated to different saints. Adjoining the church, on the south side, was a small house (fig. 352: 8) which communicated with the church by

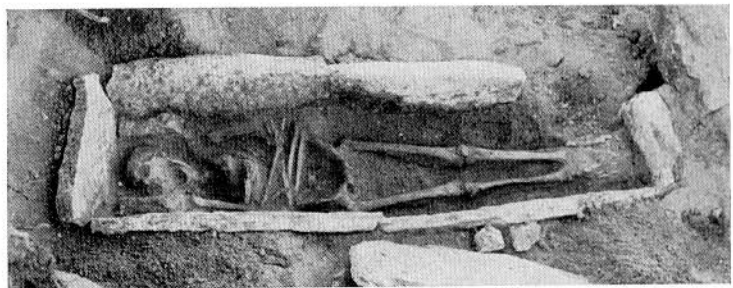


Fig. 357. Cist-grave fig. 356 after uncovering of skeleton.



Fig. 358. Doorway between Convent Church and dormitory (fig. 353 b) seen from the south.

The whole establishment was certainly surrounded by a fairly strong stone wall. During the erection of a dwelling house in the north-western part of the area, the foundations of a small building, (fig. 352: 13), were laid bare, which has been assumed to be the door-keeper's house and which perhaps served as a defensive tower. In the adjoining gardens, remains of walls have also been found (fig. 352: 14), probably remains of the walls bounding the convent, the direction of which is not known. It should, of course, to the south have run within the present churchyard (fig. 32: 6) and to the east somewhere where the barracks now are (fig. 32: 13). If the janitor's house was in the north-western corner, the northern stretch of wall was probably on the site of the dwelling house which delimits the Solberga area to the north (fig. 39: 6).



Fig. 359. Doorway between church and convent court (fig. 353 a) seen from the west.



Fig. 360. Vreta Convent Church from the north-east.

ARCHITECTURE OF CONVENT CHURCH.

The placing of the convent buildings, which is indicated by the preserved walls, coincides precisely, apart from the difference in the dimensions, with the conditions at Vreta Convent³⁸¹, which was probably the parent convent of Solberga. Even the church buildings in these two convents show more significant agreement than one might believe from a hasty comparison between the present jumble of projecting structures and pillars of the Ostrogothian church (fig. 360) and the rather soberly laid out, rectangular ground-plan of Solberga Church. At the foundation of Vreta Convent, in 1162, the nuns were given the church which already stood on the spot. In order to be able to make use of this building for their special rites, the nuns had the church enlarged by the addition of a structure to the east (figs. 361, 362). Under the influence of Cistercian architecture this addition was almost the shape of a Greek cross, one arm of which formed the presbytery between two transept arms; these were detached from the former by means of pillars and a *parclose* and reserved for the nuns who were not allowed to come into contact with the general public. This cruciform part of Vreta Convent Church was copied more or less faithfully when some of the neighbouring churches were rebuilt or enlarged; and it is very probable that when the group of nuns who left Vreta in 1246 or slightly before to establish a new convent outside Wisby, the new building which was required followed the plan of the old church they had left. But the portion of Vreta Church which was copied, was, in fact, only a detail of rather small dimensions, without architectural independence, and it is doubtful whether



Fig. 361. Vreta Convent Church. Reconstruction of its appearance after the addition of the cruciform chancel.

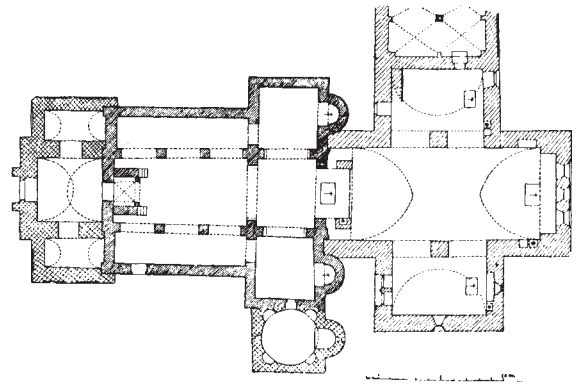


Fig. 362. Reconstruction of plan of Vreta Convent Church immediately after the addition of the cruciform chancel.

the architect, who was commissioned to design Solberga Church, would have found the simple solution of merely making a free enlargement of the cruciform Vreta chancel, unless at about this time there was a large cruciform church being built or recently completed in Wisby. This was St. Lars' Church, whose cruciform ground-plan reverts to prototypes in Russian architecture.³⁸² It is hardly probable that they should have conceived a plan for Solberga Church which was so foreign to the Cistercians and to Nordic ecclesiastical architecture, unless they were able to base it upon a near-by pattern like St. Lars. We also see from fig. 363 that the proportions, as well as the dimensions of the plans of Solberga and St. Lars' churches, are practically identical, although the former, under the influence of the ascetic Cistercian architectural traditions was greatly simplified.

Several alternative reconstructions of the interior of Solberga Church are possible, depending upon whether one assumes that it was more like the Sveco-Russian or the Cistercian prototype. The reconstruction in fig. 364 points to the latter alternative: the northern and southern arms of the cross adjoined the nave as subordinate features in the architectural composition and the nave extended without interruption from the west to the east end. The two transept arms probably, as in Vreta, opened into the crossing with double arches, supported in the centre by a column or pillar (cf. fig. 363: 1).

Two features of the ground-plan suggest that this reconstruction is more probable than one in analogy with St. Lars' Church, which should have a tower over the crossing and have arms of equal height. One

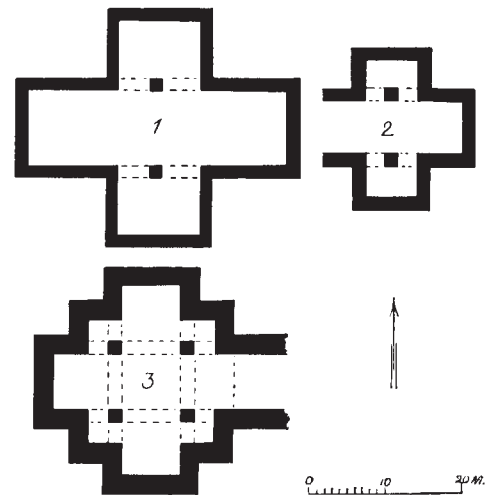


Fig. 363. Comparison of plans of Solberga Convent Church (1), chancel of Vreta Convent Church (2), and St. Lars in Wisby (3). The three plans are drawn on the same scale.

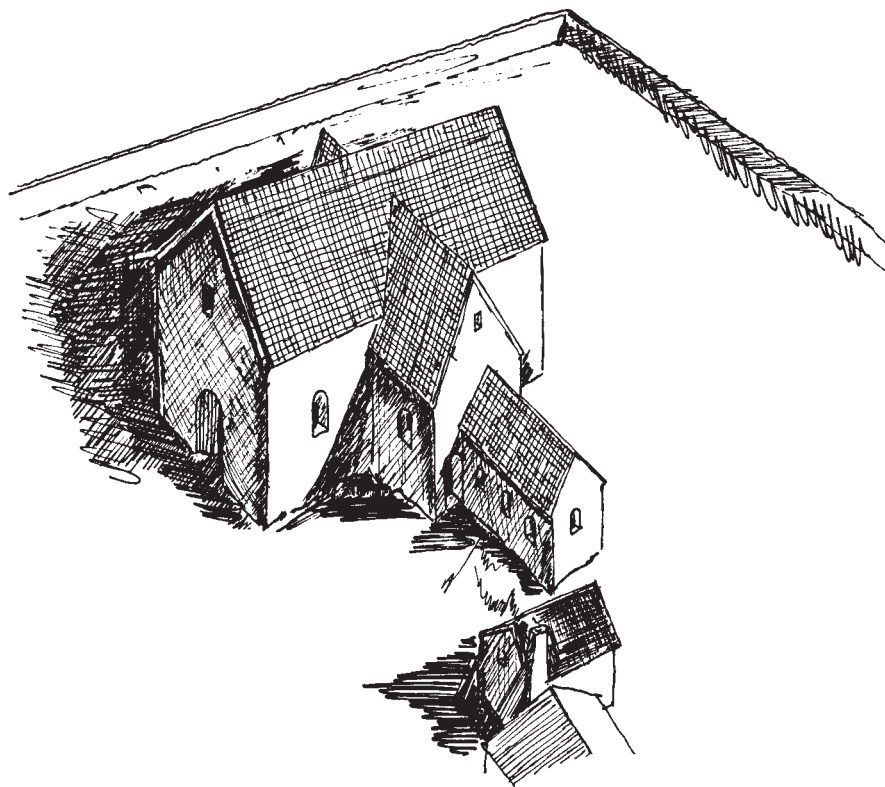


Fig. 364. Reconstruction of Solberga Convent Church seen from the south-west. Drawing by I. Anderson.

of these reasons is that the north and south transept arms are very slightly shorter and broader than the arms running east and west, and, therefore, even in the ground-plan were subordinate to the east to west direction of the building. The other is that foundation walls seem to have crossed the openings of the transept arms towards the central square, which is explicable if there had been a support for an arch in the middle of this opening; it is also possible that these foundations had supported a low wall which separated the spaces reserved for the nuns from the nave. Two cruciform churches in Öland, Gärdslösa and Persnäs (fig. 365), which have columns placed in a corresponding position, are, perhaps, imitations of Solberga Church. In the treatment of the details they also show the influence of Gotlandic architecture.

DATING OF FOUNDATION AND DISSOLUTION OF CONVENT.

What is known of the date of the buildings has already been given. Bishop Laurentius' letter from the year 1246 concerning the transfer of the nuns to Gotland does not directly state that they were the first, but since this is the first time that the convent is mentioned in the records, it is quite possible that the bishop's letter is not much later than the foundation of the convent. This is also confirmed by St. Lars' Church, which undoubtedly influenced

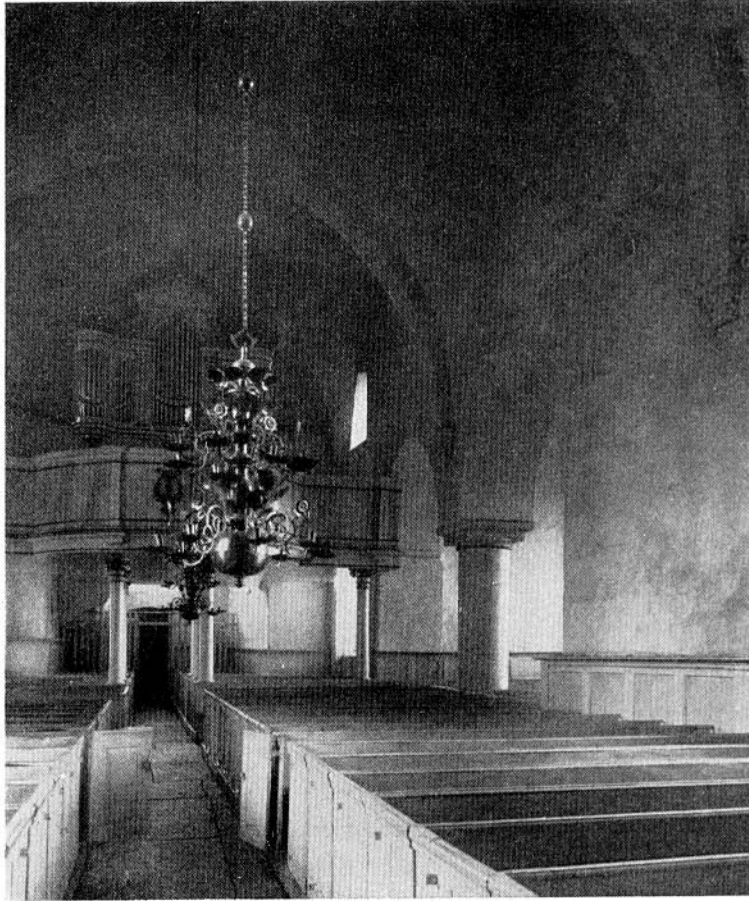


Fig. 365. Interior of Persnäs Church, Öland.

the architectural form of Solberga Church, and is thought to have been erected in the second quarter of the 13th century. The fact that Solberga Church cannot have existed before the foundation of the convent, and was not finished at the time of the foundation, is apparent not only from its connection with the Vreta chancel; but also because it would be difficult to explain the presence of an older church in such a place, which is, however, typical of the establishment of a Cistercian nunnery—for these originally were not allowed to settle in towns, but rather in close proximity to them; finally, the church is, as is seen from the preserved walls, joined to the dormitory and thus built as a convent church. There is, therefore, at present, every reason to assume that the convent was founded in the year 1246 or shortly before, and that the church and the conventual buildings were erected shortly after.

We do not know how long the establishment lasted. Probably it was allowed to fall into disrepair when the nuns moved into the city, at any rate there are no records of any divine services there after this period. When the place, much later, became an object of antiquarian interest, the old name Solberga had completely disappeared and the name Korsbetningen,

which means "grazing ground near the cross", had been substituted. But, that the memory of the sanctity of the place survived as late as the 18th century, is seen from the fact that burials took place there during the plague in 1711.³⁸³ The convent near St. James' Chapel was probably dispersed in 1527 when the Reformation made headway in Wisby. On the 1st May, 1531, it was resolved that the land and buildings of the Wisby churches should become the property of the city, while the property of the Cistercians was to go to the King of Denmark; but in the following year he presented it to the Hospital of the Holy Ghost for old and sick people, established in connection with the former Capuchin friars' church of St. Karin, and with this the history of the convent comes to an end.

A tradition which was promulgated by H. N. Strelow in the chronicles published in 1633, tries to make out that Solberga Church was erected by Waldemar Atterdag in memory of the victims of the battle of 1361, and that its name suggests that it was at sundown (in Swedish *solbärning* means sunset or sundown, but *Solberga* means sun-mount, *mons solis*) that the battle finished and the victory was won.³⁸⁴ This is obviously a fiction, but behind it lies the beautiful thought that the victor devoted part of his rich booty to such pious work. In this way the cruciform church has been converted by tradition into a symbol of reconciliation on the bloody battle-field of Wisby.

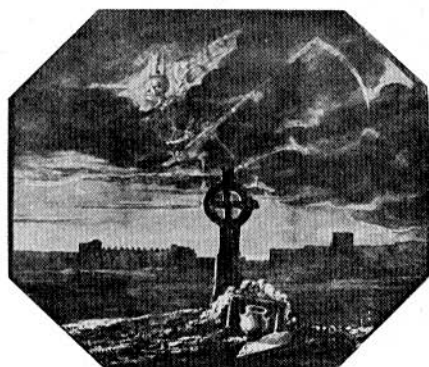


Fig. 366. Korsbetningen.

Water-colour by M. G. Anckarsvärd 1826.

DESCRIPTIONS

A. COATS OF PLATES.

No. 1. Type I. Pls. 2-9. Common grave 2. Regn.No. *Uyy 1 (Txx 3)*. Uncovered on 23rd-29th July, (*Txx 3* 10th Sept.) 1929, by B. Thordeman. Measured up by E. Dahr.

SITUATION.—The different parts of the armour had, very unusually, been preserved on the whole in their original position round about a skeleton, which could be followed in its entire extent (pl. 5). The man lay arched and stretched out with his face downwards. The right arm lay along the side, the elbow and forearm below the pelvis and the upper part of the thighs; the left arm was bent backward and upward with the hand close in front of the breast, so that the elbow formed the highest point of the skeleton and was for that reason first encountered. The trunk was twisted to the left in relation to the head, so that half the thorax and the whole of the pelvis rested on the right side, and were turned upwards rather than downwards. The legs continued this twist so that the feet lay beside each other, turned upwards. The body had thus been twisted half-way round, to the left, from head to feet. The man wore a mail coif on his head, its collar and back part pushed up and lying inside-out over the back of the neck.

DESCRIPTION.—In front of the breast, i.e. with the outside turned obliquely downwards, lay five iron plates, viz. three vertical plates (pl. 6), of which two, *n* and *l*, by their characteristic semicircular portions cut out of the sides were shown to fit close to the shoulders, this being also indicated by the position of the find; between them was a rectangular plate, *m*, in the middle of the breast. Below these lay two large, much bent horizontal plates, *o* and *p*, of which the upper one, *o*, overlapped with its upper edge the lower edges of *l-m-n*, while *p* overlapped with its upper edge the lower edge of *o*. Above these lay crosswise three plates of the same kind as the last-mentioned ones (pl. 4: 1), of which two, *b* and *c*, were in proper relation to each other, *b* with its upper edge overlapping the lower edge of *c*, and *a* obliquely over these two. From the similarity of the form and bend it is clear that these five plates had formed a series, and that the irregular position of the three lower plates was due to their having become attached to the upper ones only by frag-

ments of the cover when they were thrown down. The plate *a* differs from the other four in being broadest in the middle, with the lower edge sloping up at the sides, thus showing that it was the bottom one of the series. Thanks to the others lying in pairs in correct relation to each other, and *o* and *p* being uppermost, we find without any further trouble the sequence from the top becomes *o-p-c-b-a*. Thus the front of the armour is established with three vertical plates uppermost and below them five horizontal lames.

Partly below *a*, *b* and *c*, and right across the upper part of the back of the skeleton, six more or less rectangular plates (*d-e-f-g-h-i*, pl. 4: 2) lay in a perfect, undisturbed series. Some of the plates are cut off obliquely at one end, which makes the upper edge of the series form on the right side an upward point, while the lower edge, on the contrary, forms a downward point to the left. As the position indicates directly, these plates constitute the back reinforcement of the armour. This is confirmed by the plate farthest to the right, *i*, by its upper corner being provided with an iron loop of the kind which regularly occurs on one of the two plates nearest the opening in the back, and a rectangular buckle, *k*, lying below the same plate close to the point where it is provided with an extra rivet. The position of the buckle below the plate, with the tongue on the underside and pointing to the right, i.e. away from the plate *i*, indicates that it had not been directly attached to *i* but to the plate on the other side of the opening from which it had been torn off on being thrown into the grave; it had then been fastened by the tongue to a strap corresponding to the buckle, attached to the plate *i* and with this strap swung round and got into the described position below *i*.

The form of group *d-i* fully agrees with the form of the left groups of back-plates on armour 3 and 16, though the number of plates there is respectively seven and ten. In both these armours the back reinforcement is, however, supplemented with a corresponding, equally large, group of plates on the right side of the back. In the armour dealt with here there are, however, no remnants of such a right

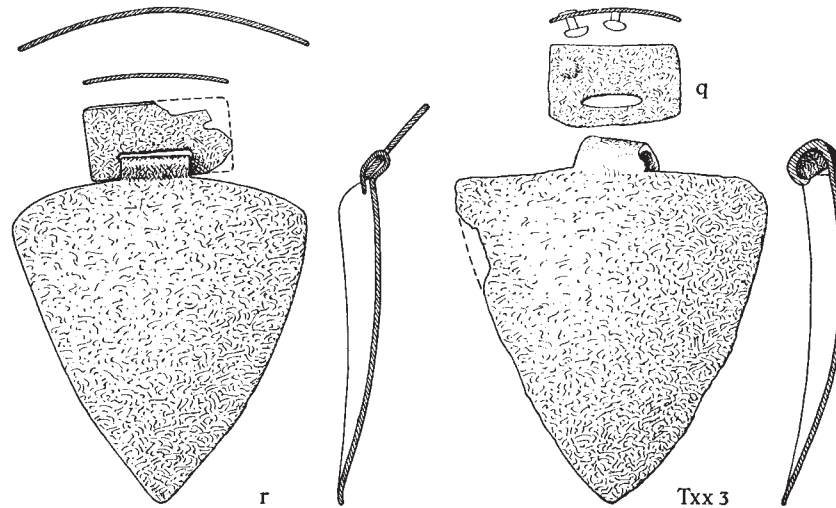


Fig. 367. Armour 1. Shoulderplates. Scale 1:3.

group. The question then is whether this armour had only one group on the back¹ or if a corresponding right group of plates had occurred and had been torn off and lost before the armour was thrown into the grave. Against the latter alternative is the fact that the upper part of the front, to judge from the position *in situ* was well fastened in its place when the corpse was thrown down into the grave, which would hardly have been the case if the fastening on the back had been torn off and the whole half side of the back girdle, absent; in favour of the same alternative, however, is the circumstance that the fastening, to judge from the position of the buckle *k* analysed above, seems really to have been torn off; also that the greatly protruding position of the horizontal lames *a*, *b* and *c* of the front indicate that these had been loose on the right side, and that the armouring of the back with only one group of plates becomes much too short to enable it to cover the whole back, for the length of the group *d-i* is even less than that of the corresponding groups of plates on armour 3 and 16. Nor is it inconceivable that the strap, which had connected the unarmoured back piece with the loop on the lame *i*, (see above p. 212), had been capable of holding the left back girdle in position. In view of the circumstances quoted, I therefore consider that the armouring of the back should be supplemented by a group of plates on the right side, symmetrical with group *d-i*. Hence, the reconstruction of the back is quite clear.

Above the right shoulder-blade and partly below the cranium lay a slightly convex, triangular plate, *r*, with the outer side upwards (pl. 6). This is provided with a projecting, turned-in tongue in the centre of

¹ I have assumed this in a preliminary reconstruction of the armour. Cf. *ZHWK* 1931, p. 201, fig. 1.

the short side, which engages an oblong slit on a smaller rectangular plate. Form and position indicate that this scutiform plate had been fastened on the right shoulder by means of the smaller plate. Not far from this plate an exact counterpart, *q*, of the smaller plate was picked up with two (out of three) rivets remaining on the concave side, showing that these plates had been riveted to the outside of the cover and thus, in contradistinction to the other plates, had been visible when the armour was worn. Long after this armour had been uncovered, not far from the spot where it had been lying, another scutiform plate *Txx 3* was found, of the same size and appearance as *r*; it is clear that *Txx 3* had belonged to *q*, and had been fastened to the left shoulder, but that during the conveyance of the corpse to the spot where it remained lying, they had fallen some distance from each other (fig. 367).

All edges of plates free on the inside show a distinct outward curve which, however, is missing in those edges which are overlapped by others (thus upper and side edges on plates *a*, *b*, *c*, *p*, *o*, the right edge of plates *m* and *n*, and the edges of *d-i* facing the centre of the back; also the shoulder plates *r* and *Txx 3* are without such an upward curve of their edges). This arrangement was clearly intended to protect the clothes worn immediately below the armour from being torn by the sharp edges of the plates.

RECONSTRUCTION.—The original composition of the armour becomes according to the above investigation as follows: The front is protected at the top by three vertical plates, of which the two outer ones (*l*, *n*) were curved towards the shoulders, the central one (*m*) rectangular. As is seen from both the position of the find and the trace of a rivet in the upper

right (but not the corresponding left) corner of *m*, the latter's left edge is overlapped by the left plate (*n*) while its right edge overlaps the adjacent edge of the right plate (*l*). Below these, and with the upper edge of the topmost plate overlapping the lower edges of the former, there are five horizontal lames, riveted to the covering along their upper edges. The four upper ones are of the same breadth, about 7.5 cm., while the lowest, *a*, is much wider in the middle (9.5 cm.), but, through the curving of the lower edge, tapers towards the sides. The back was probably covered by two groups of vertical plates, of which only one group is preserved. This consists of six plates and joined the left edge of the front. The plate farthest to the right (*i*) forms the left edge of the opening in the back; this is evident because its upper corner is provided with an iron loop for a strap, and with two extra rivets

which held fast the strap with which the armour was fastened together. The buckle, *k*, which corresponds to this strap has probably been fastened to a plate on the other side of the opening in the back, and which belonged to the vanished group of back plates. The last-mentioned, right group, consisted probably of as many plates as the left, i.e. the opening was in the middle of the back. The upper edge of the left group is slightly curved upward towards the middle of the back, while the lower edge, on the contrary, curves downward towards the side which is connected with the front. The right group certainly had a symmetrical form matching the left. There were scutiform plates on both shoulders, which were articulated to minor, rectangular plates, which were riveted to the outside of the cover. — Figs. 193–195 show a model of this armour.

No. 2. Type I. Pls. 10–12. Common grave 1. Regn.No. *B VI*. Uncovered in 1905.

DESCRIPTION.—This front of an armour consists of seven iron plates, of which five are much bent and were obviously placed horizontally across the stomach and lower part of the breast. To the middle of one of them, clearly the top one, a vertical plate is fastened by rivets, which thus protected the upper part of the breast, and corresponds to plate *m* in armour 1. The other two are symmetrical and have one longitudinal side curved inward in the characteristic manner which shows that they had been attached to each side of the breast, nearest the shoulders. The front is thus as a whole like armour 1, with the significant difference that the central breast plate on the latter is free, but is here riveted to the plate next below it.

As no records have been preserved regarding the position of the plates *in situ*, the position of the four lower plates can no longer be determined, but this is really unnecessary, since they are all practically alike. Only one of them, whose left end is broken off, shows at the opposite end a slight rounding of the lower corner, and was, therefore, very likely placed at the bottom. The breadth of these plates is 7 cm. Two of them have been preserved in their entire length, which is 39.5 and 40 cm. respectively; the other two are 39 and 40 cm. long respectively. The straight length between the ends (i.e. the chord of the curved line) is 30.5–31.5 cm. Every lame is bordered along its upper edge with rivets which are 3–4 cm. apart. Furthermore, there is at every short end a rivet immediately below the outermost rivet.

The uppermost, composite lame is, in the middle, for a length corresponding to the riveted width of the lame, somewhat broader (8 cm.) than on either side of it (6.5–7 cm.). The right end is broken off; the length of the left half is 21 cm. and its entire orig-

inal length was thus probably 42 cm. It is provided with a row of rivets along its upper edge, like those just described, and also the corner rivets were duplicated the same as before. The row of rivets runs in a straight line across the broader central portion some distance below the edge, but just above each one of these rivets there is another rivet. Clearly, the rivets first driven in attached the metal pieces to each other, while the others held fast the plate to the covering; only the latter were thus visible outside the original covering. The upper, riveted plate is at its lower end somewhat broader (14.5 cm.) than at the upper edge (10.5 cm.); the height is about 16 cm. Along the three free edges are rivets; furthermore, there are, farther inside the edge and slightly below half the height of the plate, two rivets provided with round washers placed between the rivet-head and the outside of the plate. These washers were visible on the outside of the cover, to judge from the traces on the outside of coarse cloth—very likely from the cover or its lining—which clearly pass beneath the same. The two topmost side plates are counterparts; their breadth at the bottom is about 10 cm. and at the top 7.5–8 cm., and their height 16–17 cm. Along the curved edge are six rivet-heads, none, however, in the lower corner, and along the central axis of the plate are similar rivet-heads, five and six respectively, though none at the lower edge.

As has already been mentioned there is on the outside of these plates a coating of rust with distinct fabric pattern. Here and there this coating runs below the rivet-heads, and consequently leaves traces of the cover to which the plates had been riveted. In some places on the four lower, horizontal lames the coating runs also round the upper edge and into the upper part of the back of the lames, showing that

they had been pushed together at their lower edge in the grave, when the covering became folded and lay partly squeezed between the lower lame and the one immediately above it. These traces of cloth do not, however, show conclusively that the covering consisted only of cloth, they may also conceivably be the remnants of a cloth lining of a covering of some other material. Actually, some remnants here and there, especially distinct round a rivet on the left breast-plate, show that such had been the case, and that the covering itself had consisted of leather.

RECONSTRUCTION.—The front of this armour was thus composed of five horizontal lames over the stomach and lower part of the breast, and three vertical plates over the upper part of the breast. Of these, the topmost horizontal and the central vertical ones had been riveted together. On the latter there are, besides the ordinary rivets along the edges, two with round washers, which had been visible on the outside. The plates had been riveted to the inside of a covering, probably of leather, which had a cloth lining, of which distinct traces exist in several places. All criteria for a reconstruction of the back of the armour are lacking.

No. 3. Type I. Pls. 13—20. Common grave 2. Reg.No. *Vss 9 (A 43)*. Uncovered in August, 1929, by B. Thordeman. Measured up by E. Dahr.

SITUATION.—The armour surrounded the upper part of the skeleton, which, through disturbances in the grave during the process of decay, had been separated from the lower part (pelvis and lower extremities). Probably the near-by skeletal complex *Uss 16*, constitutes the missing lower part of the skeleton. The left humerus lay obliquely across the breast. On being thrown down into the grave the corpse had got into a half-sitting position, and the head fallen down over the right side of the breast. The man had worn a coif of mail, which had slipped down over the neck and now lay in a big lump over the breast (pl. 15: 1).

DESCRIPTION.—After the cranium and the coif had been removed the front of the armour was found to lie there in a fairly correct position, with its outside upwards (pl. 15: 2). Its lower part consisted of three horizontal, broad lames (*e, d, c*), the lowest (*c*) broadest in the middle, which now, by reason of the man's half-sitting position, had been partly telescoped into each other.¹ The upper part of the front consisted of three vertical plates (*o, f, g*), the two outside ones with their characteristic shape at the shoulders, the central one rectangular. Of these, the right one (*o*), had, when the corpse decayed and a cavity had been formed below the three stomach lames, slipped down and lay now below the central stomach lame (fig. 368: 1).

Close to the left side of the three stomach lames seven plates of more or less rectangular shape lay in sequence, two, *i* and *n*, with their outsides upwards, one, *u*, close to the latter on the long edge, and the

other four, *t, s, r* and *m*, below *i* and *n* and with their insides upwards. As is seen from fig. 368: 2, these seven plates clearly form the back reinforcement on the left side of the trunk; when the corpse was thrown into the grave they were probably in their place, but either immediately after the corpse had been placed in the grave or very soon after, while the cover was still able to hold them together, they had been displaced to the position in which they were found. If, now, these plates are laid out in the order which their position indicates (from the front *i, n, u, t, s, r, m*), and slightly overlapping each other from left to right, it is found that their length is adapted to each other: The upper edges form a straight line along to *m*, whose outer, upper corner forms a point upwards, while, on the other hand, the lower edge curves downwards nearest the front in such a manner that *n* and *i* are obliquely cut off at the bottom, and *i* is longest at the edge close to the lames of the front. This oblique direction of the lower edge coincides with the direction of the oblique lower edge of plate *c*, which means that the plates *e, d* and *c* of the front had originally been pushed together so much that their total height at the outer edges had coincided with the length of plate *i*. By this the sequence of *i-n-u-t-s-r-m* has been clearly confirmed. That *m* is the last in the series, is also confirmed by the fact that the same, in contradistinction to the others, has one extra rivet close to the outer edge and approximately in the middle. Almost opposite this rivet was found a rectangular buckle (*k*) which had clearly been attached to it.

It remains now for us to examine five plates which were found scattered, but on the whole coinciding as to form with the back plates last dealt with: *b* forms an almost precise symmetrical counterpart to *i*, and *q* to *m*, even as regards the rivets; that *q* is an outer plate is also shown by the fact that it is provided with an iron loop on its upper, outside

¹ Above the lower one of these three plates lay a very large, rectangular plate, *a* (pl. 15: 1), which I consider did not belong to the armour here concerned. It clearly forms a portion of a back of an armour of the same type as armour 7, to judge from the loop in one corner, corresponding to plate 5 in the latter. See below, description No 33.

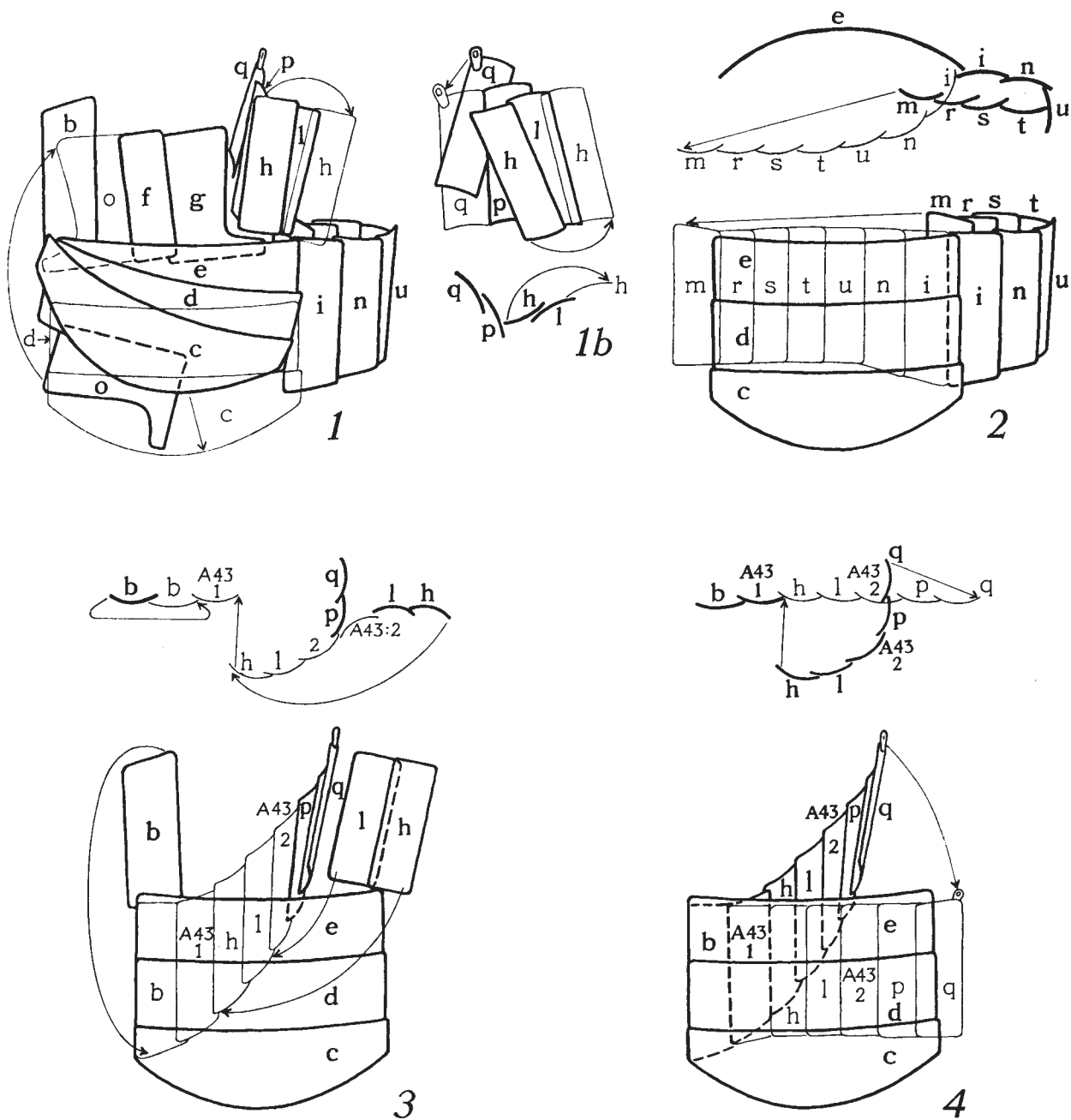


Fig. 368. Armour 3. Diagrammatic illustration of reconstruction.

corner, just as it should be located in analogy with the other armours.¹ From these circumstances we can draw the conclusion that the five plates referred to constitute the armour on the right side of the back, corresponding to group *i-m*, on its left, and with the guidance of the latter group the sequence of the plates

¹ Its present, downward-pointing position is, of course, due to the loop having turned round its rivet and got rusted fast there.

in group *b-q* is determined as *b-h-l-p-q*.² They overlap from right to left. These plates do not constitute the whole back armour though, for we have here only five plates whereas the other group consists

² The plate *l* differs, however, in regard to length from the others, in that it is slightly shorter; this is probably due to its replacing, on being repaired, a worn or lost plate and being a trifle too short.

of seven. It so happens that these two missing plates have come to light, and this long before the remainder of the armour. In case *A 43*, with finds from the 1912 excavation of common grave 2, two plates were in fact preserved, which, because of their sizes and the arrangement of the rivets, could not be made to match other parts of armour stored there. These two plates match precisely in all respects the series of plates which we are here dealing with, and without the least doubt originally belonged there but became loose and got elsewhere in the pit, we do not now know where. With the guidance of their dimensions these plates can be inserted into their proper places, *A 43: 1* between *b* and *h*, *A 43: 2* between *l* and *p*. After we have reconstructed the group *b-q* in this way, there is no difficulty in explaining their position *in situ*, which is diagrammatically illustrated by fig. 368: 3 and 4. It seems as if group *h-l-p-q* had already, on being cast into the grave, been partly torn from plate *b*, to which it was perhaps hanging by some rags. This agrees with the circumstance that *A 43: 1* is torn off here. Even the fastening of *q* and *m* (by means of *k*) had come loose. The group of plates *h-l-p-q* (where, by the way, between *l* and *p* there was a torn bit because *A 43: 2* had loosened) which had half loosened, on being thrown into the grave fell over to the left side of the corpse; *h* and *l* turned round and came to rest on the outside of *p* and *q*; *h* turned over further a half turn and came to rest on the outside and end to end with *i* (fig. 368: 1 b). Now, when the front of the armour, on account of the corpse falling into a half-sitting position, slipped down on to the stomach, perhaps *q* — which was probably connected to the front with a strap in the loop (cf. above p. 212) — was pulled up towards the neck, and with *q* the plates *h*, *l* and *p* connected with the same, but on the other hand not with group *i-m*, which we have assumed to have loosened from *q*. The plate *b*, again, which perhaps was connected with *h* by some rags, may thus also have become twisted round and got into the position in which it was found.¹

RECONSTRUCTION.—The appearance of the armour in its reconstructed condition thus becomes as follows: The front of the armour consists at the top of three vertical plates and below them three horizontal lames, the latter, in contradistinction to what is otherwise the case, fastened to the cover by means of two rows of rivets each. The upper two lames are about 11 cm. wide, and the lower edge of the third

is curved; its breadth at the outer edge is 4 cm. and in the middle 12 cm. The length of these three lames is 39–40 cm. (the lower one is the longest). Even the upper three plates are provided with two rows of rivets. The central one overlaps the edges of the plates at the side, while their lower edges are concealed by the upper edge of the uppermost horizontal lame, *e*. The sides and back have been protected by a row of fourteen vertical plates. These plates overlap from the sides inwards and form two groups, consisting of seven plates each. Between these two groups, in the middle of the back, was the main opening, which was fastened together with a rectangular buckle, attached to the left plate. On the plate to the right of the opening in the upper, outer corner an iron loop is riveted, to which very likely a strap was fastened. The upper edges of these two groups are horizontal, except towards the middle of the back, where they are drawn up into a slight point, while the lower edges, on the contrary, are somewhat drawn down on both sides nearest the front. The length of the plates here is 21 cm., which probably precisely coincides with the total height of the three horizontal lames in front, which consequently have their direct continuation in the back plates. At the opening in the back the length of the plates is 19 cm., and otherwise 18.5 cm., with the exception of the central plate in the right group (*l*), which was probably put in during some repairs, and is only 17.5 cm. long. The back plates have two rows of rivets in the middle analogous to the double row of rivets in the front.

¹ I have previously in a preliminary attempt at reconstruction (*ZHWK* 1931, p. 203, fig. 5) placed the plates *h-l-p-q* over the group *i-m*, in view of the relative position in which the group was found, in that the bottom edges on the former group are lying at the same height as the upper edges of the latter. But this reconstruction suffers from such obvious weaknesses that it can certainly be rejected as erroneous. First of all, it results in plate *b*, and furthermore of course *A 43: 1* and *2*, having to be looked upon as not belonging there, because the lower edge of the upper group otherwise does not fit together with the upper edge of the lower group; but as *i* and *b* correspond so closely with each other, this exclusion of *b* is not permissible. Secondly, the openings in the back are marked partly on the right side by *m* with its buckle *k*, and partly on the left side by *q* with its loop; this is obviously unreasonable. Thirdly, the group *i-m* becomes too short to cover the whole back; *i* must then be separated from direct contact with *e-d-c*, which militates both against its shape and its position *in situ*. Fourthly, such an arrangement lacks analogies in this type of armour (armours 21–24 provided with several rows of plates on the back are of an altogether different construction), while the reconstruction here rendered has exact and safe parallels in several other of the Wisby armours and in contemporary reproductions (figs. 317, 347, 348).

No. 4. Type I. Pls. 21–26. Common grave 2. Regn.No. *Ott 4*. Uncovered and measured up by M. Lagerqvist on 20th and 21st August, 1930.

SITUATION.—This armour lay on the bottom of common grave 2, at such a deep level that the ground

water here caused serious difficulties in its recovery, as may be seen from pl. 24; in spite of the adverse

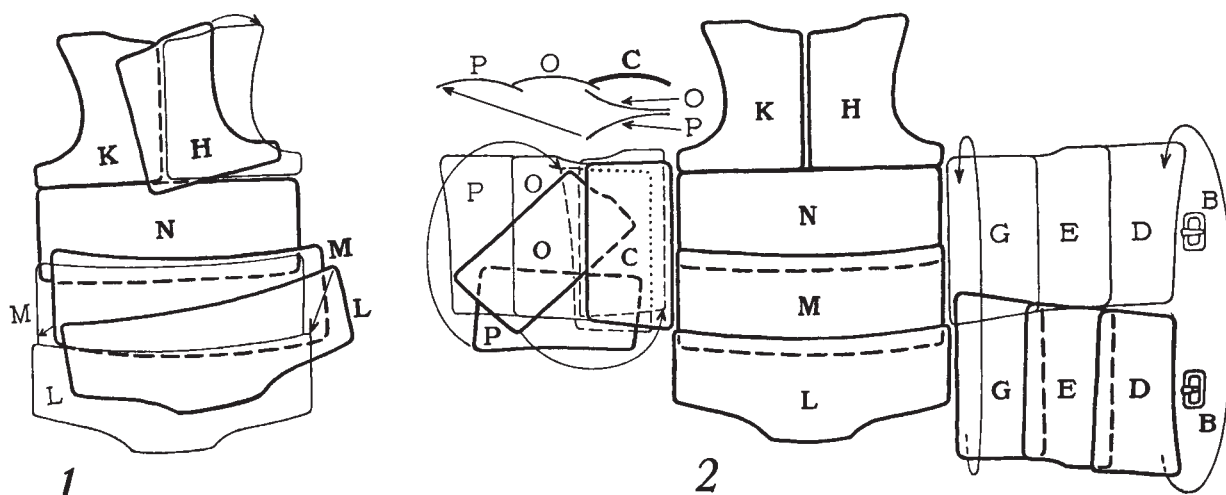


Fig. 369. Armour 4. Diagrammatic illustration of reconstruction.

conditions of the soil, the plates were very well preserved, and lay in such a good position in relation to each other that the reconstruction on the whole is a matter of course.

The plates covered the skeleton of the warrior who had worn it (pl. 24). The man lay on his back, with the head, twisted to the right, still surrounded by a coil of mail, whose collar passed down beneath the breast plates. This is an interesting circumstance which shows that the armour was worn over the collar of mail. Unfortunately, the coil had rusted completely into bits and could not be recovered whole. The femurs were lying crossed, the left across the right.

DESCRIPTION.—Over the breast lie two vertically placed plates, *K* and *H*, with large portions cut out for the shoulders and also smaller indentations at the top for the neck. On plate *K* two of the rivet-heads are considerably bigger than the others. Below these lie three broad, strongly bent, horizontal lames, *N*, *M*, and *L*, of which the upper one is about 1 cm. narrower and the lower one just as much wider than the central one, which is 39.3 cm. long, due to the plates overlapping each other from below and the length for this reason having to be increased downward so as to produce a straight lateral edge. As to the depth, the two upper ones, *N* and *M*, are equal, 12 cm., while the lower one, *L*, is deeper in the middle, 13 cm., but on both sides a curved portion is cut out which makes the edge only 9.5 cm. These plates call only for trifling corrections to get them into their right position in relation to each other (fig. 369: 1).

On either side of this complex of plates lie three more or less rectangular plates, which *a priori* we are entitled to suspect as constituting the back plates of the armour, because they are bent in such a direction

that they were obviously placed vertically on the body. Their length is 20–22 cm., and their breadth 10–12 cm. On closer inspection these plates are found to be somewhat irregular in shape, and this in such a manner that each one belonging to one side has its counterpart on the other side. This means that the two groups were symmetrically attached, which is confirmed by the two plates, *C* and *G*, nearest the front, forming a pair. The three plates on the left side, *G*, *E* and *D*, are clearly lying in their original sequence in relation to each other, and with the guidance of this one can conclude that the plates of the right side were in the sequence *C*–*O*–*P*. The plate *C* lies with its convex side upward, and, consequently, in its right position in relation to the front, while the group *G*–*E*–*D* lies with the concave sides upwards. The latter group should clearly be turned altogether with their upper edges as the axis of rotation, in such a way that these in their new position become lower edges. In this way the plate *G* gets into a perfectly symmetrical position in relation to plate *C* (fig. 369: 2). The plates of the right side are lying completely disordered in relation to each other, *C* and *P* with the convex, and *O* with the concave side upwards. Probably, on being thrown into the grave they were telescoped in a zig-zag way, and *O* and *P* were then displaced from their positions (fig. 369: 2). At any rate, their original location, thanks to the fine position of the group *G*–*E*–*D*, can be determined with complete certainty.

The armour, therefore, has a back reinforcement, consisting of two groups of three vertical plates each, which meet in the middle of the back where they were fastened together. This agrees with the fact that opposite two rivets at the outer edge of plate *D* (rivets which are without their counterpart in the other

plates) a rectangular buckle *B* (5 × 3 cm.) was found.¹ The back plates are shaped in such a way that the two nearest the front, *C* and *G*, are somewhat curved at the bottom, following the iliac crest. The two next plates, *O* and *E*, on the other hand, are curved at their upper edges, obviously to fit below the shoulder-blades. Finally, the two plates in the middle of the back, *P* and *D*, are at the top slightly broader (12 cm.) than at the bottom (10 cm.), which is certainly done so that the armouring should follow the curve of the waist, as is also the case in armour 8. Near the (originally) upper corners of the adjoining edges of the plates *E* and *D*, lay a circular iron buckle, *F* (diam. 5 cm.), and in an approximately corresponding position in relation to *C*, lay a similar buckle, *A*. It is possible that these two buckles served a purpose corresponding to the iron loops otherwise customary on armour, which are here absent, i.e. to be fastened with straps so as to support the weight of the armour (see p. 213).

A further two buckles, *Q* and *R*, which lay in the pelvis, probably belonged to the wearer of the armour. In an analogous position near the skeletons, buckles were found fairly often. These buckles need not have to be considered as belonging to the armour itself but they probably belonged to the garment worn beneath it (see p. 117).

Finally, it should be pointed out that between, and close to, the edges of the plates *N* and *H* lay an iron rivet with a big, round head (diam. 3.4 cm.), with the shank of the rivet downwards. Probably,

this was located on *H* as a counterpart to one of the big rivet-heads on *K*.

RECONSTRUCTION.—A summary of the reconstruction supplies the following picture of the armour: The front consists at the top, across the breast, of two vertical, specially shaped plates. Below follow in sequence three horizontal, much bent lames, which with their upper edge overlap the bottom edge of those above. The bottom edge of the lowest of these is curved so that the plate is broadest in the middle. On either side, with the upper edges at the same height as the upper edge of the topmost of these horizontal lames, is a group of three vertical plates, approximately rectangular in shape, each one differing slightly from the others in its group but similar to the corresponding one in the other group. The armour opened down the middle of the back and was fastened there by a rectangular buckle. It is possible that a round buckle had been fastened to each side of the opening in the back, at the upper edge of the plates; by buckling fast to straps on the back they served to support the weight of the back armour and prevent the latter from slipping down and causing discomfort to the wearer.

¹ The buckle lay with the tongue on the upper side pointing away from plate *D*. Since plate *D* lay with its concave side upwards, the tongue of the buckle should have been on the underside. This probably may be explained by its having twisted round in the possibly ragged strap that held it fast to *D*.

No. 5. Type I. Pls. 27–29. Common grave 2. Regn.Nos. *A 36*, *A 38*. Uncovered in 1912. This armour has been presented to the National Museum at Copenhagen by the Swedish Government.

DESCRIPTION.—In case *A 36* with finds from the 1912 excavation of common grave 2 there were two large fragmentary plates of such an appearance that they probably constituted horizontal stomach lames of an armour, and a plate with the characteristically curved edge, which shows that it had been attached on the left side of the breast. In case *A 38* from the same excavation season a fragment of a counterpart to the last-mentioned was found, and a piece of a stomach lame of the same breadth as the one in case *A 36*. For this reason one might be justified in considering the armour plates in these two cases as belonging to the same suit of armour, all the more so since these plates are the only ones from the 1912 excavations which with certainty belong to a suit of armour with horizontal stomach lames. In case *A 38*, furthermore, a back plate of the same type as those on armour 7 was found, and several fragments of plates, of which at least some are parts of another back plate.

These plates, therefore, supply information of the back structure of the armour.

The whole breast plate is comparatively broad (greatest breadth 16.5 cm.) and agrees in this approximately with corresponding plates in armour 4. It is, therefore, very probable that the breast protection consisted of two plates side by side, as in the last-mentioned armour. On the other hand, its height is rather small (16.5 cm.). It is provided with two rivets at the upper edge and besides this a further rivet seems to have been fixed somewhat lower down, about half-way across. As to the shape of the plate, it is remarkable that its upper inside corner is cut off obliquely. On many of these plates there occur such portions cut out below the neck, but nowhere so deep as here.

Of the counterpart which had been on the right side, only the lower, outer portion is preserved; neither height nor breadth can therefore be gauged but they certainly agreed in the main with the preceding

plate. A rivet is left in a place corresponding approximately to the lower rivet on the preceding plate.

Three rather large portions of the stomach lames have been preserved. Two of them are about 13.5 cm. deep, the third a trifle narrower. The two former have rivets along one longitudinal side; on the latter there is also a rivet on the lower edge which indicates that this plate was located at the very bottom. None of the plates have been preserved in their entire breadth, and it is therefore *a priori* uncertain whether we have before us remnants of two or three lames. However, it can be maintained with certainty that this armour was provided with three horizontal lames, for otherwise its length would be too short. In the two armours 3 and 4 composed of three horizontal lames the total height of the armouring of the front is respectively 54.6 and 57 cm. For the armour 7, composed of two horizontal lames, the corresponding measurement is 54.5 cm. In a reconstruction of this armour with two horizontal lames the corresponding measurement would be only 43 cm., but with three lames 56.5 cm. It is thus obvious that the number of horizontal lames must have been three.

The back plate which has been preserved in a very much damaged condition, is 15 cm. wide and 23.5 cm. high. Its curve shows that it was located verti-

cally. In each one of the corners of one longitudinal side a rivet was fastened. In the third corner, on the other hand, no rivet was found, but instead one some little distance from the corner of the short side. This shows that the back plates overlapped each other a certain amount. In the middle of one longitudinal side was a group of three rivets, one of them dropped out; by analogy with other plates these had held fast a buckle that had served for holding together the armour in the opening of the back. This plate had, therefore, been located at one side of the opening in the back. As the dimensions of the plates coincide pretty closely with those of the back plates of armour 7, one may assume that the number of back plates here, too, was four.

RECONSTRUCTION.—The armour probably had the following appearance: The front consisted of three horizontal, uncommonly big lames and two breast plates above them, the height of the latter, on the other hand, being relatively small, but their breadth proportionately great. The back was protected by four large, rectangular, vertical plates placed beside each other, which overlapped slightly. Whether the opening in the back had been in the middle or perhaps—as in armour 7—at one side, cannot, of course, be decided.

No. 6. Type I. Pls. 30, 31. Common grave 2. Regn.No. *Pss 14*. Uncovered in August, 1930.

DESCRIPTION.—Close to armour 7 two large but severely damaged plates, lying on top of each other, were recovered from common grave 2. Neither of them was preserved in its original length; their greatest breadth was 51 and 53.5¹ cm. respectively. The depth was about 16 cm. Both plates were provided with rivets along one longitudinal side. In view of this, and as the dimensions closely agree with the plates *1+13* and *20+21* in armour 7 (breadth 48 cm., depth 17.5 cm.) one may safely assume that the two plates had the same function as the former, viz. that they formed the horizontal lames of a suit of armour like No. 7. By reason of their great depth the horizontal lames may not have been more than two in number. Of the armours which are provided with more than two stomach lames, those in armour 4 have the largest dimensions; but they are not wider than 12–13 cm. The lower corner on one of the lames is somewhat rounded; this, as well as the position in which it was found, shows that it was the lower one of the two. Not far from these lames has been found a peculiar half-oval plate, *Rss 17* (see below No. 37) which could not be explained other-

wise than as the lowest plate in armour of type I. Though it is shorter than these two (36.5 cm.) it is feasible that it belonged to this armour and formed the bottom of it.

RECONSTRUCTION.—The armour here referred to thus consisted of two (or at the most, three) horizontal lames in front, and over these probably two breast plates, like armour 7.² Like the latter armour the back had also probably been covered with large plates which had been fixed vertically. Perhaps the plate *Rss 11* (No. 34), which is of this kind and was found separately in the same square as the aforesaid *Rss 17*, had belonged to this suit of armour. Plate *Vss 9 a* (No. 33) may also be considered.

¹ The greater part of one of the plates had fallen into small pieces and could not be reconstructed.

² The breast plates *Pyy 1* and *Luu 1* which were found independently, have been mounted on the armour. They are, however, of a smaller type and had probably been provided with a smaller plate between them (cf. armour No. 1). There are no reasons whatsoever to believe that these two plates really belonged to armour No. 6. See below, description No. 29.

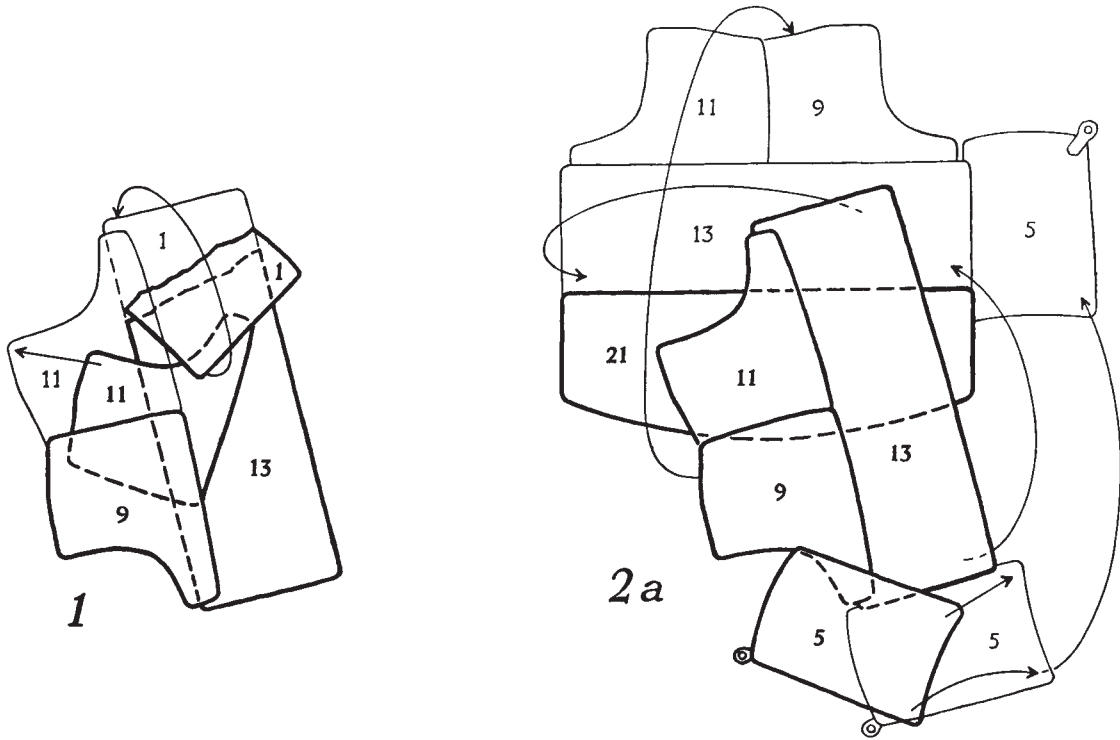


Fig. 370. Armour 7. Diagrammatic illustration of reconstruction.

No. 7. Type I. Pls. 32–38. Common grave 2. Regn.No. *Prr* 8. Uncovered and measured up by A. Hoff on the 28th and 29th August, 1930.

SITUATION.—This armour was found in the centre and at the bottom of common grave 2, i.e. it was amongst those first thrown down into the burial pit. As the position of the skeletal parts on the bottom of the pit was extremely chaotic, because of the great weight that pressed down upon them and compressed them, and as their state of preservation was extremely poor—the great moisture of the soil had caused them to rot and it was almost impossible to get up any of the bones whole from the lowest layers—it cannot be said with certainty if the armour had been thrown down with the corpse of the warrior who had worn it, but everything indicates that such is not the case. The plates of the armour, too, were by reason of the moisture and the great pressure to which they had been subjected, exceptionally decayed, broken to pieces and brittle.¹ This is extremely regrettable because it is the only armour that had been the object of any kind of ornamentation.

¹ Plate 21, which, owing to the pressure, had become quite flat, could not be mounted in the original. Instead of it a galvanoplastic copy has been made, which has been mounted together with the other original plates (pls. 32, 33). The fittings 21 a-c have been transferred to the mounted copy.

DESCRIPTION.—In the reconstruction we start from plates 9 and 11, which by their shape are proved to constitute the upper part of the front between the shoulders. These two plates were lying with their inside upwards, and on the partly fragmentary plate 11 a bronze ornament in the form of a fleur-de-lis (12) is fastened with an iron rivet on the outside upper edge. In a corresponding position in relation to plate 9 there was a similar ornament (10) lying unattached. Beneath plate 9, and with one edge projecting below it, lay a broad, oblong plate, 13, with its inside upwards like the preceding one. The extreme outside right part of the plate, 1, lay, however, unbroken on top of 13, with the inside downwards. It need only be turned over altogether, with the edge of the fracture as the axis of rotation, to get it into its proper position in relation to 13. Plates 9 and 11 now get into their right position in relation to 13 after quite a trifling transposition (fig. 370: 1). Half-way down the length of the reconstructed plate 1+13 is fastened on the outer (i.e. lower) side at the upper edge a scutiform bronze ornament (13 a) and 7 cm. to the left on the same plate, a bronze shell (13 b). The same distance to the right, near the break between 13 and 1, was another shell ornament (17), which

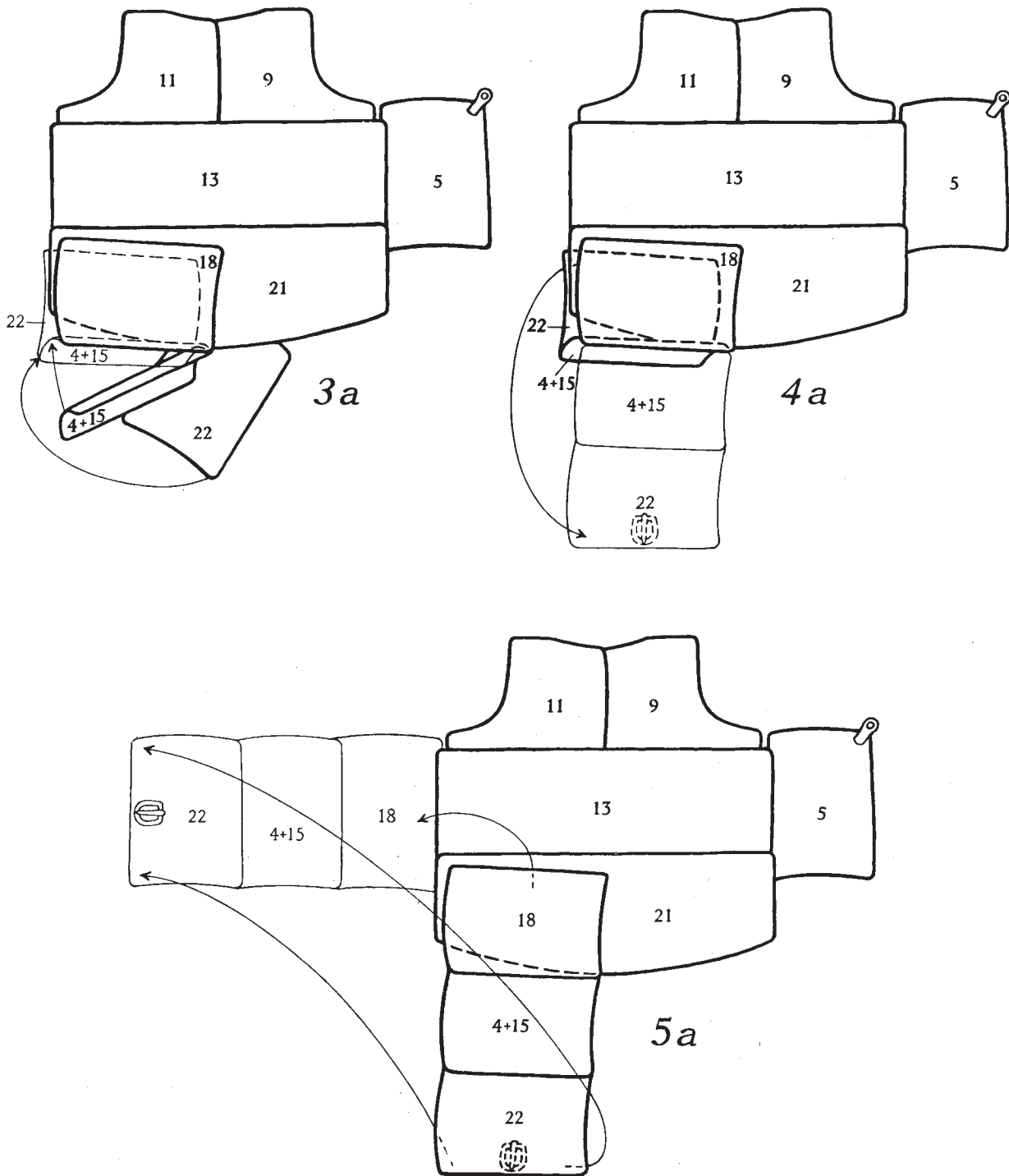


Fig. 371. Armour 7. Diagrammatic illustration of reconstruction.

had clearly been placed symmetrically with the former on plate 13.

Obliquely below this group of plates, but with the outside upwards, lies a large, oblong plate, 21, whose length together with the fragments 20 is 48 cm., precisely the same as plate 1+13. The breadth, on the other hand, is the same 17.5 cm., only in the middle, because the lower edge of plate 21 tapers towards its ends. It is quite clear that plate 21 forms the continuation downwards of the front of the armour, i.e. that it had been placed below plate 13. On being thrown into the grave the armour had clearly been very much damaged and the plates were only held together by fragments of the covering; they therefore turned about each other and plate 21, with its outside up, got below the complex 9-11-13, which had come to lie with its inside upwards. In order to get it back into its original position in relation to the rest, the latter complex should, therefore, be lifted up as a whole, turned round and twisted in such a way that with its outside upwards, it occupies its place above plate 21 (fig. 370: 2 a). That the armour even before entering the ground had been seriously damaged, and that this had probably been done in the battle, is seen not only by the fact that it had not been taken care of but is also proved by the nature of the damage. For, when the plates 13 and 21 are placed in their original position close to each other, the lines of fracture between 1 and 13, as well as 20 and 21, form a continuous line, which suggests that the fractures were caused simultaneously in both plates, and, therefore, before they got into the soil, since they were there lying apart from one another. In favour of the correctness of this is the fact that the lower, right-hand corner of plate 21 (below the fragments 20, which lay in their proper position in the grave), were not found during excavation and had thus already dropped off, and that also plate 11 attached to the right side had had some bits knocked off, which are also missing. It is therefore clear that the man who wore the armour received a violent blow on the right side of the breast, which not only tore the cover but also crushed the iron armouring.

By joining plate 21 to the complex 9-11-13 the whole front of the armour is reconstructed, which is shown partly by the dimensions, which are correct for a front, and partly by the curved lower edge on 21, which indicates that this was a bottom edge. Plate 21, too, is, like 13, decorated with bronze ornaments attached to the upper edge; in the centre a fleur-de-lis ornament (21 b) like 10 and 12, and on both sides scutiform mounts (21 a, 21 c). The breast thus in its entirety consisted at the top of two plates between the shoulders and below these, after one another, two broad horizontal lames.

It remains now—besides minor parts—to place four rectangular plates of coincident dimensions,

about 15.5—16 cm. broad and 22 cm. high; the plates 5, 22, 4 and 15, the last two being parts of the same plate, and 18. We may safely assume that these plates constituted the armouring of the back, because, first, their total breadth covers this portion, and, secondly, they cannot be placed otherwise. From their faintly curved form it is apparent that they ought to be placed vertically on the body. Plate 5 lies close to the left part of plates 9 and 13, and with its inside upwards, like these. It need only be moved slightly to get it into a normal position in relation to these, and may therefore be assumed to have formed a continuation of plate 13 below the left arm. It should then be imagined as accompanying the group of plates 9-11-13 on their being joined with plate 21 (fig. 370: 2 a). The right part of plate 21 is covered by plate 18, which is lying with its inner (concave) side upwards. With its convex (outer) side close to one of the longitudinal sides of 18, plate 4+15 lies, broken into two fragmentary parts, very nearly on edge (standing on one of its longitudinal sides). Partly below the same and projecting below 18 and 21 lies 22 with its outer (convex) edge upwards. The connection between these three plates can be imagined in such a way that 4+15 abutted 18 along its upper longitudinal side and 22 along its lower longitudinal side (fig. 371: 3 a). They would thus, on being cast into the grave have turned round in such a way that 22 and 18 came to lie with their outer (convex) sides against each other, and either on being thrown down, owing to the raggedness of the cover that held them together, or afterwards, through the settling in the grave, have been displaced from one another into the position in which they were found. If they are unfolded on the horizontal plane from this imaginary position, with plate 18 unmoved, they will thus lie with their insides upwards in the sequence 18—4+15—22 (fig. 371: 4 a). In order to get this series of plates into a natural position in relation to the front of the armour, the whole plate complex must now be lifted up and turned with one of the corners on plate 18 as turning axis, so that one longitudinal side of plate 18 is made to adjoin the upper, right corner of plate 21, and the right end of plate 13 (fig. 371: 5 a). The plates are now lying all with their outsides up. It should be noted that it is just on the right side, where 18 adjoins 13 and 21, that the armour had been subjected to violence, which is compatible with the assumption that 18 had been torn from 13. That the three back plates under such circumstances when thrown down into the pit turned round with the connecting point in the corner between 18 and 21 as axis of rotation, and had been made to form a right angle to the latter's longitudinal direction, is nothing untoward, nor is the fact that the plates 4+15 and 22 by the force or speed had turned round once more, by which means 18 and 22 had come to lie with their outsides against each other.

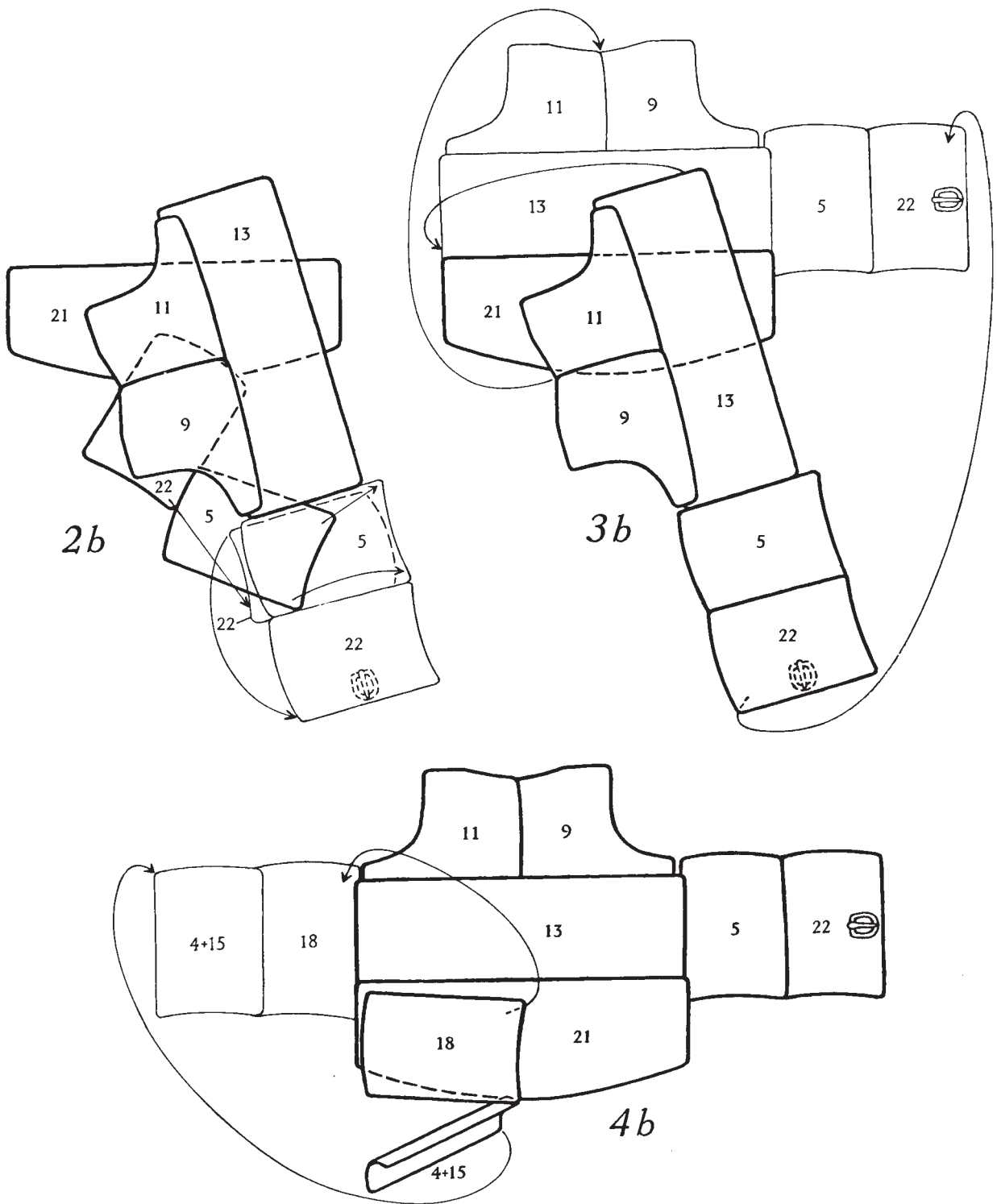


Fig. 372. Armour 7. Diagrammatic illustration of reconstruction.

This reconstruction entails that the opening in the armour would be between plates 5 and 22. On the outside of 22 lay a round buckle (23), 4.5 cm. in diameter, fastened to a rivet, in an appropriate position near one long side. This buckle, which had clearly been intended to fasten together the armour at the opening in the back, will lie in the reconstruction at that edge of 22 which, on buckling on the armour, should adjoin 5, and, with the tongue pointing towards this plate. Furthermore, close to the inner, upper corner of 5 some fragments, 6*a* and 6*b*, were picked up, of which 6*a* with certainty belongs to plate 5. Near these, about the centre of the upper edge of 5, an iron object, 6*c*, was picked up, which proved to be an iron loop. There is therefore reason to assume that this, too, belonged to plate 5. Just such a loop is, in fact, as a rule found on the plate which is nearest the opening in the back, so that this loop also indicates that the opening in the back ran between the plates 5 and 22. In analogy with other armour, we place it in the upper, outer corner of plate 5.

It should, however, be pointed out that some serious contradictions are encountered in this reconstruction of the back portion. Of minor importance, very likely, is the fact that the fragment No. 15 lay on top of, and not as one would have expected, below No. 18; the plate 4+15 has clearly, by reason of its violent treatment before being thrown down, or the pressure on it of the soil in the grave, been damaged so much that an inconsistency in its position can no longer have much value as evidence. A worse thing is that the only rivet on plate 5 preserved, which according to the reconstruction should have been in the upper corner, close to the longer side which would have formed one side of the opening in the back, is somewhat withdrawn from this edge, indicating that it had been overlapped by an adjoining plate. This differs from previous examples, in that the plates on both sides of an opening usually lie edge to edge and not overlapping one another. It is curious that, according to the reconstruction, loop No. 6*c*, found separately, should also be placed in this same corner and we must, therefore, suppose another rivet to hold the loop very close to the other rivet. Finally, the opening in the back being placed to one side is unique in the whole of the armour material found; in types I-III the opening in the back, where this can be determined, is always in the middle of the back, and otherwise, in types IV, V and VII, at the side. These circumstances necessitate that the reconstruction effected through an analysis of the position of the finds, must be regarded as extremely uncertain. If we assume the condition that the opening must be in the middle of the back, the position of the finds may possibly be explained in such a way as fig. 372: 2 b-4 b, illustrates. By doing so the opening would run between the plates 22 and 4+15. As a leading argu-

ment against this solution may be cited the position of the loop 6*c*, which then becomes quite inexplicable. But this armour must have been so damaged before it was thrown into the burial pit, that it is not impossible for the loop to have got into this position, even if it had originally been riveted to plate 4+15, and one must also reckon with later disturbances in the grave. I myself believe more in this alternative than in alternative *a*, but I considered myself forced in the reconstruction to follow the hints which in the first instance are supplied by the position of the find, and this leads undeniably to a reconstruction according to alternative *a*. The uncertainty regarding the reconstruction of this armour only concerns, however, the opening in the back; everything else holds good.

Together with the armour there were picked up also some minor fragments of iron plates (2, 3, 14, 16, 24, 25), whose association could not be fixed with certainty, and which we shall not tarry with here, since they lack importance for the reconstruction as a whole. Furthermore, there was a piece of mail (19) below a cranium, which, however, probably did not belong to this armour, and, finally, two bronze buttons or rivets (7, 8), with round, flat heads measuring 1.7 and 1.9 cm. in diameter respectively. The former of these two was found with the rivet-shank pointing downwards in the angle between the plates I and II, the latter lying on top of plate II. Unfortunately, these positions do not give any support to the incorporation of these two rivets in the reconstruction. It is not very probable that they both belonged to plate II, but rather that they had been fixed symmetrically. Though one would like to advance the theory that they had been attached to plates 9 and II in such a position, it is, nevertheless, nothing but guesswork.

RECONSTRUCTION.—If we now summarize the results of this work of reconstruction, it is found that we get an armour of the following appearance: The front consists at the top, across the breast, of two plates beside each other, specially made to fit the shoulders. Below these are two broad horizontal lames across the stomach, the upper one of even depth, the lower one with a curved bottom edge, broadest in the centre and tapering towards both ends. Besides iron rivets, of which in the present fragmentary condition of the armour only few are visible, the iron armouring had been fastened to the cover that held it together by means of differently shaped bronze mounts, all placed close to the upper edge of the iron plates, one on each of the breast plates and three on each of the stomach lames. The two former are fleurs-de-lis and their apices point obliquely outwards. The central mount on the upper horizontal lame is scutiform and decorated with three engraved five-petaled roses; on each side of this shield is a

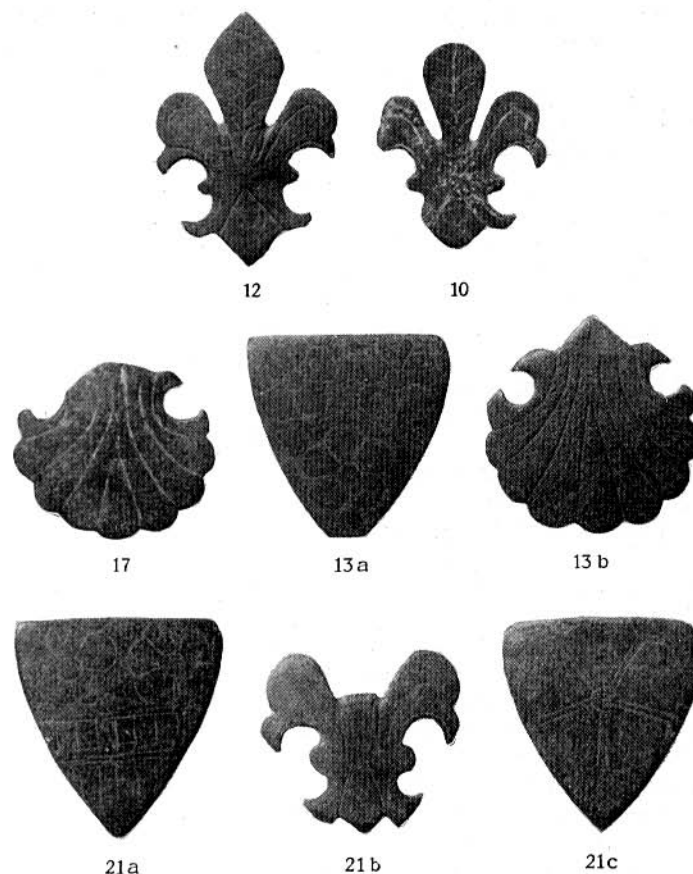


Fig. 373. Armour 7. Bronze mounts on front. Scale 2:3.

shell-shaped mount. The central mount of the lower horizontal lame is a fleur-de-lis like the two top ones. To the left of this (from the wearer's view) is a shield with a large, five-petaled rose; to the right, a shield with two five-petaled roses at the top and below them two rows of vair (concerning these mounts see above pp. 228 f.). The symmetrical arrangement of the mounts, which is thus achieved, strongly confirms the credibility of the reconstruction.

The back is protected by four equally large plates, placed vertically and with their upper edges probably placed as a continuation of the curved outline of the breast plates. The opening in the back of the armour runs either between the first and second plate on the left side, or in the middle of the back. The armour had been fastened together by means of a round iron buckle. The plate opposite the buckle was probably provided with an iron loop in the upper, right-hand corner.

No. 8. Type II. Pls. 39–44. Common grave 2. Regn.No. *Mä* 8. Uncovered and measured up by A. Hoff in August, 1929.

SITUATION.—No skeleton which had originally been covered by this armour, could be observed, and it seems probable that the armour did not accompany a corpse into the grave, but that it was cast in empty. This conclusion is drawn from the fact that, as shall be demonstrated below, when the armour was thrown into the burial pit the upper part of the front seems to have been bent in below the inside of the lower part and

also the right portion of the back at the same time turned inside out, and with the inside upwards have fallen down across the front portion of the breast. That it was not taken care of can perhaps be explained by the fact that it was already very fragmentary on being thrown into the grave; at least five plates are missing on the left side.

DESCRIPTION.—The position of the plates in the soil appears at first to be very confused. One starting point for reconstruction is, however, presented by the plates *a*, *s* and *r*, of which *a* and *s* by their characteristic shape show themselves to be the side plates nearest the shoulders on the upper part of the front. Plate *r* lies clearly in its original position in relation to *s* and has thus been located between *a* and *s*; its only rivet in the centre also shows that it had been placed like that. While *s* and *r* are lying with their insides upwards, the opposite is the case with *a*, which had clearly on being thrown in become almost completely loosened from *r* and turned over. The upper corner of *a* still lies, however, in close contact with the original point of attachment to *r* (fig. 374: 1).

We note now that plate *l*, first, is longer than the other plates, secondly, rounded off at one of its ends, and thirdly, has four rivets located close to the edges of the longer sides and not like the others, two rivets near one edge and two rivets slightly withdrawn from the other edge. This shows that the plate *l* had been located in the centre in relation to the other plates, and this is confirmed not only by the fact that plate *m*, located close to and parallel to *l*, fits *l* in regard to length but also because *l* is in immediate contact with the central plate *r* in the upper part of the front. We are, therefore, entitled to consider *l* as a central plate in the lower part of the front. But this means that the group *a-r-s* on being thrown down into the grave turned over and remained lying below the lower portion of the front, with their insides facing each other. In the reconstruction the group *a-r-s* shall thus be imagined as being turned upside down, with the contact point between *r* and *l* as axis of rotation and placed in such a way that *r* and *l* form the prolongation of each other. In this way both *a-r-s* and *l* as well as *m* are now lying with their outsides up (fig. 374: 2). As has already been stated, *m* joins *l* lengthwise, and *m* in its turn is joined to plate *n* which is in a more or less correct position in relation to *m*.

We turn now to the plates *c*, *b*, *d* and *e* lying on top of the plates already dealt with. By pivoting *b* on its upper end in such a way that it becomes parallel to *c*, and *d* with its lower end so that it becomes parallel to *e*, we obtain this series of plates placed parallel and in sequence: *c-b-e-d*; this series is continued by *f-g-h-i*, lying almost parallel, and *q*, which is lying below *i* and with the outside upwards, and on being turned round its longitudinal axis comes into the same sequence as the others, and with the inside upwards (fig. 374: 3, 4). This series, *c-b-e-d-f-g-h-i-q*, whose position can be reconstructed with fairly simple alterations, is in itself proved to be correct, because the lengths of the plates match perfectly. That the plate *q* concludes the series, is seen from its oblique shape,

from the two extra rivets with which it is provided on the outer longitudinal side, and by the obliquely projecting loop in the upper, outer corner. The whole of this series of plates lay with the inside upwards, in contradistinction to the underlying *l-m-n*. If, now, we imagine that we lift the entire series *c-q* with the point of intersection between *c* and *n* as the axis of rotation, so that *c* is made to lie close to and parallel with *n*, and the whole series *c-q* with the outside upward (fig. 374: 5), we find that *c* in respect of length exactly joins *n*, by which means the association is proved. In this way we have obtained a complete series of plates from the central plate *l* up to and including the final plate *q*, and the shape of the armour is thus elucidated in principle: it consisted of three vertical breast plates in front, and below these a central plate, to the right (for the wearer) continued by a series of eleven plates, all likewise vertical. If these are mounted on a lay-figure it is found that plate *q* will be in the middle of the back, where the armour thus was fastened together. Consequently, we would expect just as many plates to the left, but the number remaining is only six. Of these, *t* agrees in length with *n*, and should, therefore, occupy a corresponding place on the left side, while the plates *k*, *o*, *p*, *u*, *v*, lying together, correspond to *e*, *d*, *f*, *g*, *h* (fig. 374: 6). It is seen from this that the plates which on the left side should correspond to *m*, to *c* and *b*, as well as to *i* and *q*, are missing, and as they have not been found separately elsewhere, they must have been missing already when the armour was thrown into the burial pit. In other words, the armour was already very mutilated and the plates were probably held together merely by fragments of the covering, which may explain why the different parts were so scattered.

RECONSTRUCTION.—The armour has thus in a reconstructed condition presented the following appearance: In front it is armoured by two rows of vertical plates. The upper row consists merely of three plates, one in the centre (*r*), 16.5 cm. long, which overlapped the edges of the adjoining, specially shaped plates (*a* and *s*). The lower edge of this row was overlapped by the upper edge of the lower row, consisting, probably, of twenty-three vertical plates, which in sequence extended round the trunk, with the central plate (*l*) overlapping the edges of the adjoining plates, which in their turn overlap the edges of the neighbouring plates, and so on. The opening was in the middle of the back.

The upper edge of the plates forms a straight line, while the lower edge on the front forms a curved line, the central plate in front (*l*) being longest (28.5 cm.), and the next four plates on either side cut off obliquely at the bottom and diminishing in length to about 18 cm.; the other plates (on the sides and back) only diminish very little in length to about 17 cm. The

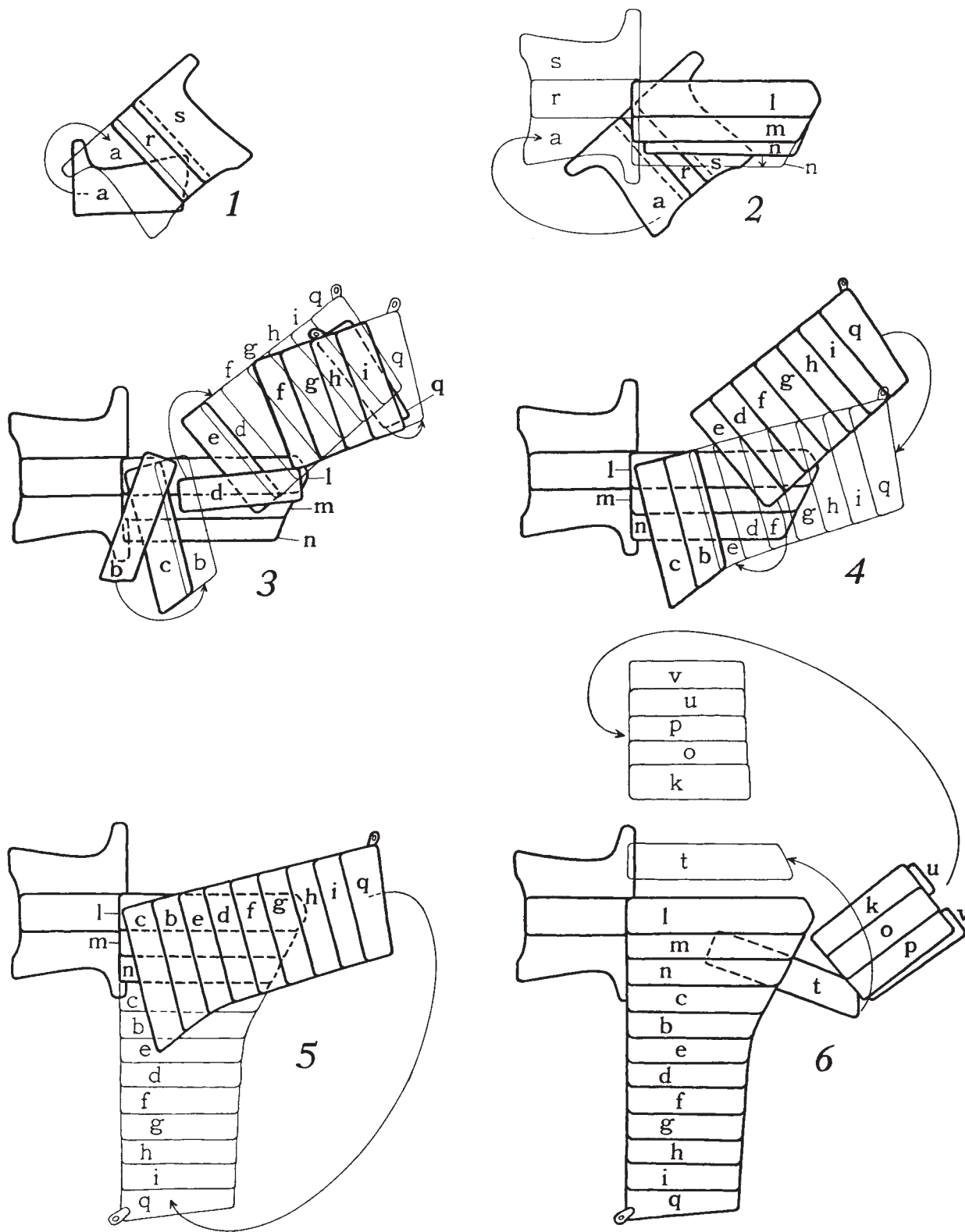


Fig. 374. Armour 8. Diagrammatic illustration of reconstruction.

breadth of the plates in the lower row varies slightly (4.5–6 cm.) and, as far as can be seen, without any particular purpose. Only plate *q* differs from the others; it tapers downward from 6 to 4 cm., probably because the armour, when buckled on, must fit the waist, for which reason an oblique edge to the join in the back becomes necessary; it is also provided with an iron loop pointing obliquely upwards in the upper

corner, probably for fastening to a strap to support the back of the armour (see p. 212); and, finally, it has two extra rivets for the buckle device. However, no traces have been found of the buckle which was certainly there, owing to the fragmentary condition of the armour (the plate nearest the other side of the opening in the back has disappeared).

No. 9. Type II. Pls. 45–47. Common grave 2. Regn.Nos. *A 3*, *A 32*. Uncovered in 1912. This armour has been presented to the National Museum at Copenhagen by the Swedish Government.

DESCRIPTION.—In case *A 32*, containing finds from the 1912 excavations of common grave 2, a series of ten plates was stored, all of them cut off straight at the upper end and oblique at the lower end, except for the longest one, which terminates in a semicircle. As to the length, they are adapted in such a way that if they are placed beside each other, and a trifle overlapping, with the upper edge straight, the lower edge forms a continuous arc, which converges from the longest plate (*5*), towards the upper edge on both sides. The location of the rivets (one rivet in the centre of the plate and two at each end, somewhat displaced towards one or the other longitudinal side except on No. 5) makes it manifest that the plates overlapped from the centre outwards. To the left of the longest plate follow four (*1–4*) and to the right five (*6–10*) plates (reckoned from the view of the spectator). As the series of plates otherwise is symmetrical, we may clearly assume that on the left side there was at least one more plate, the counterpart of the outermost plate on the opposite side. In case *A 3* from the same excavation, a plate (*f*) was stored with just the form, length and location of rivets required. Only the breadth is a trifle less (6 cm. instead of 6.5 cm.). Since, however, the breadth varies more than this in the other plates, this need not hinder us from adding the plate to armour *A 32*. In case *A 3*, furthermore, eight plates were stored, which clearly also belonged to it. They are all rectangular and the same length as *f*. As to the arrangement of the rivets, two of these rectangular plates differ from the others in that they are each provided with an extra rivet below the central one. As it is the rule for the two plates on either side of the opening in the back to have extra rivets in this way for fastening the buckle and strap, we are justified in drawing the conclusion that those two plates had such a position, and that the whole series of plates constitutes a suit of armour of type II. Of the nine plates from *A 3*, one (*i*) has been found to belong to the left side of the back plate, one (*a*) forms its counterpart on the other side of the opening in the back, and one (*f*) — obliquely cut-off at the lower end—

forms a direct continuation of the front part *A 32* on the right side (from the wearer's viewpoint). It only remains to be decided whether the other six rectangular plates out of *A 3* belong to the right or left side of the back. This question cannot be answered with absolute certainty. Armour 8, which is most closely akin to this, has eleven plates on both sides of the central plate, but they are somewhat narrower (4.5–6 cm., as compared to 5.5–6.5 here). We might, therefore, be justified in allotting ten plates to either side, for which reason four of the above six plates would very likely be placed on the right side and two on the left, together with the plate next to the opening in the back belonging to this side. If this calculation is correct, only two plates out of the entire series would thus be missing, probably from the left side. In case *A 3* two iron loops (*l*, *m*) were also stored, of the shape which generally occurs on one of the plates nearest the opening in the back. If these two loops belong to this armour (and no parts of any other armour were found in this case), both plates on either side of the opening in the back seem, oddly enough, to have been provided with a loop. The same case also contained (besides two round buckles) a square iron buckle (*k*), like the one with which armour 19 was fastened together, though somewhat bigger. It is very probable that this buckle, too, belonged to the armour, and in that case had been attached to one of the two plates next to the opening in the back.

In analogy with other armours this one, too, should have been provided with several plates on the breast, but no such plates were found amongst the finds from the 1912 excavations. On the other hand, later on at several places, and *inter alia* in 1929, in the very area touched by the 1912 excavations near point *Mp*, and quite superficially, a group of four such breast plates (regn.no. *V: 6*) was recovered.¹ Since, however, all other armour of type II has only three, or in one instance two, breast plates, we shall not venture without hesitation to bring these finds together.

¹ See below, description No. 28.

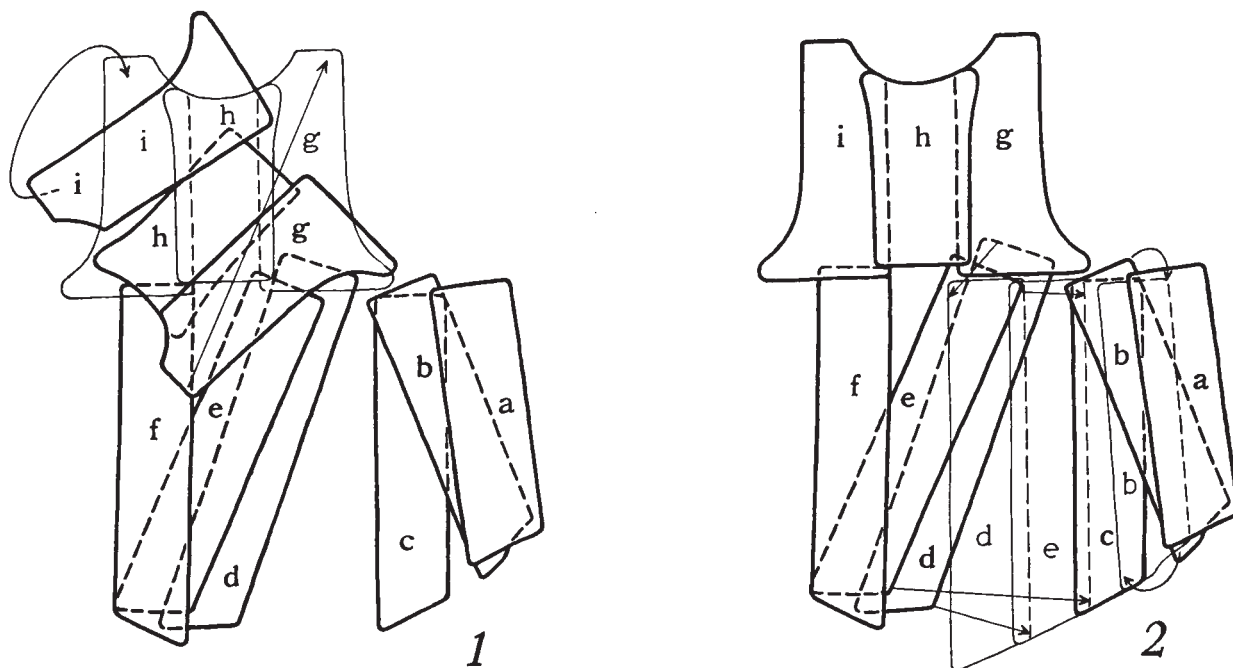


Fig. 375. Armour 10. Diagrammatic illustration of reconstruction.

Even other breast plates, found separately, may be incorporated here, e.g. *Nö 20*¹, which strongly reminds one of a corresponding plate on the very similar armour 10.

RECONSTRUCTION.—The armour we have been able in this way to reconstruct, thus consisted of a series of vertical plates, which in succession passed round the whole trunk, with an opening for fastening in the centre of the back, where very likely there was a square buckle for the purpose. In the back-piece the plates are of equal length (19 cm.), but in the front they are prolonged downwards succes-

sively from both sides so that the plate in the middle of the front, which is longest, has a length of 30.5 cm. These plates overlap from the centre outwards, reckoned from the longest plate. Possibly the two plates next to the opening in the back had been provided with an iron loop each in the upper, outer corner. The number of plates in this suit was twenty-one. Analogous to other armours this, too, has been provided with armouring on the breast, above the row of plates now described. The breast plates have, however, not been found with the other parts of the armour.

¹ This plate has also been mounted on the armour. See below, description No. 30.

No. 10. Type II. Pls. 48–52. Common grave 2. Regn.No. *Lå 6* (*Oz 23–26*, *Pz 26*, *Lö*¹ 5, *Nå 66–67*, *Nä 8*). The main part uncovered and measured up by A. Hoff on the 5th August, 1929.

DESCRIPTION.—The main part of this armour, group *Lå 6*, lay probably unassociated with adjacent skeletons (pls. 50, 51: 1). It consists of six long iron plates of different lengths (*a–f*), cut off straight at one end and obliquely at the other, besides being slightly bent in such a manner that it is obvious that they had been placed vertically on the body; furthermore, there are two plates of the characteristic shape which indicates that they had been placed on the breast close to the shoulders (*g*, *i*), and finally, an approx-

imately rectangular plate (*h*) between the two last mentioned. The initial point for the reconstruction is, of course, these three plates, which occupy practically their right position in relation to each other. They are lying with their insides upwards in contradistinction to the other plates, and if we turn them with the outer corner of *g* as the axis of rotation, they lie with their lower edges resting against the straightly cut-off ends of the other plates (fig. 375: 1). If we now let *a*, *c* and *f* lie still, slightly readjust the position of *b*,

which lies between *a* and *c*, and displace *d* and *e* so that they become parallel to the others, we obtain the series *a-b-c-e-d-f*, in which the obliquely cut-off ends of the first five form a continuous line, a criterion of the correctness of the reconstruction (fig. 375: 2). The plate *f*, which in the reconstruction remains lying some little distance from the others, agrees in regard to size and shape reversely with *e*; we may conclude from this that *f* is the only one left of a series of five plates, symmetrical to *a-d*. These two groups were united by a central plate, cut at one end into a semi-circle instead of obliquely. Oddly enough, all the missing plates, with the exception of the last-mentioned, have been found not very far from the armour, one (*Nä 8*) only half a metre away from it, one (*Pz 26*) about 1½ metres from it, and two (*Lö 5: a* and *b*) together about the same distance away in another direction. It is only in regard to the plate *Pz 26* that there can be any doubt about its belonging to the armour, in that the metal strikes one as being thicker than in the other plates, but this is probably because the coating of rust is different, and since shape and size entirely agree with plate *a*, and also the rivets are placed as one would expect, we may assume that the plate belonged here.

We have thus obtained an almost complete front of an armour, consisting of two rows of vertical plates. The upper part across the breast consists of three plates, one in the centre (*h*) which with its edges had overlapped the adjoining edges of the side plates (*i* and *g*). The upper, inner corner of the two last mentioned plates are also cut off in an arc at the neck. The bottom edges of these two plates (but very likely not the bottom edge of plate *h*, which is shorter) had been overlapped by the straight upper edge of the lower row of plates. This row of plates was composed of a centre plate, now disappeared, finished with a semi-circle at the bottom, and on either side of this, five plates, which grew successively shorter in such a way that the bottom edges form a continuous line running obliquely upwards. The plates of the lower row overlap from left to right in such a way that *a* overlaps *b*, which overlaps *c*, and so on.

As to the back, it is quite natural to reconstruct this in analogy with the similar armours 8 and 9, the plates of the latter having an average breadth similar to those here concerned. As the coherent series of plates in No. 9 in its original condition probably consisted of twenty-one plates, we are entitled to assume the same number of plates also here, which means that the missing back consisted of ten plates, five on each side of the opening, since the reconstructed front was composed of eleven plates. There exists, however, a trifling structural difference between No. 9 and this armour, inasmuch as in No. 9 the plates overlap from the centre outwards, reckoned from the centre plate of the front, while the plates here in

front overlap from left to right from the wearer's viewpoint. But since it never happens that the plates on the back overlap in any other way but from the sides to the centre, one may expect that the sequence of overlapping on this armour had changed on the left side, and this is precisely what the arrangement of rivets on plate *a* makes manifest. For this plate is provided with three, and not two, rivets at each end like the others. Of these, one is attached to each one of the corners of the plate, for which reason it overlapped the adjacent plates at both sides, from which it follows that the plates of the back overlapped from the sides towards the middle, as was to be expected.

Not far from the spot where this armour was found, in square *Oz* (pl. 51: 2), a complex of five plates (*Oz 25*) indissolubly rusted together, and two loose plates in several bits (*Oz 23, 24, 26*) were picked up. To judge from the length (19–20 cm.) and breadth (6–6.5 cm.), they all belong together. One of the plates (*a*) forming part of the complex *Oz 25* and one of the loose ones (*Oz 23–24*), taper sharply towards one end and agree as to shape perfectly with the plate (*g*) which in armour 8 is located next to the opening in the back. From this it appears that these two plates performed a corresponding function, and this is confirmed by a semi-oval buckle (*f*) being rusted fast to the outer edge approximately half-way down the length of one of them (*Oz 25: a*). This buckle clearly served the purpose of fastening the armour together, and the position in which it was found corresponds precisely to this function.¹ The seven plates had thus belonged to the back of an armour, and, as is seen from the position of the rivets, overlapped from the sides towards the centre. As their breadth is the same as that of the plates of the armour we have dealt with here, and their length corresponds precisely to the length of the free long-sides of its two outermost plates, *Lå 6: a* and *Pz 26*, of which the latter, furthermore, was found close to these, we are able to state with certainty that *Oz 23–26* belong to the back of this armour. As we know from armour No. 8 that the central back plates taper downwards, it can also be determined that the five plates in group *Oz 25* formed the right side of the back, and thus adjoined *Pz 26*, while the two loose plates continued on the other side of the opening in the back. Therefore, of the five back plates of the left side three are still lacking, of which two should certainly be identified with two fragmentary plates of the same length and breadth as the remaining ones in the back (*Nä 66, 67*), which were found at a slightly lower level in the same place (pl. 51: 2). That these plates had been fastened between *Lå 6: a* and *Oz 26*, may be looked upon as quite certain; their mutual sequence, on the other hand, cannot be determined with certainty, and this does

¹ A fragment of another buckle, *g*, is rusted fast to plate *d*, but it is uncertain if it belonged to this armour.

not matter since they are all alike. There are thus two plates in the armour that have not been discovered, one at the front and one at the back.

From the find locality of the plates it is clear that the armour had been so damaged before being thrown into the burial pit that the plates had got very much spread about.¹

RECONSTRUCTION.—The complete armour thus consisted of a series of twenty-one vertical plates, which in succession passed round the trunk with a horizontal upper edge, while the bottom edge sloped down in front but was horizontal at the back. The

armour was opened in the middle of the back, where it was fastened with an elongated, semi-oval buckle. The two plates on either side of the opening in the back tapered downward so that the armour should fit the shape of the waist better; the plates overlapped from the plate in the middle of the left side. Above this row, on the breast, were three plates curved towards the shoulders and cut down at the neck, of which the centre plate overlapped the edges of adjacent side plates.

¹ On account of their being partly rusted together and otherwise very fragmentary, the plates *Oz* 25, 26, *Pz* 26 and *Nä* 66, 67 as well as the buckle *Oz* 25f could not be mounted (pl. 49).

No. 11. Type II. Pls. 53–57. Common grave 2. Regn.Nos. *Mö*¹ 4, *Nö* 8, *Lö*¹ 7, *Nä* 23. Uncovered in July, 1929.

DESCRIPTION.—In the western part of common grave 2 two groups of plates lay near each other which were afterwards found to belong together. One of these, group *I* (*Nö* 8, pls. 55: 1, 56: 1), consisted of six plates of which five (*A–E*) were lying fan-shaped on top of each other, while the sixth (*F*) lay crosswise below the others. If the plates *A–E* are placed in sequence in the same order as they were found, it is seen that *B–E* are approximately equally long, while *A* at one end is obliquely cut in such a manner that its shorter length coincides with the length of *B–E*. *F* is also obliquely cut in such a way that it forms the continuation of *A*. Plate *E* differs from the rest by being provided with an iron loop in one corner. As these loops are all, without exception, turned upwards, it can be proved that the obliquely cut edges on *A* and *F* are turned downwards. Already we gain a distinct impression that group *I* constitutes the left part of an armour of type II. This is confirmed by the fact that group *I* can be combined with another group of plates, *II*, which was found almost simultaneously, scarcely half a metre away (regn. no. *Mö*¹ 4, pls. 55: 2, 56: 2). Group *II* consists of four plates of which two (*A*, *C*) are of the same characteristic shape as the plates which in type I and II are located on the breast, nearest the shoulders, and one, *B*, is rectangular and of the same length as these; clearly, it had been located between these two. The third, *D*, is a long plate which is cut obliquely at one end and its shorter length coincides with the greater length of plate *I: F*, and its breadth is the same as the breadth of the plates in group *I*. It can nevertheless not form a direct continuation of group *I*, because its oblique end runs in the opposite direction, and the rivets are located in the opposite manner. In other words, *II: D* is the counterpart of the vanished plate that had been on one side of *I: F*, and should in the reconstruction be placed symmetrically in relation to

the same. To judge from the form and proportions there has been only one more plate between these two, which at the bottom was cut in a semicircle and was right in the middle of the front of the armour. A further two plates found in different spots, but not so very far from the others, can with certainty be ascribed to this armour, viz. *Lö*¹ 7, which forms the symmetrical counterpart of *I: F*, and is thus to be inserted beside *II: D*, as well as *Nä* 23, which forms the counterpart of *I: A*, and, therefore, was located beside *Lö*¹ 7.

RECONSTRUCTION.—Guided by what it has thus been possible to assemble, the armour, though incomplete, can be altogether reconstructed. The armour consisted of two rows of plates, of which the upper one only covers the breast and consists of three plates, 16–17 cm. long, the outside ones especially shaped for their place close to the shoulders and with the inner edges overlapped by the central plate (*II A–C*). The bottom edges of these three plates are overlapped by the upper edges of the underlying row of plates. The latter row consists of fifteen vertically placed plates, which, with their upper edges aligned, run round the trunk. The opening of the armour is in the middle of the back, where it was fastened with a buckle which is now missing. On the plate *I: E* there are two extra rivets in the centre of the outer edge, which must certainly have served to fasten this buckle; the same plate is also at its upper, outer corner provided with an iron loop, probably intended for fastening to a strap. The four plates nearest to, and on each side of, the opening in the back are equally long, about 18 cm., while the seven plates in the front successively increase in length towards the middle so that the vanished central plate, which had been located right below *II: B*, probably had a length of about 30 cm. The plates overlap from the centre outwards.

No. 12. Type II. Pls. 58—60. Common grave 2. Regn.Nos. *C 1, 3, 4*; *V: 23*. The former group uncovered in 1924, the latter on the 4th August, 1928.

DESCRIPTION.—Amongst the finds taken care of when common grave 2 was cut through by the trench for a water main in the year 1924, were nine plates, which by their breadth (7.5–8.5 cm.), their corresponding lengths, their agreement in regard to the location of the rivets and their general appearance, could be distinguished as a part of the same armour. They had certainly been found together, but had not been kept together when packed.¹ Plates *a–h* can without difficulty be united into a series with a straight upper edge and curved lower edge, in which *a* is the shortest and *e* the longest plate, while *b–c–d* are counterparts of *f–g–h*. This series clearly forms the lower row of the front of a suit of armour of type II, in which *e* forms the central plate. The plates overlap from this central plate outwards to both sides.

Similarly with other armour of this type this series probably continued round the back with vertical plates, which in respect of their length formed the continuation of these. In square *Lr* in the same common grave has been picked up a series of six plates (*V: 23*), which certainly formed the left part of the back armour for an armour of the same type. This is seen chiefly from the shape of the plate that was located next to the opening in the back (5) and tapers strongly downwards, like corresponding plates in armours Nos. 8 and 10. The plate is provided with an iron loop at its upper, outer corner, and has in the middle at least one, but probably two, extra rivets for attaching the buckle, with which the armour was fastened together. This plate and plate No. 6 were found superficially in the stratum which had been disturbed in earlier excavations, and on top of a thorax with appurtenant spine. Below this, which was turned with the right side up, lay the plates *1–4* in numerical sequence, with the inside towards the thorax and in such a way that plate *1* lay nearest the back and plate *4* nearest the chest. Plate *5* should, therefore, be joined to plate *1* while plate *6* by reason of its length joins plate *4*. We have in this way obtained a series of plates intended to be placed on the left side and the left part of the back, quite in agreement with the position of the find. The upper edge of the series is horizontal, with the exception of the plate (5) nearest the opening in the back, which rises into a small point. The two opposite plates (6, 4) show the beginning of a curve downwards toward the front on the lower edge, which is otherwise straight. The plates overlap from the breast towards the back, i.e. in the same manner as the plates *C: e–h*.

¹ In case *C 1* were the plates *a, g* and *i* as well as parts of *e* and *f*; in case *C 3*: *b* and *h*, and a part of *e*; in case *C 4*: *c* and *d*, as well as a part of *f*. The denomination by letters was not introduced until dealing with the material in the museum.

Now, as one edge of plate *V: 23: 6* is the same length as one edge of plate *C: h*, and in regard to shape and size forms a symmetrical counterpart of plate *C: a*, there is very good reason to suppose that series *V: 23* forms a continuation of the front of the armour towards the left side and back, the front being formed by the series *C: a–h*. The probability of this is augmented by the fact that the curved lower edge of *C: a–h* gets a natural continuation in the curving of *V: 23: 6* and *4*. On the other hand, the breadth of the plates *V: 23: 1–4* (6–6.5 cm.), may seem too divergent from that of the series *C: a–h* (7–8.5 cm.) for them to belong together but that they actually did belong to a suit of armour with partly broader plates, is evident because the breadth of plate *V: 23: 6* approaches that of group *C*.

Another of the plates (*i*) of group *C* probably belonged to this armour. Its length would fit the free side of plate *C: a*, but this is shown to be misplaced by its breadth (8 cm.), provided our assumption is correct that the series *V: 23* belongs with series *C*, for the counterpart *V: 23: 4* of the plate beside *a*, is, as has just been stated, much narrower (6.3 cm.). This circumstance does not perhaps constitute any direct obstacle to the placing of plate *i* beside *C: a*, for irregularities occur as a matter of fact here and there in these suits of armour, but if there is a possibility of placing the plate elsewhere this would naturally be preferred. Such a possibility is to assume that it formed the central one of the breast plates which had, of course, existed here, as in all other armour of this type. There is nothing which directly speaks in favour of plate *i* having occupied such a place, since we are quite ignorant of the mutual position in the soil of the plates belonging to group *C*, but there is nothing which contradicts this possibility.

RECONSTRUCTION.—If the combination made above of the groups *C: a–i* and *V: 23: 1–6* is correct the armour consisted of a series of vertical plates which passed round the trunk and had their opening in the middle of the back. The upper edge of this series was straight, with the exception of the central plate in the back, on the left side (and possibly its counterpart) which had a slight upward tilt. This plate is at its upper, outer corner provided with an iron loop and tapers sharply downwards. The central plate in the front is the longest and the plates in the front are successively shorter towards both sides. The back plates, on the other hand, are of equal length. The number of plates in this series was nineteen, of

² But not to plate *h*, i.e. in the place where we have assumed that plate *V: 23: 6* had been located, for here plate *i* would be somewhat too short.

which eight and six have been found in different spots; five are altogether missing, but can be reconstructed by analogy. Above this row the breast, as was the case in other armour, had been protected by several plates. Of these possibly one, in that case the central one, has been preserved.¹

¹ If this plate does not constitute a part of the breast portion

No. 13. Type II. Pls. 61, 62. Common grave 2. Regn.No. A 43. Uncovered in 1912.

DESCRIPTION.—Apart from two plates (1, 2), which proved to belong to armour 3, there were found in case A 43 with finds from the 1912 investigation, a number of parts of armour and fragments of such, of which at least the majority belong to a suit of armour of type II. These parts consist of a) two plates of the characteristic shape which indicates that they had been attached on the breast between the shoulders (3, 4); b) eight whole or rather large pieces and several minor fragments of broad plates about 7.5–9 cm. (5–13); c) fragments of two plates about 6 cm. broad (14, 15); d) an iron loop (16).

The two plates in group *a* are symmetrical, with the exception of 4 being a bare cm. broader than 3. This shows that the inner vertical edge of plate 3 projected over plate 4, and indicates at the same time that probably there was no vertical plate between them; otherwise No. 14 might be put in this place because its present length coincides with the length of the inner edges of 3 and 4. But it is uncertain whether No. 14 is not broken off and had originally been longer, and also, it appears as if No. 15 was somehow connected with No. 14. Under such circumstances it is unlikely that No. 14 had its place between 3 and 4.

Most of the plates in group *b* are, as far as can be determined on account of their partly fragmentary condition, cut off straight at one end and obliquely at the other. The longest plate (9) should, as a matter of course, be placed straight below the two breast plates; its lower end which can be fixed, thanks to the location of the central rivet, appears to be slightly curved. To the left of No. 9, guided by their decreasing length, Nos. 10, 11 and 12 can be inserted. Finally, after No. 12 comes the fragment No. 13, as is seen from the curving of the lower edge, which forms a continuation of the curve on No. 12. On the right side the plates overlapped from the centre outwards, to judge from the lowest rivet on No. 6. Probably the condition was analogous on the left side. The rivets were located two at the top, two at the bottom and one slightly above the middle, on each plate. When the plates are placed with their upper edges in a straight line the central rivets form a line slightly rising from the central plate. Of the remaining plates in group *b*, No. 6 forms a counterpart of No. 12,

of the armour, it might be imagined that the four breast plates *V*: 6, which were picked up between group *V*: 23 and the trench for the water main in 1924, and which have been mounted on armour No. 16, in reality belonged to armour 12. However, these plates are so narrow that their character agrees better with the former than with the latter, and there is therefore more reason to allow the reconstruction made, to remain. See below, description No. 28.

and has thus been located three places to the right of No. 9. No. 5 whose lower end is fragmentary, must form a counterpart to No. 13, to judge from the location of the central rivet relatively high up. The remaining fragments then clearly form parts of Nos. 7 and 8², whose length can be reconstructed with the aid of No. 6 and their counterparts Nos. 10 and 11. In this way it has been possible to reconstruct a whole front of an armour.

Whether the two plates in group *c*, 14 and 15, belong to the same armour, is quite uncertain. Firstly, they are considerably narrower than the others, and secondly they are provided with rivets, at intervals of only 5 cm. from one another, in 14 along the longitudinal axis, in 15 near one longitudinal edge. If they belong to the same armour as the other plates they can only have been the two plates on either side of the opening in the back. In armour 15 such plates are, in contradistinction to the others, provided with rivets placed in approximately the same manner and with about the same intervals as here; they are, however, much broader than Nos. 14 and 15. One circumstance seems to some extent to support the interpretation here advanced in regard to plates 14 and 15, viz. the occurrence of the loop 16, which undoubtedly had been located on a plate close to the opening in the back. However, we should in this connection remember that the finds from the 1912 excavation unfortunately were not always kept together in such a way as to enable one to expect all objects in the same case to belong necessarily to the same suit of armour.

RECONSTRUCTION.—The front of the armour which we have here reconstructed therefore appears as follows. On the breast there are two plates (3, 4), with a big curve cut out for the arms and also, the upper, inner corners cut off obliquely, making a dip under the chin. The inner edge of No. 3 overlapped No. 4 slightly, and the lower edges of both projected under the top-edge of the row of plates below. The latter consists of nine vertical plates, whose upper edges form a horizontal line, while the lower edges are cut off obliquely and form a curved semicircular line. The plates probably overlapped

² Only minor remnants of No. 8 are left, and these have not been drawn on pl. 62.

from the centre outwards. It is possible that this row of vertical plates continued round the back and had an opening in the middle of the back for fastening it together. It is possible that the two narrower plates

14 and 15 were located on either side of this opening, and that one of them had been provided with an iron loop, 16.

No. 14. Type II. Pls. 63–65, 68: 1. Common grave 2. Regn.No. *Rå 8 B* (*Lx 7*). See No. 15.

SITUATION.—Very near armour 15 (pls. 68: 1, 70) four plates, *c*, *d*, *e*, *f*, were uncovered, which, by reason of their likeness to the plates belonging to that armour, were, when we picked them up, thought to be parts of the same complex. But during the reconstruction it became obvious that they were fragments of another similar armour.

DESCRIPTION.—The plates *d* and *e* are of the characteristic shape which shows that they had been fastened on the breast, close to the shoulders. Plates *c* and *f*, on the other hand, are large, long plates, reminding one of plates from the lower row of armour 15. The plate *c* is 29.5 cm. long, straight at one end, semicircular at the other, and therefore corresponds to plate *n* in No. 15; *f*, again, is obliquely cut off at one end and its greatest length agrees with the length of plate *c*; it corresponds, therefore, to *o* in No. 15. Already this shows that *c* and *f* cannot belong to No. 15, because two pairs of plates of this kind cannot be united in the same armour. This is also confirmed by the fact that the breadth is somewhat less in these plates, 8–9 cm., as compared with 10 cm. in the other armour, and by their being provided each with only one rivet in the middle of the plate, while the plates in No. 15 have at least two rivets in the corresponding places. On the other hand the likeness of the plates in both armours is so great that we may with perfect safety assume that the two armours, at any rate in front, looked quite alike. Possibly No. 14 had two

plates more than 15, since those of the former are somewhat narrower.

Another plate, *Lx 7*, found quite a long way (nearly 3 metres) from the others, belongs to this armour. Its greatest length corresponds to the shorter lateral side of plate *f*, but as the oblique end runs in the opposite direction to *f*, it constitutes the counterpart to the plate which lay to the left of *f*, i.e. it is the second plate to the right of *c*. Length, breadth, the arrangement of the rivets, and the thickness of the metal all show that it belongs to the same armour. The only peculiar thing is that it was so far away from the others, in fact at the other side of the grave; probably it had become detached from the other remains of the badly damaged armour before being cast into the pit.¹

RECONSTRUCTION.—The armour thus consisted in front of two rows of vertical plates. In the upper part were probably three plates, of which the two outer ones fitted the shoulders. In the lower row the central plate is longest, while the others grow successively shorter towards the sides by the curving upwards of the lower edge; the upper edge, on the other hand, is horizontal. We do not know how the back was arranged, but the great likeness of the armour to No. 15 makes it highly probable that it also agreed with the same at the back.

¹ It is impossible to decide whether the buckle *q* below *d* belonged to the armour.

No. 15. Type II. Pls. 66–72. Common grave 2. Regn.No. *Rå 8 A*. Uncovered in August, 1929, by B. Thordeman. Measured up by E. Dahr.

SITUATION.—This armour complex, on being taken up, was thought to be the remains of a single armour, but, as mentioned above, was found in the course of reconstruction to constitute one whole (A, No. 15), and parts of another suit of armour (B, No. 14), both almost identical. The plates belonging to these two armours lay at somewhat different levels, but quite near one another (pl. 68: 1).

DESCRIPTION.—Armour *A* consists of two plates with the characteristic shaping for the shoulders (*u* and *z*), a rectangular plate (*b*), which agrees with

these in its length and had clearly been placed between them on the breast, as well as thirteen very broad and stout plates, the latter lying in two groups adjoining each other (fig. 376: 1).

In one of the groups the plates are lying in two layers, the upper one (*g*, *h*, *i*, *k*, *l*) with the concave side up, the lower one (*o*, *n*, *p*, *s*) with the convex side upwards. They are of varying lengths, straight at one end, cut obliquely at the other in such a way that the edges of the latter, if the plates are laid side by side in the same order they occupied in the grave, form a continuous curved line. The upper layer

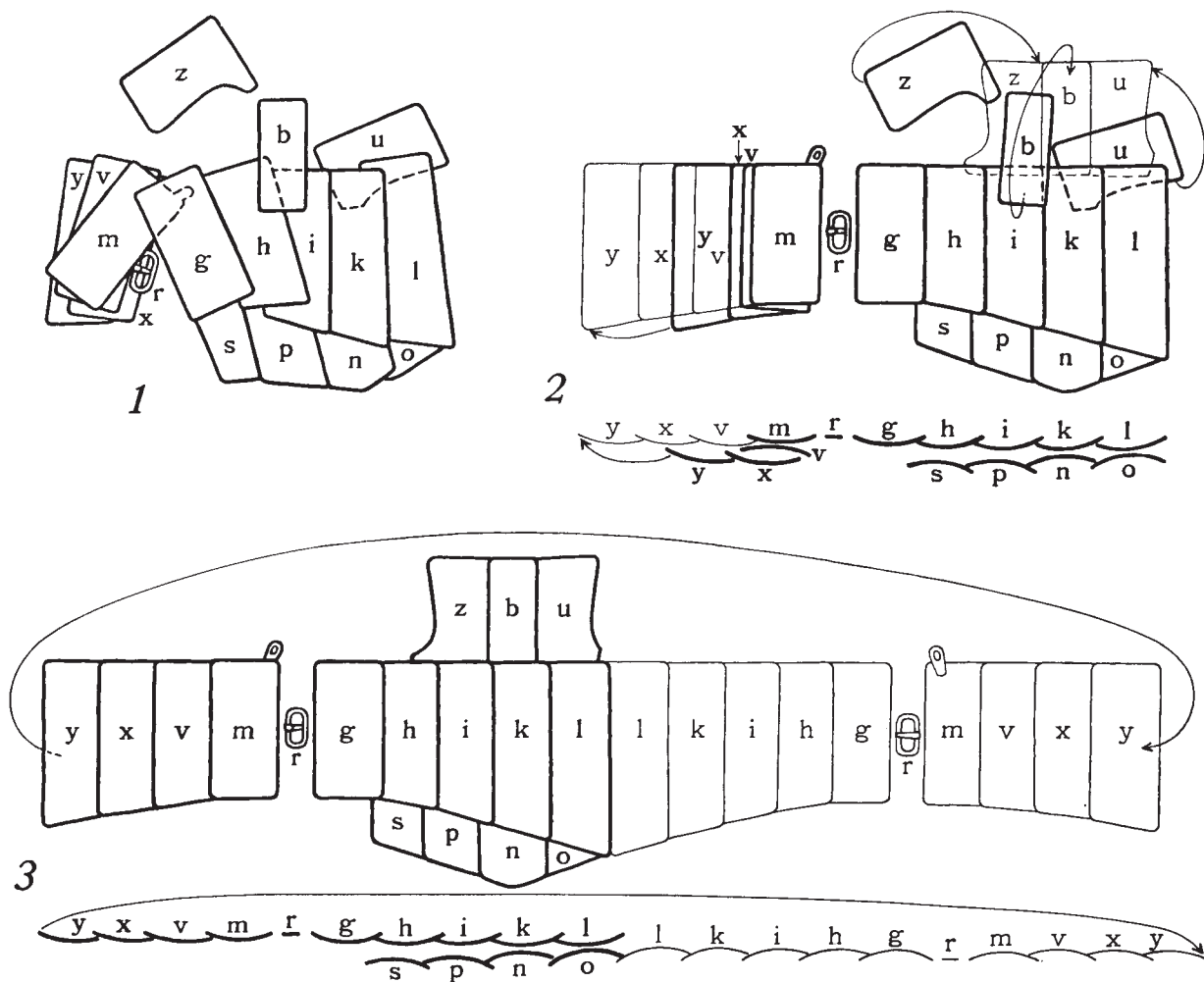


Fig. 376. Armour 15. Diagrammatic illustration of reconstruction.

obviously belonged together with, and had turned over round the lower one with the adjacent edges of plates *l* and *o* as the axis of rotation. The other group lies close to, and partly below, plate *g* and at an acute angle to the latter. The four plates which belong to this group (*m*, *v*, *x*, *y*), lie almost on top of each other, *m*, *x*, and *y* with their concave sides upwards, *v* with the convex one upwards. If we assume that these plates are lying in sequence, the simplest explanation of the position in which they were found is that *v* was doubled, respectively under and over the adjacent plates *m* and *x* (see diagrammatic section fig. 376: 2), while *x* had, at the other edge been adjacent to *y*. This is confirmed by the circumstance that the plates in this sequence form a counterpart to the sequence *g-h-i-k*, and that the free edge of *y* corresponds in its length to the free edge of *s*. In other words, if the sequence *m-v-x-y* is joined to the sequence *s-p-n-o-l-k-i-h-g* we obtain a symmetrical row of plates in

which the central plate *n* is the longest and the other plates diminish in length towards the two outer plates *m* and *g*. Between the two last-mentioned plates lay a rectangular buckle (*r*) with its tongue pointing towards *g*. This buckle had consequently been attached to *m*, where there are also two extra rivets close to, and approximately in the centre of, the outer edge, while two corresponding rivets on *g* held fast the strap that fastened to the buckle. Besides these reasons *g* and *m* must have been adjacent to the opening because they are the shortest in the series, they have more rivets than the other plates (in addition to the buckle rivets), and *m* at its upper, outer corner is provided with an iron loop of the kind that generally occurs close to the opening in the back. With this the reconstruction of the armour is clear. The longest plate, *n*, had been located vertically in the middle of the front and over it the three breast plates found close to it; the opening had consequently been in the

middle of the back. When the armour entered the grave it must have been buckled at the back, because *g* and *n* were together, but it was broken between the plates *s* and *y*, and these were separated a good way from one another. On being cast in it turned inside out so that the inside of the front came downwards and that of the back upwards (fig. 376: 3); it was probably empty, for no skeleton belonging to it could be found.

The buckle *t* below *o* and the plate *a* close to *l* probably do not belong to the armour.¹

RECONSTRUCTION.—When reconstructed the armour gives the following appearance. The trunk was surrounded by thirteen vertical plates, about 10 cm. broad, of which the longest (*n*) is 31 cm. long and was in the middle of the front. The length of the plates decreases successively backwards to 10 cm. in such a

way that the lower edge is curved upward while the upper edge is straight. The central plate overlaps the adjacent plates, which in their turn overlap the ensuing plates, and so on. The opening of the armour was in the middle of the back and it was fastened together with a buckle (*r*), attached to the plate nearest to the right (*m*). The same plate is at its upper end provided with an iron loop to which a strap had been attached, intended to support the weight of the back plates. In the front, over the breast and above the central plates of the lower row, are three vertical plates, the central one, which overlaps the adjoining plates at the sides, is rectangular; the side plates are specially shaped to fit the shoulders. The lower edges of the three upper plates are overlapped by the upper edges of the plates in the lower row.

¹ See fig. 120: 64 and description No. 36.

No. 16. Type III. Pls. 73–77. Common grave 2. Regn.Nos. VIII: 20, VIII: 25. Uncovered and measured up by H. Olsson in July and August, 1930.

SITUATION.—In that part of common grave 2 which was given the joint designation VIII, there lay close together two plate complexes, group *B* in square *Sx*, group *A* lying a little bit farther west and without any direct contact with group *B*; the association of the two groups, however, as seen from the following, is quite certain. For the sake of simplicity, a letter designation throughout has been adopted in dealing with the plates of the two groups: *a–n* belongs to group *A*, *o–ö* to group *B*. But the sequence of the letters is the original one and shows in what order the plates were taken up.

DESCRIPTION.—Group *A* (pls. 75: 1, 76: 1) consists of ten larger plates and four smaller ones. The former (*e–n*) lay together with their outer sides upwards, and when they are laid out in the same order as they were found, the edges of the ends form continuous, slightly curved lines, which proves that the association is right. Only the plate farthest to the right, *e*, differs from this, in that it is much shorter than the one next to it, *f*. If, however, the small plate *d*, which was found lying likewise with its outer side upwards diagonally across the lower end of *e*, is fitted to it, the total length of *e* and *d* is exactly that which is necessary for the continuation of the curve formed by the lower end of *f*. It only remains, therefore, to place the small plates *a*, *b* and *c*, which lay with their insides upwards, across the lower ends of *f–j*. If these are placed to the right of *d*, with their upper edges in a line², the lower edges continue the curve of the bottom

² The length of plate *c*, which is fragmentary, is, however reconstructed with a view to fitting into this position.

of *g–f–d*. From this it is clear that, when the armour was thrown into the pit, the plates *a–c* were bent over *f–j* in the manner illustrated in fig. 377: 1.

When reconstructed, group *A* thus consists of a series of plates, *f–n*, the upper edge of which curves upwards to the left, the lower edge also appearing to curve somewhat upwards to the left, and strongly downwards to the right. This downward curve is continued by the small plates *d–a–b–c*, of which only *d* is completed by the plate *e* to a height corresponding to the other plates, while the rest lack such supplementary plates.

Group *B* (pls. 75: 2, 76: 2, 3) likewise consists of larger and smaller plates, the former numbering eleven (*p–w*, *ä–ö*), the latter, three (*x–z*); to these has to be added a fragment, probably of a larger plate (*o*). On top lay a series of plates with their outsides upward (*p–q–t–u–v–w*), *v* and *w*, however, almost on their edges; below lay three plates with their insides upward (*r*, *s*, *ä*), of which *r* was almost on edge and *ä* fairly sloping, and below these a further two with their outsides upward (*ä*, *ö*) (fig. 377: 2, 4).

Close to the lower end of *ä* lay two of the smaller plates, *x* and *z*, while the third, *y*, lay a little way from the former; *x* and *z* lay with their outsides upwards.

It is fairly clear that the plates got into this position by being doubled over several times when thrown into the pit, and the diagrammatic sections (fig. 377: 4–6) best elucidate the proper association which is verified on laying out the plates according to fig. 377: 3, for, as in group *A*, the outlines of the edges form continuous curves. Here, too,—if the reconstruc-

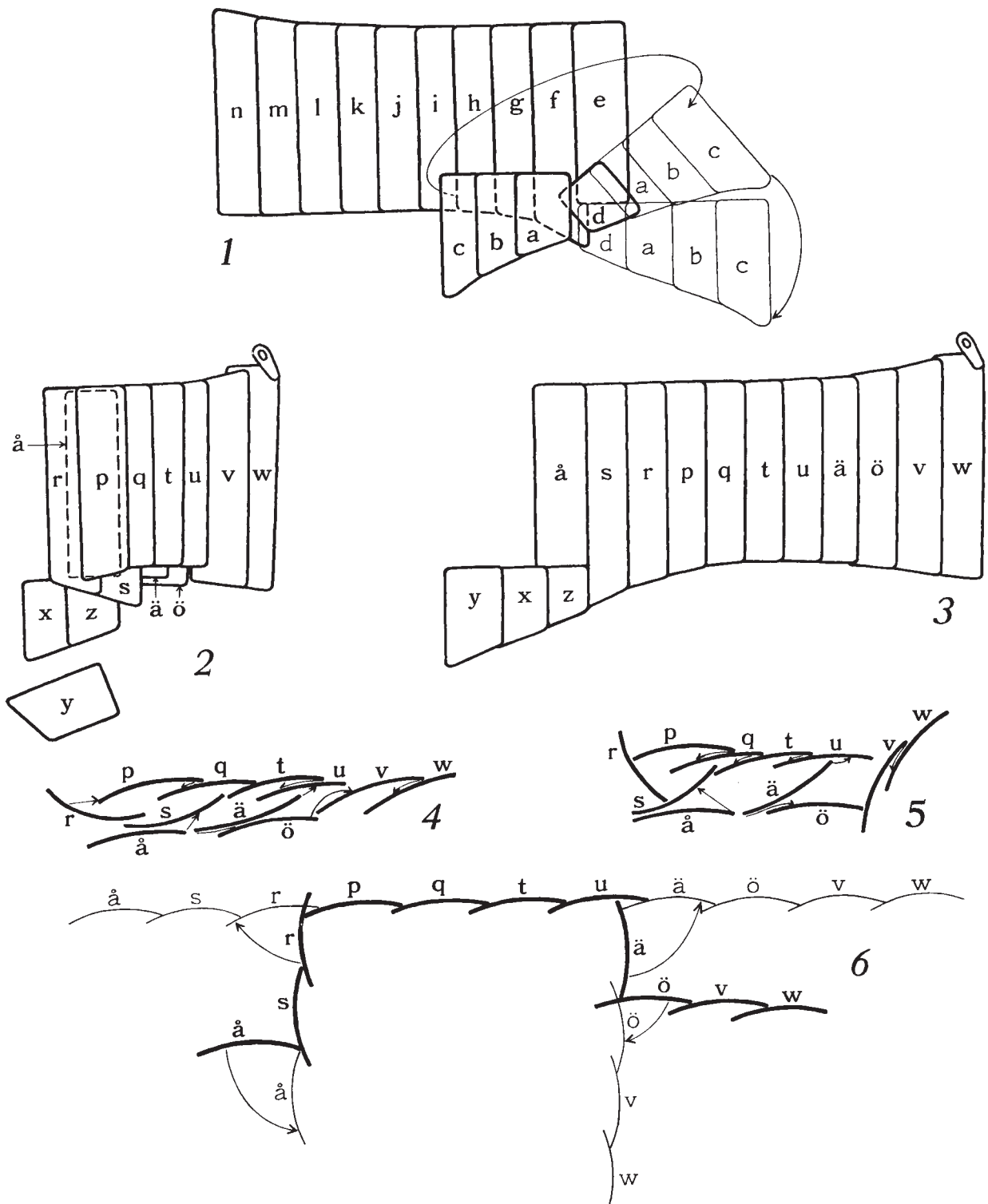


Fig. 377. Armour 16. Diagrammatic illustration of reconstruction.

tion is right—one of the outer plates (*d*) is shorter than the adjacent plate (*s*), but is supplemented by one of the smaller plates (*z*). If the other two smaller plates (*x*, *y*) are added, they also continue the curve of the lower edge.

If, now, the two groups *A* and *B* are laid side by side, they show perfect symmetry in their arrangement. This is perhaps most conspicuous in the case of the smaller plates, in that *d*, *a* and *b* in group *A* have their perfect counterparts in *z*, *x* and *y* in group *B*. But the larger plates also agree very closely with each other in regard to size, the location of the rivets, and the upper outlines which run up in a point to the right or the left, as the case may be; the lower edges are not alike, however, for that in group *A* curves slightly upwards, but in group *B* slightly downwards. Also the number of plates is somewhat different; group *A* consists of ten plates, but group *B* of eleven. Finally, the outermost plate in group *B*, (*w*), is at its upper corner provided with a small iron loop. These differences are, however, not sufficient to prevent the association of the two groups.

If we now revert to the question of how the two groups should be combined, we may start with the loop on plate *w*. Such loops have always been located close to the opening in the back of an armour, and the opening in the back should thus be placed between plates *w* and *n*. This is confirmed by the fact that both these plates are provided with two extra rivets¹ close to their respective outer edges, clearly for attaching a buckle or strap. The consequence is that the series of smaller plates *d-a-b-c-y-x-z* forms the front of the armour, while the series of larger plates forms the side-portions and the back. However, in group *B* the counterpart to plate *c* in group *A* is missing; therefore in the reconstruction such a plate must be inserted between plates *c* and *y*. Perhaps there was another plate between this reconstructed plate and plate *c*; in that case the front of the armour would be finished at the bottom in a semicircle and not a point (cf. e.g. plate *l* in armour No. 8).

RECONSTRUCTION.—The picture of the reconstructed armour now begins to emerge quite clearly. It consisted of a front piece, which has now disappeared, with the exception of the two vertical plates at each side, about 18.5 cm. long, and a pendent skirt, pointed towards the middle, measuring about 5–14 cm. in

length. The side and back portions consisted of vertical plates arranged in sequence with the remaining front plates, whose shortest length corresponds approximately to that of the front plates, but which both to the front and back are somewhat longer. All plates overlap from the central plate of the breast. The armour opened at the back, where it was strapped together by means of a buckle and held up with the aid of an iron loop on one side.

How the vanished part of the armour's front looked, we do not know. It should perhaps here be mentioned that in connection with group *B* a large number of armour lamellae of the type which form armour 25 were picked up, and it might, therefore, be queried whether these lamellae form remains of the vanished front portion. The answer must, however, indisputably be that this cannot be the case. Firstly, these lamellae were lying in a different direction from what one would in that case expect, and secondly, it is extremely improbable that such dissimilar constructions as these should be combined. The most natural reconstruction of the portion between the plates *e* and *d* seems to be to imagine a series of vertical plates of the same length as these and the same breadth as the small plates below, i.e. six (possibly seven) of them. Above this series should then be imagined a series of approximately equal in number but somewhat shorter vertical plates, of which the two outer ones were specially shaped towards the shoulders.² The front would in this way be very like the front of armour 19. The greatest difference between them would be that the lowest row of plates in the latter armour projects over the central one, while here they are lying edge to edge. The curious fact that the central portion has gone with the exception of one plate at each side, may be explained by the assumption that the uppermost row in the front was of precisely the same breadth as the vanished portion of the central row. It is not quite incomprehensible that the central row may have been torn off with the topmost row of plates.

As regards the original location of the fragment *o* of a plate, nothing can be definitely stated; it may be a remnant of the vanished central portion of the front.

¹ One of them (on plate *n*) has dropped out.

² In this place the group of plates *V: 6* has been mounted, but without special reasons for assuming that it had belonged there originally. See below, description No. 28.

No. 17. Type III. Pls. 78–82. Common grave 2. Regn.Nos. *VII: 2*, *VII: 3*, *VII: 7*, *Ott I*. Uncovered and measured up by B. Thordeman on 6th August, 1928.

DESCRIPTION.—When common grave 2 was opened in 1928, a coherent complex of four plates (*VII: 3: 1–4*) was found lying in its surface layer

(pls. 80: 2, 81). The sequence between 2, 3 and 4 is seen from their position in the soil, while 1 had perhaps been disturbed when the grave was re-

filled, and this was now standing on edge on the others. Its length and shape clearly show, however, that this plate should be inserted beside 4. The reconstructed series thus shows four equally broad plates, of which the two left ones (2, 3) are rectangular and equally large. The next plate, 4, is straight at its upper end but at the opposite end cut obliquely in such a way that if the upper edges of 2-3-4 are laid in a line, the lower left corner of 4 projects below the lower edges of 2 and 3, while the right edge of the plate, on the other hand, has the same length as the last-mentioned. Plate 1, finally, has approximately the same shape as 4, but is slightly shorter, so that the left edge of the former adjoins the right one of the latter. The rivets are located so that a couple are close to the lower edge and a couple about 7 cm. below the upper edge, two of them close to the left one, but the two others somewhat withdrawn from the right edge. From this it is apparent that the plates overlapped from right to left. In looking at the reconstructed series of plates, with its peculiarly projecting corner at the lower edge, it presents a striking likeness to armour 16, where the plates *a* and *s* form a similar corner. In confirmation of this fact, not far from this group of plates, two separate plates, VII: 7 and *Ott* I were found, which cannot be reconciled with any other armour, and whose shape goes to prove that they formed a skirt of the same kind as that on armour 16. But these plates were not, as was the case with the armour 16, placed edge to edge with the plates above them, but they had, as the location of the rivets shows, been pushed in below these; their upper pair of rivets is, in fact, withdrawn from the upper edge and the lower pair of rivets is located about 3-4 cm. lower down. *Ott* I, furthermore, has a rivet in the pointed corner; probably the other plates in the skirt had had a rivet in a corresponding place. The smallest of the two skirt plates, VII: 7, is, however, too large for it to have been located in the angle between 3 and 4; its place was certainly below 2, while the plate below 3 has not been found. Its shape can, however, be reconstructed. To the left of VII: 7 the longer one *Ott* I was located; the relation of the plates is also apparent *inter alia* from the location of the rivets.

The upper rivets in series 2-3-4-1 are about 7 cm. below the ends of the plates. This shows that these plates had not, as in armour 16, formed the upper edge of the armouring along the sides and across the back. Quite close to this group of plates, though not in direct contact with them, also another group, VII: 2, was found (pls. 80: 1, 81), the plates of which had probably belonged to the upper part of the armour which we are here dealing with. This is confirmed by the circumstance that the last-mentioned group also included a plate, *d*, which was practically the same length as plates 2 and 3 in group VII: 3. In view of a trifling difference of hardly 1 cm. I did not want

to locate this plate close to plate 2, but in consideration of the differences in measurement, which often occur, it is very probable that it belonged to the same row. The group consisted, besides, of ten plates (VII: 2: *a-c, e-l*), of which four (*a, b, i, k*) are slightly smaller than the five (*c, e-h*); to this has to be added a plate, *l*, which in its length corresponds approximately to the latter but is considerably narrower than these. That the two different sizes denote two different rows, is apparent also from the placing of the rivets; the smaller ones have two rivets at one edge and one at the other; the larger ones have the same number of rivets, though the single one is not near the edge but withdrawn a good bit towards the centre of the plate. The sequence between the smaller plates can be determined because the plates are not exactly square, but a little broader at one edge than at the other. An even edge, both at the top and bottom, can, therefore, only be achieved by the sequence *k-i-a-b*, where *k* is the shortest and *b* the longest plate. Nor is this sequence contradicted by the position of the find, which in regard to the larger plates gives sufficient guidance for the determination of the sequence *h-g-f-e-c*. The narrower plate *l* lay between *g* and *h*. Whether in the reconstruction it should also be fitted into this place, may be left open on account of the difference in shape; the length, too, differs from the others, but only very slightly. Compared with plate 4 in armour 23 it may mean that the opening was between these two plates.

If these two rows are turned in such a way that the plates, as in the rows previously dealt with, overlap from right to left, it is seen from the position of the rivets that the row with the smaller plates overlapped the upper edge of the row with larger plates. The latter had, therefore, been the lower one of the two, and had thus in its turn overlapped the row lying below (VII: 3). Consequently, the edge of the shortest row of plates formed the upper edge of the lateral portion of the armour, which agrees with the fact that its upper rivets are placed close to the upper edge (in contradistinction to those of the other two rows), and that the same upper edge on account of the different size of the plates forms a line rising a little towards the back. This is just what was usually done to allow a space under the arm. From this, however, it is also seen that the two rows VII: 2 had probably not been placed immediately above row VII: 3, for the latter must be directly above and in front of the hip, while the former must be located under the arm-pit and behind the arm. Very likely, therefore, the shortest plate of VII: 3 was located immediately below the foremost plates of VII: 2.

RECONSTRUCTION.—The reconstruction has thus shown that we have fragments of the left side of an armour, the lateral portion of which consisted

of three rows of vertical plates. The upper edge of the topmost row curved slightly downwards below the arm. These three rows of plates continued both backwards, over the back, and forwards, over the breast. In the front there was another row of plates at the bottom, which formed a kind of skirt and was very pointed at the bottom. The number of plates in this skirt was originally probably eight. Both on the breast and the back there was probably, at the top

at least, one other row of plates. We do not know how the armour was arranged across the shoulder, nor how it was strapped together, nor the position of the opening. But the type gives the impression that in these respects it is akin to armours 21 and 22. The narrow plate *l* might give a hint that the opening was under the arm-pit, between *k* and *h*, on one side, and *i* and *g*, on the other.

No. 18. Type III. Pls. 83–84. Common grave 2. Regn.No. Ny 2. Uncovered and measured up by P. Nörlund and A. Hoff on 27th July, 1929.

DESCRIPTION.—In this group of seven plates found together, five undoubtedly belong to each other. At one end, which will be shown to be the lower one, they are straight or almost straight, and the shortest (*c*) is also straight at the other, upper end, while the four longer ones are oblique at the top in such a way that, if the plates are laid with their long sides close to each other and somewhat overlapping, their upper edges form a continuous, curved line. This sequence is confirmed also by the position in which the plates were found. The rivets are, in so far as they are preserved, placed in pairs at both ends, two at the corner of one long side, the other two somewhat withdrawn from the other corner. Furthermore, there is a rivet approximately in the middle of each one of the plates; obliquely above and below this rivet and close to one long side of the longest plate (*g*) are another two rivets, and an iron loop is riveted to its pointed upper end. The location of the rivets and the position in the soil point to the shorter plate having overlapped the adjacent longer one. On top of these plates two of the same breadth, but considerably shorter (*a*, *b*), lay scattered. The shorter of these is almost rectangular while the longer one is oblique at one end. The rivets are (or have been) four on each plate, two at the top and two at the bottom, two near the long side, two somewhat withdrawn from the other, indicating that the longer plate overlapped the shorter in the series to which these plates had belonged.

In the reconstruction of the armour to which the plates belonged, the iron loop on the longest plate offers a starting point, as such a loop usually occurs on one of the central plates of the back, and is always pointing upwards. That this plate really is the central plate of the back is confirmed by the two extra rivets in the middle of it, to which in analogy with other armours, the buckle with which the armour was fastened together, had been attached. The placing of the other, longer plates is thus given; they covered the left part of the back, and the shortest of these, *c*, was directly below the left arm. The upper and lower outlines of the series of plates fully accord with this

reconstruction. The upper edge is curved below the arm and then drawn up to a point in the middle of the back, while the lower edge shows a faint upward curve across the hip. This form has its counterpart in armour 16, though the dimensions of the plates there are smaller. The latter armour also supplies the explanation for the two small plates *a* and *b*; they clearly form parts of the pointed skirt portion which formed the lower part of the front. This is confirmed by the larger plate overlapping an adjacent one in this series, for this means that the left plate overlapped the right precisely the same as in the back plates. Probably *b* joined *c* so that the bottom edges form a continuous line.¹ On the other hand, a now vanished plate seems to have been located between *a* and *b*, because the lengths of these two do not correspond exactly.

RECONSTRUCTION.—The armour consisted of a back portion, fastened in the middle and composed of five vertical plates on each side, which towards the middle curved upwards, the end of one having an iron loop. The lower part of the front formed a kind of skirt, composed of shorter plates, numbering eleven altogether, their bottom edges coming to a point in the centre of the front; they were probably aligned with the bottom edge of the back and side portion, just as in armour 16 and 17. How the upper part of the front was constructed, is unknown, but in all probability this, too, was composed of vertical plates of the same breadth and number as the plates below, and lying edge to edge or being overlapped by these. The breast portion very likely had the usual form; the number of plates is unknown.

¹ Nothing in the position of the find or arrangement of the plates proves that the bottom edge of the skirt joined the back and side plates, and that the armour, therefore, belonged to type III. It is actually possible that the bottom edge of the skirt projected beyond the side plates in which case the armour would belong to type IV. However, the former alternative may be considered as extremely probable on account of the pointed shape of the skirt which is found in both suits of armour of type III, but in none of the five suits of armour belonging to type IV.

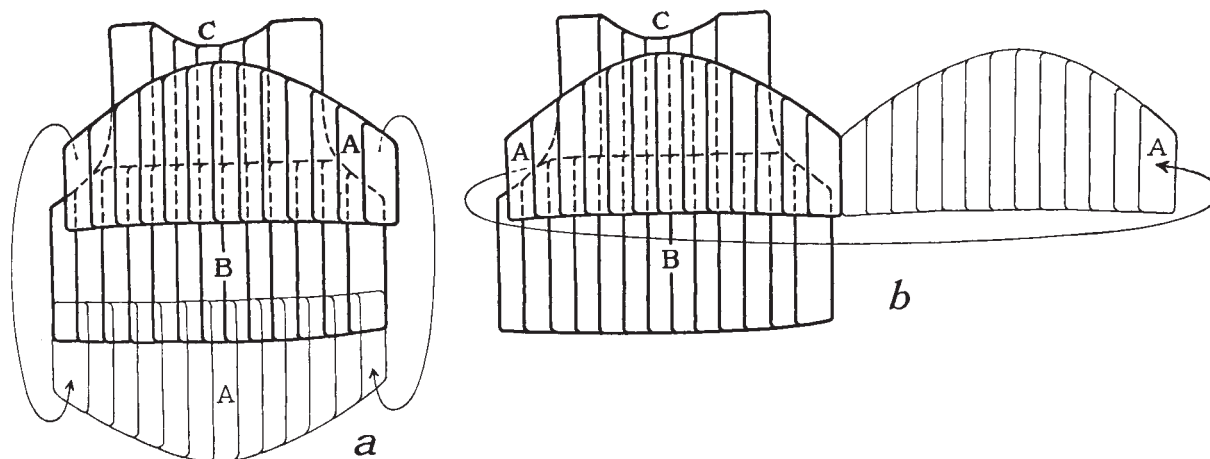


Fig. 378. Armour 19. Diagrammatic illustration of reconstruction.

No. 19. Type IV. Pls. 85–89. Common grave 2. Regn.No. *Mv I*. Uncovered by P. Nörlund and measured up by A. Hoff on 30th July, 1929.

SITUATION.—When this group of plates was uncovered, it was found to lie in an extremely good position, though no skeleton belonging to it could be discovered. The complex consisted of three rows. On top (pl. 87: 1) lay a row of thirteen plates with their insides upwards (group *A*, fig. 378); at one end they were cut off straight so that the edges formed a straight line, at the other end obliquely in such a way that these edges together formed a curve with the shortest plates on the outsides and the longest in the middle. This group partly covered the rows lying beneath with their outsides upwards (pl. 87: 2), of which one group (*B*), consisting likewise of thirteen plates, had one edge which curved in the same way as group *A*, but not so strongly, while the other edge was straight, except that the two outermost plates on each side were oblique. This edge slightly overlapped the third row, (group *C*), composed of seven plates; of these the two outside ones were curved inward at their outer edges in the characteristic way which shows that they belonged to the breast, next to the shoulders. The lower edge of the row of plates was straight, the upper edge slightly curved, with the shortest plate in the middle.

DESCRIPTION.—We have already been able to state that group *C* formed the upper part of the front and protected the breast. It is further clear that the adjacent row (group *B*) with its outsides turned upwards, formed its continuation downward on the front. This is *inter alia* seen from the curving of the upper edge of the outer plates, as this forms a natural continuation of the curve of the outside plates in group *C*. It is more difficult to decide the position

of the superimposed row (group *A*), as these plates lay with their insides upwards. There are two possibilities; either it turned over, with the edge formed by the short, straight ends of the plates as axis of rotation (fig. 378 a), or the axis of rotation should be imagined as being the outer edge (fig. 378 b) of any one of the outside plates. The row of plates would in the former case form the lowest part of the front, in the latter the reinforcement of the back. The latter alternative¹ is contradicted by several facts; first, the width of the armour all round would be rather small, as a rule the reinforcing of the back is wider than that of the front while both here would be of equal width; secondly, the length of the front would be rather short; and lastly, the upper edge of the back would be far too high under the arms—the most natural thing is, of course, for the upper edge of the back plates to form a continuous line with the front below the arms, while here they make a jump of at least 4 cm. upward. Two circumstances are in favour of alternative a: first, that groups *A* and *B* consist of an equal number of plates and are equally long horizontally, which would be an odd coincidence if group *A* had formed the armour for the back, and secondly, the fact that the straight edge on group *A* lies practically parallel with the line formed by the central rivets on group *B*. It would be extremely improbable for the back to fall in over the front in this orderly manner if the two rows of plates had only been held together by the short portion on one side, while, on the other hand, it is clear that the position must become just this, if the covering had been fastened to the central rivets

¹ I have accepted this alternative in a preliminary reconstruction. Cf. *ZHWK* 1931, p. 203, fig. 6.

of row *B* and only a few centimetres farther down to the highest rivets close to the straight upper edge of row *A*. To this alternative, however, it may also be objected that it seems peculiar for the plates of group *B* to be so long if they were to be covered by group *A*, and that the lowest rivets of group *B* would not be fastened to the covering. However, there is nothing to prevent these rivets being fastened to a separate leather strap under group *A* to give greater steadiness to the construction, or they may perhaps be explained as a mere survival. This is also indicated by the circumstance that the lowest, properly speaking unnecessary, row of rivets is, quite correctly, absent on armour 20, which is otherwise like this one. The reconstruction is confirmed in a decisive manner by the fact that the armour, constructed in this way, is identical in principle with the front of armour 21, whose reconstruction is indisputable and where this row of rivets also occurs. On some of the plates of row *A* there are some remnants of leather on the outside. An arrow-hole occurs in one of the plates (No. 9).

Below plate 13*a* (reckoned from the concave side) was found a small, square buckle (13*b*) rusted fast near the straight end of the plate. It is very probable that this buckle had been attached to the two extra rivets on the upper end of plates 25 and 26. Since, however, two extra rivets are located on the same plates, lower down, and also the two corresponding outer plates on the other side, 14 and 15, are provided

with extra rivets in an analogous position, it might be assumed that similar buckles had also been fastened to these. The result of this would be that the front had been fastened to the back on both sides with four buckles, three of which are now missing, which shows that the armour had to be put on over the head.

RECONSTRUCTION.—With this the reconstruction is finished. We have obtained the front of a suit of armour, consisting of three rows of vertical plates. The uppermost row (*C*) consists of seven plates of which the two outer ones are broader and curve inwards at the shoulder; the upper edge is also curved inwards. The plates overlap from right to left. The lower edges project below the next row (*B*), which consists of thirteen plates, likewise overlapping from right to left. Over the lower part of these plates lies the lowest row (*A*), this also consisting of thirteen plates. Its upper edge is straight while the lower edge curves in very much, with the longest plates in the middle. The plates of this row overlap from left to right. The armour was open on both sides, and the front and back were fastened together by means of two buckles on either side, of which only one is preserved (13*b*). The position for the others is, however, marked by the rivets which attached them to the front of the outer plates in row *B*. We have no possibility of judging how the reinforcement of the back was constructed, if such ever existed.

No. 20. Type IV. Pls. 90–92. Common grave 1. Regn.Nos. *B II*, *B XI*. Uncovered in 1905. This armour has been presented to the National Museum at Copenhagen by the Swedish Government.

DESCRIPTION.—In the case marked *B XI* with finds from the 1905 excavations of common grave 1, two series of iron plates were stored. They differed from one another but proved, on the other hand, to be associated by the breadth and length of the plates and the location of the rivets. One series, which we shall call *A*, consists of ten plates, 5–6 cm. broad and 15.5 to 19.5 cm. long. These are cut off straight at one end and obliquely at the other, half their number with the obtuse angle on the right side and the others, with the corresponding angle on the left side. All the plates are, or may be assumed as having been, provided with two rivets at each end. The plates allow of their being arranged side by side and with their long sides slightly overlapping so that the upper ends, which are cut off straight, form a horizontal edge, while the oblique ones form a continuous line curving downwards, so that the shortest plates lie at the outside and the longest in the middle. The plates overlap from left to right. This reconstruction is confirmed by the plate farthest to the left having its rivets placed

in all four corners while the other plates have the two rivets to the left somewhat withdrawn from the left edge, thus indicating that the left edge had been overlapped by the adjoining left plate.

The other series, *B*, consists of thirteen plates, slightly narrower and much longer than those of series *A*. The measurements are 4.5–5.5 cm. for the breadth and 20–23.5 cm. for the length. The rivets, too, are applied quite differently, in that two rivets are located (or had been located) at the upper end and two rivets beside each other half way down the plate. Furthermore, four plates each have an extra rivet at the upper end, of which more will be said later; on the other hand there are no rivets in the lower ends. Most of the plates are cut off straight at the upper end; only the shortest ones being oblique with the edge tilted to right and left. On the other hand all the plates, with the exception of the longest one, are oblique at the lower end, half with their edges tilted to the right, half in the opposite direction, and this in such a way that the edges converge on those plates

which are also oblique at the upper end. In the reconstruction we may make the same observation as that made in regard to series *A*, viz. that one of the plates has its rivets placed close to both long edges while the others have two of the rivets somewhat withdrawn from one edge, in this case the right one. This shows that the plates overlapped from right to left, provided that "up" and "down" are here correctly determined, which will be proved to be the case. Granted this, the relative order of the plates is established. Farthest to the right lies one of the shortest plates with the shorter edge to the right and the longer edge to the left; after that the plates towards the left grow successively longer up to the middle plate, which is the longest and is straight at both ends, after which the length in the same way decreases successively.

If, now, series *A* is laid below series *B*, we find that the combination is very like the series *A* and *B* in armour 19. The real differences are merely that series *A* in the latter armour consists of several plates and curves downwards more—the plates are shorter at the sides and longer in the middle—and that there are no rivets at the bottom edge of series *B* in the armour here dealt with. Otherwise the measurements, the shape and arrangement of the groups are practically in agreement. Thus the only real difference is the lack of the lower row of rivets in series *B*. But this is in reality another sign that this armour is of the same type as No. 19, for these rivets are, strictly speaking, superfluous in 19, and their disappearance is just such a development as we should expect.

However, the armour is not complete with this. The topmost row, *C*, is missing, and no further plates were found in case *B XI*. But on the other hand there were in case *B II*, containing finds from common grave 1, together with some plates with which it cannot be brought into relation, a series of six plates, of which two had the characteristic shape which indicates that

they had been located on the breast, next to the shoulders. As length, curvature and the placing of the rivets show, the other four had been between them. In this series the plates overlap from right to left. The upper edge is slightly curved in the same way as in row *C* in armour 19, and even the placing of the rivets is the same as there. Only the number of plates differs, being six instead of seven. In view of the relatively few armours found in common grave 1, I am, without the slightest hesitation, using this series which I call *C*, to complete the front of this armour.

RECONSTRUCTION.—This front, therefore, has the following appearance. It consists of three rows of vertical plates, the uppermost, *C*, composed of six plates overlapping from right to left, the two outer ones curving on the outsides; also at the top, below the chin, the upper edge of the row of plates is curved. The lower edge of row *C* projects below row *B*, which consists of twelve plates, likewise overlapping from right to left. The upper edge is straight, with the exception of the two ends, where it curves down a trifle. The lower edge, on the other hand, forms in its entirety a faintly downward curving line. The lower part of this row probably projected fairly far below row *A*, the ten plates of which, in contradistinction to the others, overlap from left to right. The upper edge of this row is straight and horizontal while the lower edge curves downward considerably. The two outer plates on each side of row *B* are provided at the top with an extra rivet, which clearly, in analogy with armour 19, held the buckles that have now been lost, with which the front was fastened to the back.

Thus also this armour opened at both sides and was put on over the head. We do not know whether the back was reinforced.

No. 21. Type IV. Pls. 93–102. Common grave 2. Regn.No. *Pv 12*. Uncovered and measured up by A. Hoff on 16th–22th August, 1929.

SITUATION.—From the point of view of preservation, this armour complex was one of the worst of the whole excavation. No difficulties, however, are encountered, in laying down the main features of the reconstruction, since the relative situation of the various parts of the armour was, on the whole, clear and intelligible. Of the skeleton only a part of the spine and a few ribs were found lying between the front and back, as well as the right shoulder-blade sticking up through the right-hand opening of the arm (pl. 97). The rest of the skeleton had either completely decayed or its association with the armour could not be found. The few skeletal parts were, how-

ever, important because they enabled the front and back to be distinguished, which otherwise might have been in some doubt; they showed that the corpse was lying on its face, and the back of the armour thus lay turned upwards.

DESCRIPTION.—The armour consists of vertical plates arranged in three rows in front (fig. 379: *A–D*) and four rows on the back (*E–G*), with a minor group of plates on each hip (*H, I*) on a level with the lowest rows in the front and back. The front and back are united over the shoulders by groups of minor plates, and semicircular, ornamental plates are attached along

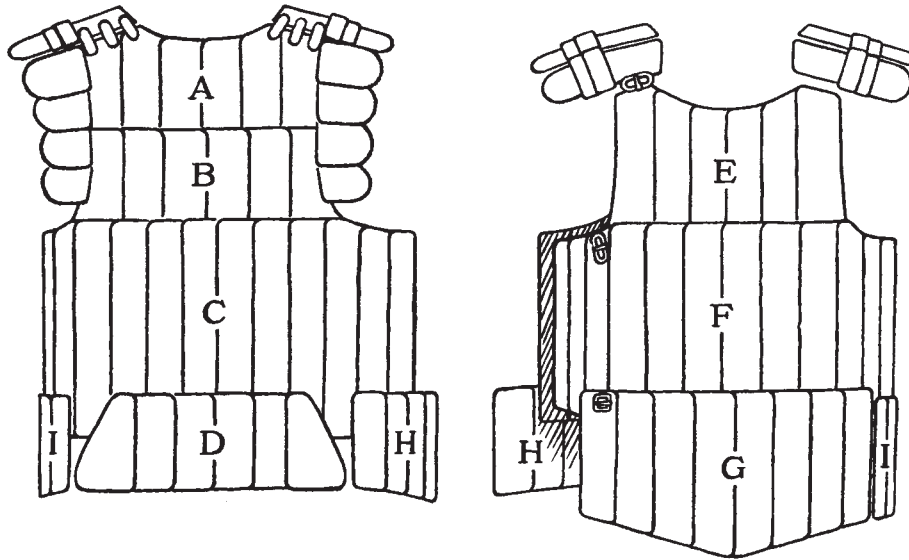


Fig. 379. Armour 21. Designation of rows.

the arm-holes of the shoulders and back. On both sides the lower rows overlap the upper ones.

The uppermost row *A* on the back, which, as stated, lay turned upwards (pl. 96), consists of six plates (57, 35, 34, 33, 32, 31), of which the two nearest the outside plates (35, 32) are longest, and the length of the others is adapted in such a way that the upper edge curves down in the centre (neck-opening) and at the sides. The plates overlap from right to left. Each plate, except the one farthest to the left (57), was probably originally provided with four rivets, of which two are placed in pairs 5–6 cm. from the lower edge and form a continuous horizontal line along the row of plates, while the upper ones are more irregularly placed. Plate 57 has a rivet in the middle of the surface, level with the lower row of rivets, and a rivet immediately above the latter near the upper edge.

The next row, *B*, consists likewise of six plates (66–71), which, however, overlap from left to right. The length is 14.5 cm. and the form rectangular, except in regard to the two outside plates (66, 71) which taper towards the top and are curved at their outer edges, thus adapting themselves to the arm-hole. Each plate, except the one farthest to the left (66), probably had four rivets, two located in pairs near the upper edge and two in pairs about 6 cm. from the bottom edge, the latter forming a continuous horizontal line; plate 66 has a rivet in a line with these near the right edge and one above, near the upper edge, but slightly more to the left.

In the row below, *C*, there are seven rectangular plates (72–78) below row *B* (length 22 cm.), which overlap from right to left. The plate on the extreme

left is certainly fragmentary at the bottom but its length can be reconstructed with certainty by analogy with its counterpart. To the right of 78 are three plates (79–81) of which 79 is oblique at the top and with 80 and 81 continues the curved edge of 71 of row *B*, thus forming the lower edge of the arm-hole. The right edge of plate 81 was clearly one edge of the side-opening, to judge from two rivets which are placed near it.

To the left of the group of plates 72–78, sundry fragments of plates were picked up and given the joint number 87; on closer examination they are found to be parts of three plates (87 *a–c*). A bit of the upper edge of 87 *a* is preserved, and this shows that it had curved downwards like its counterpart 79. None of the three plates 87 *a–c* is preserved in its entire length, but nothing in the arrangement of the rivets or other factors contradicts a reconstruction of the length in analogy with the plates 79–81. Apparently all the plates in row *C* have usually had four rivets, a pair close to the upper edge and a pair about 6 cm. from the bottom edge, the latter forming a horizontal line. Furthermore, the central plate, 75, has a rivet near the lower edge (unless it is an accumulation of rust), and the same occurs in plate 79. Finally, plate 81, as has already been mentioned, has, in contradistinction to the other, two rivets near the right edge, one in the bottom corner and one 6 cm. from the upper edge. From the location of the rivets it is seen that the plates 87 *a* and *b* belonged to row *C* and similarly that plate 87 *c* belonged with plate 99 to row *F* of the front. On the other hand it cannot be denied that 87 *c* may also have had rivets close to the right edge. Considered *per se* it is possible that there was

an opening at the side below the left arm between *87 b* and *87 c* in analogy with the opening between *81* and *89* on the right side. To be symmetrical this opening should, however, have been between *87 c* and *99*, which, as stated, cannot be the case, and because no buckle has been found on the left side, the circumstances indicate rather that no opening existed on the left side but that row *C* directly joins row *F* of the front.

The six plates *60-65* were found on top of row *C*, with their concave sides upwards and the rivet-heads downwards. It is clear that these plates should be turned with their lower edge (really the upper edge) as an axis of rotation, as in the reconstruction of the row *A* in armour 19. These plates thus formed a separate row, *D*, below row *C*, and a kind of skirt, which in principle agrees with row *G* in the same armour, row *I* in armour 22, row *A* in armour 19, etc., but which with respect to its situation on the back and its form has no counterpart in any other armour (fig. 382). The height of all the plates is equal, viz. 11.5 cm., but while the four central plates, *61-64*, are rectangular, the outer plates, *60* and *65*, are triangular with rounded corners, the most acute angle being at the top. The plates overlap from left to right except that *64* is also overlapped by *65*, the plate on the right, and thus has both its edges concealed. Apart from *64* all plates have four rivets, a pair near the upper edge and a pair near the lower one. The two outside plates, *60* and *65*, have one rivet in the upper corner and one rivet somewhat farther down along the outside edge. Plate *64* has one rivet in the middle of the upper and the lower edge and also one between these two.

When we turn to the front, we find that one row, *E*, corresponds in shape and position to the rows *A* and *B*, its plates being rather longer than in these (greatest length about 20 cm.). The upper edge of this row has the same shape, curved downwards in the middle and at the sides, as in row *A*, and the side-plates are broader towards the bottom as in row *B*. The number of the plates is six (*122-119*, *109*, *110*), and they overlap from right to left. The number of rivets seems to have been at least four for every plate, of which a couple were placed near the upper edge and a couple 8-9 cm. from the lower edge. The latter form a horizontal line except that the outer rivet in No. *122* is about 1 cm. lower down, an arrangement similar to the upper rivets in plate *90* in row *F*. Oddly enough, this arrangement is not found on plate *110*, where the corresponding rivets are in line. It should also be noted that one of the lower rivet-heads in plate *119* is considerably larger than the others, and probably had its counterpart in plate *120*. This was probably for ornamentation, and has its counterpart in the armours 2 and 4.

In row *F* below, the plates likewise overlap from right to left. The number immediately below row *E*

is six (*91-96*); their upper edge is straight and their lower edge curves down slightly towards the centre, the greatest length being about 23 cm. On the right side the row is continued by three plates (*90*, *88*, *89*, counting from the inside). The upper edges on these three plates form a faintly concave line corresponding to the position below the right arm and forming the continuation of the arm-hole which had been begun in the curved side-edge of plate *122* in row *E*. Plate *89* adjoins plate *81* in row *C* of the back, and the side-opening of the armour was between these two plates, as has already been demonstrated above. Probably the buckle, *116*, found just above plate *90* and below *122* served for fastening the back and front together. The rivet on the underside of the mount for the buckle indicates that the latter had been fastened outside the covering, and the situation indicates that it belonged to the front. Row *F* is also continued to the left by three plates (*97-99*) which in shape are, on the whole, counterparts of *90-88-89*. As already stated, plate *87 c* in row *C* joined there. Further it is improbable, as pointed out above, that a side-opening existed between *87 c* and *99*. No buckle has been found in this area. The plates *91-96* were each provided with three pairs of rivets, one pair near the upper edge (and this pair of rivets occurs also in the other plates belonging to row *F*), one pair near the lower edge, and one pair approximately half-way down the plate, the latter forming a horizontal line. The latter row of rivets continues also on plates *97-99*. The lower rivets on plate *98* are displaced slightly upwards, the left rivet about 3 cm. and the right one about 6 cm., and at this height the rivets then continue in a horizontal line on plate *99* and farther along the whole row *C*. On the right side (*88* and *89*) the condition is analogous, though the dislocation upwards of the lower rivets on *88* does not take place gradually, as in *98*, but rises directly to the level of the line of rivets in row *C*. Further, *89*, as has already been mentioned, has an extra rivet in the lower outside corner, due to the plate adjoining the side-opening.

The row below, *G*, consists of eight plates (*113*, *104*, *103*, *101*, *108*, *107*, *106*, *105*), which overlap from left to right. The upper edge of the row is straight at the top, but at the bottom the plates gradually grow shorter on both sides so that the longest are in the middle (18.5 cm.) and the shortest on the outside (about 14 cm.). On being uncovered, *113* lay between *101* and *108*, but since *107* and *106* are counterparts of *103* and *104*, *108* (which at the bottom is fragmentary so that its position cannot be proved) should be the counterpart of *101*. But then *105* is without any counterpart, except perhaps *113* which, when the armour was thrown into the burial pit, became displaced from its position beside *104*.¹

¹ Unfortunately, plate *113* has been destroyed, so that the above conclusion cannot be verified with the aid of the measure-

All the plates of the group have two pairs of rivets, one pair near the upper edge and one near the lower. Row *G* overlapped row *F*, as is seen from the position of the find and is also paralleled in several armours. Thus the lowest rivets in row *F* could not have been fastened to the covering; they were probably, in order to give greater stability to the construction, fastened to a leather strap, as was assumed in regard to the corresponding rivets in armour 19.

On each hip between rows *G* and *D* there is a minor group of plates, *H* on the right and *I* on the left side. Row *I* is lying in sequence with row *G*, while row *H* lies wedged in over row *C* as was the case with row *D*. Each one of the groups consists of four plates (*H*: 83-86; *I*: III, II4, 100, 102), the upper edge of which is straight but the lower edge slightly sloping towards the front. The length of the plates is 11.5-13 cm., and they overlap from left to right. Each plate seems to have had four rivets, one in each corner, but those on the left side withdrawn a little from the edge, except 83 and III, whose rivets are located right at the four corners. That these two groups of plates were independent and not connected either with rows *G* or *D*, is seen, first, from the position of the find in the soil¹, secondly, from the shape of the outer plates of row *D*, and thirdly, from the placing of the rivets in 83 and III, which prevented these plates from being overlapped by those to the left (figs. 380-382). Row *I* has in its entirety been fastened on the outside of the lower parts of plates 72, 87 *a-b-c*, 99 and 98. Row *H*, on the other hand, which covers the side-opening between 81 and 89, but whose plates were in sequence so that no side-opening between any of them could have existed, could only have been fastened on one side or other of the side-opening. We must probably assume that the covering below the right arm continued over the front without iron reinforcing down to the right edge of 86, and thus, when the armour was fastened on the body, covered both plates 89 and 88 (figs. 380, 381). The position of the buckle I16 near plate I22 confirms this reconstruction, for otherwise this buckle should have been located close to plate 88 or 89. Below plate 92 of the front lay another, somewhat smaller buckle (I15). Probably this buckle served the purpose of fastening the lower portion of the back, row *H*, for which reason we must assume that it was placed rather lower.

The four semicircular ornamental plates which

ments of the plate. To judge from measurement and photograph of the plate *in situ* (pl. 99) it appears to have been slightly larger than 105 so that, despite everything, it is possible that it should be located between 101 and 108. But in that case the shape of the skirt *G* becomes singularly askew.

¹ That row *H* at any rate was not united with row *G* and row *I* not with row *D* when put into the grave, is seen from row *H* and *D*, as stated, being bent over row *C*, while row *G* and *I* occupy their normal position. A space must, therefore, have existed between No. 86 and No. 104 (or I13) and between No. 60 and No. 102.

were located on both the left and the right side of the back along the arm-holes, were all lying in their proper position in relation to one another, 36-39 on the right side and 40-43 on the left. The three lower ones on each side were provided with two rivets each at the straight edge, the lower one in the bottom corner and the upper one approximately in the middle. This shows that the plates overlapped from the top downwards. The plates 36 and 43 had three rivets each, one in each corner and one in the middle.

So far the reconstruction is certain, even in regard to most of the details; but with the remaining portions, the shoulders, it is rather different.

On being uncovered these plates were so fragmentary and their position so confused that there were not many criteria for the reconstruction. On the other hand the main features of the reconstruction are fairly certain.

To start with, it can be stated that three semicircular plates were picked up on each side; on the right side 6+7+9 (three fragments which have been given different numbers, but which belong together), 22 and 46, and on the left side 26, 25 and I12. Each plate has two rivets which, however, in contradistinction to the semicircular plates of the back, are not placed on the outside but on the concave, inner side. This means, therefore, that they were riveted to the outside of the covering. The same arrangement of the rivets is found in several small oblong plates (width about 2.5-3 cm., length about 5.5-8.5 cm.), which—partly whole, partly fragmentary—were found in the regions of the shoulder. As the placing of the rivets is similar, it is quite natural to associate these strips with the semicircular plates; and as they number twelve—some further fragments may be parts of these, though they cannot now be joined together—there are two strips to each semicircular plate. The length and curvature show that a pair of bands or strips overlapped scalewise the straight edge of every semicircular plate, and this reconstruction is also confirmed in some cases by its position *in situ*. Thus plate 44 and the fragment 45 belonging to plate 50 had rusted fast to each other in this manner, and plates 8 and 23 lay in the same position in relation to the semicircular plate 46. The sequence of the semicircular plates on the right side can be fairly clearly distinguished *in situ*: next to the back plate 36 comes plate 46, and then 22 and 6+7+9, i.e. the largest was nearest the front. From this it follows that on the left side, plate 26 had been farthest forward, and as the position *in situ* indicates that I12 was nearest the back plate 43, the right order is easily found. A peculiar thing is that the strip 51 on the left side is so much longer than its counterpart I2+2I on the right side.² The explanation of this may perhaps

² The fragments 10-21 were scattered near a cranium that lay there (see pl. 96).

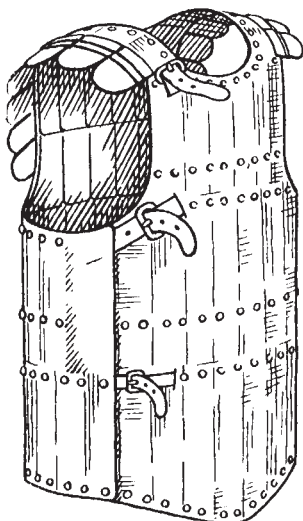


Fig. 380. Armour 21. Reconstruction of side opening.

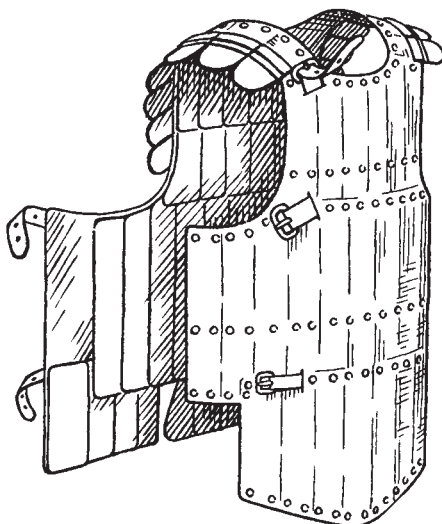


Fig. 381. Armour 21. Reconstruction showing side opening unfastened.

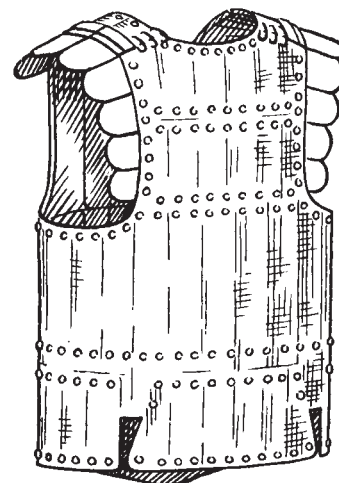


Fig. 382. Armour 21. Reconstruction of back.

be that it was repaired and by carelessness or for practical reasons the symmetry of the plates was neglected; it would at any rate have been scarcely noticeable when the armour was being worn. These semicircular plates on the shoulders did not overlap, like those of the back, but, to judge from the rivets, were placed edge to edge.

Apart from these plates, three plates were picked up on the left side in the region of the shoulder, of which two (118, 56) are whole and one in fragments (53+54+55). They are more or less rectangular in shape but with one short side cut off obliquely. On the right side they have their approximate counterparts in fragments 3, 58 and 59. All these plates have the rivets on the upper side and have, therefore, unlike the shoulder plates previously dealt with, been concealed by the covering. The position of plate 118 seems to be the original one and shows that its longest side adjoined the left part of the upper edge of row *A*, where the plate also fits both with respect to size and shape; its oblique edge forms then a natural continuation of the neck line in row *A*. In the same way fragment 3 lies in a similar position on the right side of row *A*. As to the remaining four plates, their position *in situ* does not supply any hints or guidance for the reconstruction. No. 58 on the right side and 56 on the left are counterparts and, therefore, were certainly placed opposite each other. If they are laid beside 3 or 119, as the case may be, the inside edges form a curve which follows the line of the neck perfectly. If, then, we assume that these two plates were in the middle, the two remaining ones (59 and 53+54+55) must have been located at the front next to row *E*.

Furthermore, on either side lay three small hinge fittings, consisting of iron bands folded double, which are articulated with tongues around an iron rod. On its underside each one is provided with a rivet at either end, i.e. they had been fastened to the outside of the covering. On the left side these fittings (47, 48, 49) are lying with a regularity which indicates their original position, at right angles to the adjoining edges of 118 on the one side and 57 and 35 on the other. To the right lay two similar fittings, 1 and 2, in an approximately similar position, though more confused, and a third, 124, had fallen into the cranium that was lying there. Undoubtedly these fittings were meant to reinforce the narrow and strained portion of the armour at the shoulders, and were hinged in order not to restrict the articulation of the armour.

Finally, there was also found, in the same cranium, a buckle, 123, which in shape and size is a counterpart of the previously mentioned buckle 116. Since, of course, the position of the find does not reveal anything else about the original place of the buckle than that it should have been in the region of the right shoulder, its placing in the reconstruction does not become more than guess-work. However, it is obvious that to put on the armour in comfort, it was almost necessary that at least one shoulder portion could be detached from the front (cf. suits of armour 22 and 24, where this was the case with both shoulder portions) and since the side-opening of the armour was located only on the right side, it fits in perfectly to believe that the buckle 123 was located on the upper part of plates 121 and 122, and had served that purpose (fig. 380).

RECONSTRUCTION.—The reconstruction thus gave the following results: The armour consists of vertical plates, arranged in three rows in front and four rows on the back. Of these the lowest row but one is common to the front and the back, the plates on the left side probably continuing directly round the trunk. On the right side, however, the armour is open below the arm and was there fastened together with two buckles. It cannot be proved definitely whether a corresponding opening existed on the left side, but everything indicates that such was not the case. Below that row are four groups of plates, one in front, one at the back, and one on each hip, all of them independent of each other and forming, as it were, four small skirts. Above the row of plates which runs right round there is one row of plates in the front

and two on the back. Each shoulder was protected by three plates, and there were three semicircular ornamental plates, each one with its straight edge continued by two oblong iron strips. These have, in contrast to the other plates, been riveted on to the outside of the covering. The semicircular plates continued on the back with four similar plates on the edges of each arm-hole. On the front, however, there were no such plates. The transition between back and shoulder portion took place by means of three small hinge fittings on each side, which were riveted to the outside of the covering. The right portion of the shoulder was probably not firmly attached to the front but was very likely fastened to it by means of a buckle.

No. 22. Type IV. Pls. 103-112. Common grave 2. Regn.No. Os 1. Uncovered and measured up by A. Hoff and H. Olsson on 21th-25th August, 1930.

SITUATION.—This armour was worn by a corpse when it was thrown into the grave. The corpse had been laid on its face, and the upper part of the spine lay between the two halves of the armour (pl. 107). The left clavicle and scapula protruded through the left arm-hole while the right clavicle lay approximately in the centre of the armour along its longitudinal axis, and the right scapula with acromion protruded through the lower angle of the right arm-hole. The left arm lay as if it had been crooked over the head. The head and right arm were missing and had perhaps been removed during the excavation before their association with the armour could be noted. The lower part of the spine protruded from the lower edge of the armour and described a big curve so that the femoral bones lying in contact with the pelvis pointed obliquely upwards to the left.

DESCRIPTION.—On the whole, the various parts of the armour lay in a very good position so that, on its being uncovered, the main features of its construction could be observed at once. The back, which first came into view, consisted of four rows of vertical plates (*A-D*, fig. 383). Four smaller plates (5-8) were wedged above the lowest row (*A*), and at the side of the lowest but one (*B*) lay some further plates without any order (125-132). Near the arm-holes lay some semicircular ornamental plates. The front, again, consisted of five rows of plates (*E-I*). Here, too, some semicircular ornamental plates lay near the arm-holes. All the rows overlapped from the bottom upwards; the plates overlapped from right to left. The front and back were united on the right side, in that the two lower rows (*A, B*) of the back passed right round into the second or third row respectively,

of the front, reckoned from the bottom (*G, H*). The lowest row in the front (*I*) thus formed a kind of skirt. On the left side, however, the armour was open, for near the left edge of the central row of plates (*G*) of the front, a buckle (No. 94) lay under plate 93. Also the armour could be strapped together over the shoulders, to judge from two buckles which lay there. On the other hand it is probable that two ring-buckles, which lay to the left of the armour, near the pelvis (1 and 2) do not belong to the armour. Their appearance in pairs close to the pelvis indicates that, as with several other buckles found in corresponding positions (cf. p. 117), they belong to the clothing.

With this summary picture of the armour we shall pass on to its details and in doing so follow more or less the order in which the different parts were taken up. The buckles Nos. 1 and 2 have already been mentioned. The minute fragment No. 3 probably belongs to the adjoining plate 117, to which we shall revert, as also to the buckle No. 4 on the right shoulder and the smaller plates 5-8 located on top of row *A*. In row *A* the plates 9-15 are lying in their proper sequence, from the left. Into the gap which then follows should be fitted the plate 16 obliquely displaced below the row, and 117, which has slipped farther down. Then follow 17, 18 and 19, which are lying in their right positions, then 20 lying obliquely below these, and, finally, 63 and 62 lying somewhat lower down, whose relative positions are determined by their length, the left edge of 62 being much shorter than 63, which must therefore lie to the right. The rivets on these plates are placed one each in the upper and lower left hand corners, one beside the left edge at approximately one-third from the bottom, and one inside the same distance from the upper edge, i.e.

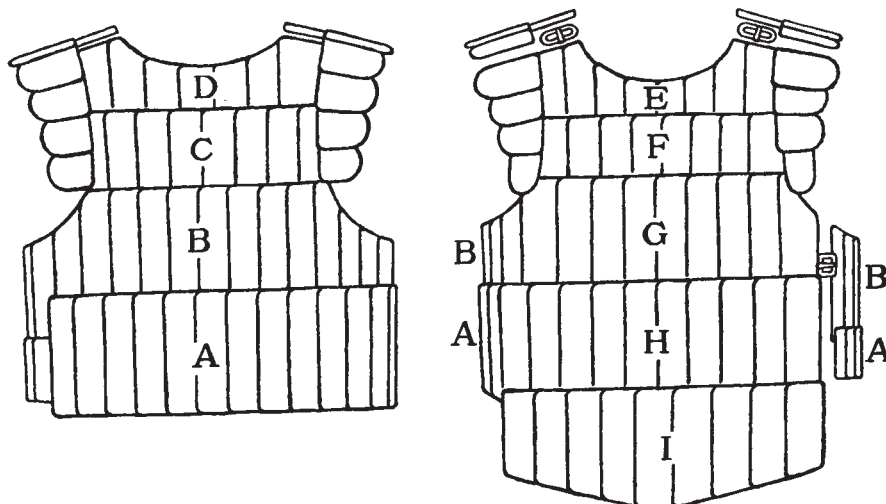


Fig. 383. Armour 22. Designation of rows.

altogether four rivets. The length of the plates varies between 13.5 and 14 cm. But, as stated, the left edge of 62 is slightly shorter, about 12.5 cm., while on the other hand the three plates farthest to the right are successively slightly lengthened downwards so that the right edge of No. 9 is about 16 cm. long. The last-mentioned plate is also irregular in that the two upper and lower rivets are duplicated, and the lower right corner has a long piece cut out.

In row *B* all the plates are lying in sequence 30–38, 42–48. The plates 30–36 form the lower edge of the right arm-hole and are in consequence of different lengths; 31 and 32 are shortest, 10.5 cm., and were, therefore, placed below the middle of the arm-pit. Consequently No. 39 really belongs to the front. This and 33–36 are cut off obliquely at the upper end. The length of Nos. 37, 38, 42–46 is 14.5–17 cm. After that the length decreases afresh for the left arm-hole and the upper end of plate 48 is oblique. Also the bottom edges of 46, 47 and 48 are slightly oblique so that the lower edge curves downward. Next to, and at an angle to 48 lay 125, whose length shows that it fits the former exactly. Guided by the length and the angle on the short sides we easily find that 125 was followed by 126, 129, 131 and 132, in which sequence they were found. Of these, 129 is shortest (the precise length cannot be stated on account of its fragmentary condition) and had thus been placed just below the arm-pit. The rivets in row *B* form an approximately horizontal line, one-third from the bottom of the plates; there is also a rivet in the upper, left-hand corner and one between these two, half-way across the plate. No. 129 has an extra rivet above the last-mentioned.

As No. 48 in row *B* corresponds to 62 in row *A*, the former row has now got five plates more on the

left side than the lower one. This can hardly be correct. We remember the four small plates 5–8 which lay misplaced on top of row *A*; also plate 128, which lay between 126 and 129, and which is of about the same size as 5–8. It is found that if 128 is placed next to 62 and then 8–5, they fill the gap in row *A* below the outer *B*-plates. The arrangement is only inconsistent in so far as 128 comes edge to edge with, and not as the other plates, overlaps the plate above (125) in row *B*. This might be an inaccuracy in the manufacture. These small plates are provided with a rivet in each one of the two left corners, and a rivet right in the middle; their height is only 6.5–8 cm. It is obvious that the left side of the armour was very badly damaged when it was thrown into the burial pit and the left plates of row *B* scattered at the side in relative disorder. No. 128 evidently went with plate 125 located above it, while, curiously enough, the four plates to the left of 128 remained together and landed in the opposite direction, over row *A*, with the inside upward. Guided only by the position *in situ* one would rather have placed 5 next to 62, and 8 towards the opening in the side. But then the upper edge of series 5–8 would have curved upwards, towards the opening in the side, and this would have been meaningless because the bottom edge of row *B* curves downwards here. With the present placing it is reasonable for the bottom edge of series 5–8, 128 to curve down towards plate 62, making a gentle transition to the longer part of row *A*, which for that matter is also helped by the upward curve of the bottom edge of plate 62. Another circumstance which speaks in favour of this arrangement is that plate 5 seems to have one rivet on the inside, near the edge which faces the opening in the side. It is possible that this rivet was meant to hold a buckle or a strap

which fastened to a buckle on the other side of the opening.

In row *C*, which only extends between the shoulders, seven plates, 40, 49, 50, 51, 56, 57, 58, lay in their right positions. But between 40 and 49 was a gap, where plate 41, which had slipped down almost as far as row *B*, belonged. The outer edges of the outside plates 40 and 58 are curved in such a way that their outlines form a continuation of the curves for the arms in row *B*.

The length of these plates is about 14 cm. Each plate is provided with three rivets, one in the upper, left corner, one near the left edge just below the middle, and one between these two half-way across the plate. On plate 58, however, all the three rivets are located above each other, half-way across the plate, clearly in order to allow the semicircular ornamental plates at the side (28, 29) to project a little over the edge.

In row *D* all the plates were lying in position, from right to left 52*b*, 53, 54, 55, 59, 60, 61. Of these the two outer ones (length 14.5 and 13.5 cm. respectively) and the central one (length 9 cm.) are rectangular, while the rest are oblique in such a way that the upper edge curves downwards sharply. Each plate is provided with three rivets, one about 4 cm. from the bottom edge near the left long side, one in the left upper corner, and one between these two half-way across the plate. However, all three rivets are above one another in plate 61, as in plate 58 below it, and for the same reason. On top of 52*b* lay a smaller, trapezoidal plate, 52*a*, and on top of 60 and 61 a corresponding one, 75. These two plates had clearly been lying on top and protecting the shoulders, and also united back and front.

Along the lateral edge of the right arm-hole and slightly overlapping plates 40 and 52*b*, lies a row of semicircular plates, 39, 24, 25, 23, 22, successively increasing in size from the bottom upwards. They are all provided with two rivets near the straight, inner edge. In plate 22, these are located at the extreme outside of both corners, but in the others, the upper rivet is slightly withdrawn from the corner.¹ This indicates that the upper plate overlapped the edge of the plate below. Near the left arm-hole, too, are corresponding plates, but these number only four, 29, 28, 27, 26. It is clearly the counterpart of 22, which is missing. Here, too, the placing of the rivets indicates that the plates had overlapped from the top downwards.

We shall now turn to the front, and since this lay with its inside upwards, the plates overlapped from the top downwards, as seen by the excavator. Consequently, in contrast to the back, the upper row *E* was taken up first, and the lowest row, *I*, last.

¹ In the fragmentary plate 24 this rivet is missing, but since its counterpart on the left side, 28, has a corresponding placing of the rivets, this was certainly also the case with No. 24.

The plates belonging to this side are all lying in their proper order and also the rows of plates are lying in their original position in relation to one another. The reconstruction, therefore, does not present any difficulties.

Row *E* is exactly like row *D*, with the exception that the number of plates is eight instead of seven (76, 74, 73, 72, 69, 68, 67, 64) and that the length of the plates is somewhat less, 7.5–12 cm. It is the same with the plates of row *F* (length 10.5 cm.), and means that the opening for the neck, as it should be, was nearer the back of the neck than the front. The number of plates is eight (90, 89, 78, 77, 71, 70, 66, 65), the same as in row *C* in the back.

Along the lateral edge of the right arm-hole lies, as in the back, a row of semicircular plates, five in number, from the top 107, 106 (these two standing on edge but in their correct position), 105, 104, 103. Of these, the largest, 107, lies above the edge of plate 64, for which reason its breadth certainly marks the breadth of the opening between the front and back. As a further confirmation that the opening between the front and back was between plates 64 and 52*a*, there lies close by a fragment of a buckle, No. 4², the original position of which can be determined in relation to the space in analogy with the place for the buckle, 113, which lies on the other shoulder. Only one of the semicircular plates, 106, has rivets near the edges in both corners. All the others have the upper rivet somewhat displaced from the upper corner. The highest plate, 107, was therefore overlapped by the adjacent plate, 22, in the back, and consequently belonged to the back. The border between back and front was thus between 107 and 106. In the row 106–103 the upper plate overlapped the lower one.

At the left arm-hole the number of semicircular plates is only four, 112, 110, 109, 108, of which the first, to judge from its position and size, corresponds to 107, while the others correspond to 105–103. It is, therefore, the counterpart to 106 that is missing. And yet 112 and 110 lay in such close contact that it seems as if these had been located close to each other on the armour, perhaps as the result of an alteration, e.g. repairs. Otherwise the placing of the rivets agrees with the left side.

Row *G* on its right side adjoins row *B*, and the plates (93, 92, 91, 88, 87, 86, 85, 84, 80, 79) agree both with respect to size and the placing of the rivets. Only the plate farthest to the right, 93, has an extra rivet, thus showing that it adjoins the side-opening of the armour. That an opening existed between 93 and 132 is also seen from the very unequal length of these plates and from a square buckle, 94, being

² The shape of the buckle No. 4 cannot be determined on account of its fragmentary condition. It has, therefore, in the mounting (pls. 104: 2, 105: 1) and on pl. 112 been marked with a buckle of the same shape as No. 113.

found close to the outer edge of 93. This buckle in size and shape resembles the buckle 13 *b*, belonging to armour 19, which had there a precisely corresponding position (pl. 89).

Row *H* is united on the right side with row *A*, but its plates (102-95, 83-81) are somewhat longer, about 15 cm., and the rivets are placed differently, the bottom rivet not being in the lower corner but a bit farther up the edge. The transition between front and back is here irregular, in that plate 9 in the back is considerably longer than plate 81. That these adjoined each other is seen, however—apart from the position *in situ*—from the fact that 81 in its lower, left corner has an elongated piece cut out like the one to be found in the lower right corner of plate 9. The upper edges on these indentations are in both instances equally far from the upper edges of the plates. But I am unable to explain what purpose these two peculiar devices served.

Below row *H* follows another row of plates, *I*, consisting of nine plates (124, 122-118, 123, 115, 114) of which the longest is in the middle and the others decrease successively in length towards both sides (length 11-14 cm.). Each plate has three rivets, one in the upper and lower left corner respectively, and one half-way across the plate about 5 cm. from the upper edge. Row *I* formed the skirt at the bottom in front, which is characteristic of type IV.

With this we have considered the whole find complex. Only a few, fragmentary plates could not be placed, but on the other hand some plates are missing (two semicircular ones between 110 and 112,

and 112 and 26, respectively) besides which, several plates being more or less fragmentary, there are sundry possibilities for the placing of the extra plates, though safe criteria for doing so are now lacking. The fragments whose relation could not be determined with certainty are Nos. 3 (belonging possibly to 117), 21, 111, 116, 127 and 130.

RECONSTRUCTION.—Finally, we may once more summarize the result of the reconstruction. The armour consists of exclusively vertical plates arranged in rows, which form the front and back, and are united on the right side. The opening in the armour was below the left arm, and it was fastened together with at least one (94), but probably several buckles. In order to make it easier to put the armour on, it was open also on the shoulders and was fastened on either side with a buckle (4, 113), which was placed between the uppermost row of plates of the front and a smaller, trapezoidal plate (52 *a*, 75), which was on top of the shoulder and adjoined the upper row of plates in the back. The front consists of five rows of plates, of which the second and third from the bottom ran straight into the lowest and lowest but one row of the back. The lowest row in the front was thus like a skirt. The back consists of four rows of plates. Both arm-holes are bordered by ten semicircular ornamental plates, of which the largest is placed at the top, on the shoulder (opposite 52 *a* and 75, respectively) and which then successively decrease in size downwards at the front and back. Four plates on either side belong to the breast portion, and six plates to the back.

No. 23. Type IV. Pls. 113-116. Common grave 2. Regn.No. V: 4. Uncovered and measured up by P. Nörlund on 25th July, 1928.

SITUATION.—In the part of common grave 2 called No. V, which was disturbed during the excavations of 1912 and 1924, a small armour complex consisting of sixteen plates, lay superficially in square *Mpp*. With the exception of Nos. 14-16 they were all in their original position in relation to each other, and the three that had been disturbed also lay practically in their right place. Only No. 15 lay upside down, as is apparent from the placing of the rivets.

DESCRIPTION.—The reconstruction of the complex, therefore, does not present any difficulties. It consists of four rows of plates, row 1 (numbered from the bottom) with four (1-4), row 2 with three (5-7), row 3 with four (8-11) and row 4 with five (12-16) plates. The upper and lower edges of row 3 were overlapped by adjoining rows of plates, the lower edge of row 2 was overlapped by row 1, while from the placing of the rivets close to the upper or lower

edges, as the case might be, it is seen that respectively above or below rows 4 and 1 there was no further row of plates, at any rate not overlapping these edges. In placing the straight lower edges of the plates in row 4 in a horizontal line the upper, curved edges of these plates form a concave line which at once suggests the lower part of an arm-hole. A glance at the corresponding parts of armour 24 confirms the resemblance. Agreeing with this is the fact that the lower edge of row 1 forms a line running obliquely downwards, which, provided the assumption is correct, indicates that the lower edge on the lowest row, corresponding to the majority of other armour, terminated at the front in a point. Thus the plates 4, 7, 11 and 13 are in front, and 1, 5, 8, 14 at the back, or in other words, the complex of plates constitutes that portion of the armour which protected the side below the left arm. That such is really the case is confirmed by the length of the complex of plates

from the top downwards, which is normal for this position, and by the conformity in construction with armour 24, whose plates on an average are of the same length, but narrower. However, plate 4 in row 1 has, by way of exception, the same breadth as the plates in armour 24, and is in consequence provided, as they are, with only one pair of rivets. Otherwise the plates have (or had originally) two pairs of rivets, except for No. 7, which had three rivets¹; two of these are placed at the same height as the pair of rivets on the other two plates in the same row (5, 6), while the third has its place between these. Whether or not No. 7, like the others, had two pairs of rivets, one of each pair being lost, can no longer be decided. The presence of the third rivet is of greater importance, because it has its counterpart in armour 24 in the rivets which fasten the buckles to the second plate to the left of the opening. This extra rivet would thus indicate that the opening of the armour was close to the front edge of the preserved complex of plates. The shape and situation of plate 4 might be looked upon as a confirmation of this assumption. The differing, narrow shape of this plate is naturally explained if we assume that it bordered the opening; no other explanation of this circumstance at any rate is feasible. In that case plate 7 would be the second plate in its row from the edge of the opening, i.e. it would be in the correct position for a rivet intended to hold a buckle. If this is correct, plate 13 in the uppermost row should have had a corresponding rivet, and actually it shows traces which indicate that such a one existed, but had dropped out. That no traces of a corresponding rivet are to be found on plate 3 is explained by the fact that the skirt did not require a fastening; nor is the lowest row of the skirt in armour 24 provided with a buckle. If this conclusion as to the position of the opening is correct, it would have been at the front edge of the left arm-hole, a position which almost coincides with the

conditions in armour 22. The only—but certainly significant—difference in a comparison with that armour would be that the skirt there does not begin until the front edge of the opening, while the one in this armour divides the skirt into two unequally large parts. If we have thus been able to fix the position of the opening with a certain degree of probability, we must, on the other hand, state that the preserved fragment of the armour does not give us any clues for judging the construction across the shoulders. In this matter we are altogether confined to analogies with similar types of armour.

RECONSTRUCTION.—What we are able to know with certainty about the general appearance of the armour, is the fact that the front consisted of at least four rows of small plates, most of them with two pairs of rivets. The lowest row of plates is prolonged in the front into a blunt point. In the fourth row there is a rounded curve for the arm. All the plates overlap from back to front. The three upper rows certainly continued round the back. On the other hand it is uncertain if the lowest row, like armour 22, only formed a pendent skirt in front or if it also continued round the back, in which case the armour was nearer in type to armour 17. The fact that no example of such a construction is otherwise found amongst the armours, and that the point of the skirt in front here seems to have been considerably blunter than is the case in the armour of type III, forcibly contradicts such an assumption. Probably the lowest row had formed a kind of skirt in front. Both in front and on the back there has been at least one other row, probably two, above the preserved rows. Some facts indicate that the opening of the armour was on the left side of the front, in a line with the front edge of the left arm-hole.

¹ The number of rivets on No. 7 is uncertain, but was probably, four.

No. 24. Type V. Pls. 117–132. Common grave 2. Regn.No. Qy II. Uncovered and measured up by B. Thordeman and H. Olsson on 16th–24th September, 1929.

SITUATION.—This armour is, in type, quite unique among the finds. It was also especially interesting because it was very soon seen that there was a possibility of a reconstruction of uncommon reliability, thanks to the clear association of the parts and their excellent state of preservation. Its uncovering and recovery presented special difficulties, however. The situation in the grave was extremely inconvenient because it was directly beneath the wall of the shaft. The armour was accessible, therefore, only from one side, which greatly diminished the liberty of movement in the work.

The armour consisted, as shall be shown in detail, of a short, armless coat, open in front, where it was held together by several buckles. The reinforcing consisted of small, narrow plates, vertically attached in horizontal rows and fastened to the inside of the leather covering by means of, as a rule, two rivets on each plate. At the bottom, the front was longer than the back, the reinforcing being here lengthened by two rows of plates, which formed a kind of pendent skirt. Around the arm-holes it was ornamented with projecting, semicircular plates, similar to armour 22.

On uncovering, the iron reinforcing lay spread

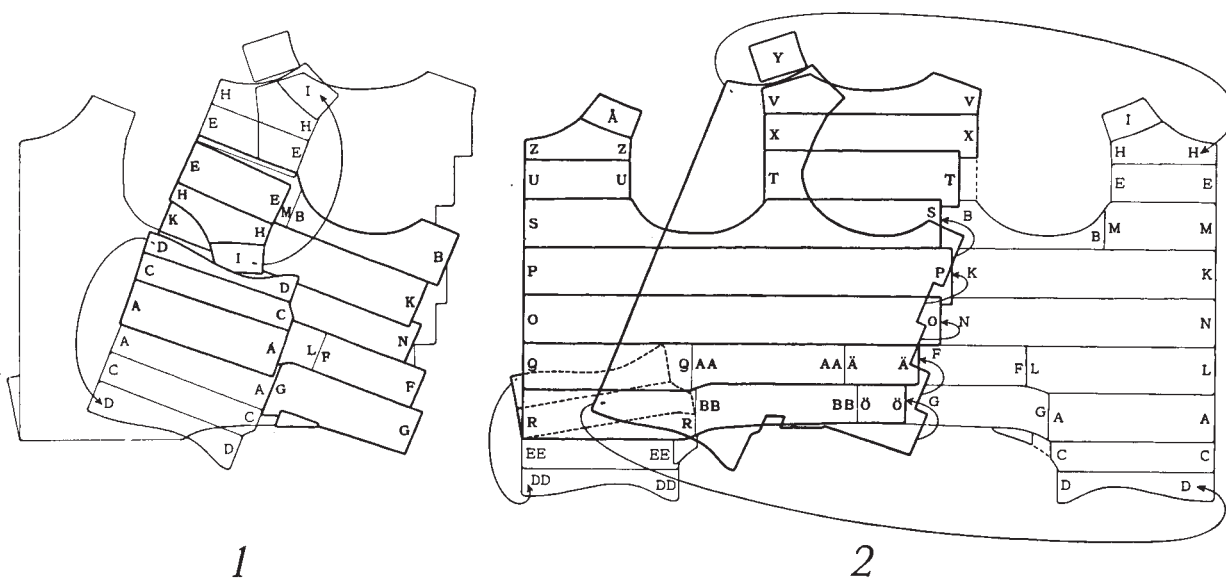


Fig. 384. Armour 24. Diagrammatic illustration of reconstruction.

out mainly on two levels, one above the other (pls. 121, 126). On top lay the left side and the left part of the front, with the outside upwards, i.e. the rivet-heads on top. When thrown into the grave the three uppermost and the three lowermost rows in front had turned over and lay folded over the central rows of the front, with the outside and rivet-heads downwards. As regards the third row from the bottom, which originally hung together with the lowest row of the side and back portions, this had turned over as a result of a fracture occurring at this point in the covering, a fracture which also parted the fourth row from the bottom, the front and side portion of which lay somewhat displaced from each other (fig. 384).

Below the left part of the armour lay the back, right side-portion and left part of the front on the same level, with the inside upwards, and the rivet-heads downwards. Exceptions to this were only the two lowest rows of the front, which, like the portion on the left side, had turned round and were now lying below the two nearest upper rows, with the outside and rivet-heads upwards. Here, too, there is a fracture between the third and fourth rows (numbered from the bottom) and their continuation towards the side, but in contrast to the condition on the left side, this break was probably caused only when the contents of the grave decayed and were dislocated. The lower edge of the right side rested, in fact, on a cranium wearing a mail coif (pls. 124, 125), which prevented the plates on this spot from spreading on the level and brought about a kind of dent with concomitant dislocation of the plates; the left coxa also pressed from above on this same point.

Between the two portions of plates—the left part on the top and the back and right part below—lay

remnants of a skeleton, very incomplete but sufficient to prove that the armour had been worn by its owner when thrown into the common grave. The skeletal parts lying inside the armour consisted of the spine with its right side turned down, the ribs, the clavicle and the scapula (pl. 123). Of the cranium there remained scarcely anything but the lower maxilla, which lay above the upper edge of the left part of the front (pl. 121), showing that the head, too, had been resting on the right side. The left arm lay extended forward in relation to the head. The right humerus protruded through the right arm-hole and lay pointing forward and downward below the iron reinforcing of the right side-portion of the front (pls. 124, 125). Below the lower edge lay parts of the pelvis in a rather dislocated condition (pl. 121); but it could be seen that the pelvis had been resting on the right side too. From the pelvis the femora stretched forward at right angles to the main direction of the spine.

DESCRIPTION.—After this general description of the position we shall pass on to a closer study of the composition of the armour.

The plates overlap throughout from the front edges backwards, i.e. the plates adjoining the opening in the front overlap the adjoining plate, and so on, until the plates from both sides meet approximately in the middle of the back, where they overlap both edges of a central plate which is generally a trifle broader than the others. The only exception to this is the two short top rows in front, *I* and *A*¹, where the

¹ The letters denoting the rows—as with the numbers of the plates—are the same as those registered on taking up, and therefore indicate the sequence in which the parts of the armour were recovered. This explains why most of the rows have several different denominations.

plates overlap in the opposite direction. The plates on the shoulders, *Y*, overlap from front to back. The rows, too, overlap in such a way that the lower rows overlap from the bottom upwards, and the upper ones, on the contrary, from the top downwards, and from both directions meet at row *N-O*, the upper and lower edges of which are thus overlapped by adjacent rows. This means that in riveting the rows on to the cover a beginning was made at the top, or respectively at the bottom, and moved towards the middle, and row *N-O* was consequently riveted last. Within every row a beginning was made at the edge of the opening in front and proceeded towards the back. The last plate riveted in the armour would thus—theoretically—have been the central plate of row *O* in the back, No. 221.

The width of the plates is—apart from the central plates in the back and the semicircular shoulder plates—throughout pretty much alike, varying from about 2.2–3 cm. The breadth of the central plates in the back is 3.6–4 cm., except in the case of No. 268 in row *P*, which is only 2.1–3.2 cm. broad, and also has a peculiar bottle shape, both deviations being difficult to explain. The length, again, varies considerably, in that it is adapted to the position of the different plates, wherever this was found necessary. Thus there are very short plates below the arm-holes and farthest down on the front. The smallest plates are those that had been inserted for strengthening purposes in the angle formed by the front skirt with the lower edge of the back. Apart from such specially shaped plates the average length for row *E* is 7.5 cm.; row *U*, 8 cm.; row *T*, 10 cm.; row *M-B-S*, 10 cm.; row *K-P*, 10 cm.; row *N-O*, 9 cm.; row *L* and *Q* 10 cm.; row *F-Ä-AA* 7.5 cm.; rows *A* and *R* 10 cm.; and rows *C* and *EE* 6.5 cm. The shape is, except where there is some special shaping, generally rectangular, usually with rounded corners. But as regards row *N-O*, the ends are fully rounded so that the form resembles an oval. The plates have as a rule been attached to the covering by two rivets. If the plate in its entire length rested directly on the covering the rivets are located in the corners; but if another row of plates projected between the plate and the covering, one of the rivets (or both in row *N-O*) was displaced towards the middle. The central plates of the back have their rivets along the central line of the plate. Plate 268 in row *P* differs, however, by having two rivets beside each other and one below, and plate 221 in row *N-O* has three rivets, one above the other. All plates next to the opening in the front were fastened with four rivets each. Plate 474 in group *Y* (on top of the right shoulder) has four rivets along the front edge and two near the rear-edge.

The number of plates in the different rows was as follows: row *Y* (on the right shoulder) three; the corresponding plates on the left shoulder are missing,

but there were also probably three; *I*, four; *Ä*, four; *H*, ten; *Z*, ten; *E*, nine; *U*, ten; *V*, eleven on each side of the central plate, or altogether twenty-three; *X*, the same as *V*, altogether twenty-three; *T*, eleven to the right of the central plate but only nine to the left; probably there had here been two plates next to the arm-hole which fell out when the armour was thrown into the burial pit, so that there had been twenty-three plates also in this row; *M-B-S*, ten on the left side of the breast, fifteen below the left arm, eleven to the left of the central plate in the back, eleven to the right, fifteen below the right arm, ten on the right side of the breast, or altogether seventy-three; *K-P*, thirty-six to the left of the central plate in the back, thirty-seven to the right, or altogether seventy-four; *N-O*, thirty-nine to the left of central plate in back, thirty-nine to the right, or altogether seventy-nine; *L-F-Ä-AA-Q*, eighteen longer ones, seventeen shorter ones to the left of the central plate in the back, fourteen shorter and seventeen longer ones to the right, or altogether sixty-seven; *A-G-Ö-BB-R*, seventeen longer ones and seventeen shorter ones to the left of the central plate in the back, sixteen shorter ones and sixteen longer ones to the right, or altogether sixty-seven; *C*, fifteen; *EE*, fifteen; *D*, fourteen; *DD*, fourteen. To these have to be added *CC*, five reinforcing plates in the angle between the skirt on the right part of the front and the bottom edge of the back. On the left side only four plates were picked up in a corresponding position, but the shape of these calls for another plate, so that here, too, there were certainly five small plates.¹ The total number of plates in the armour—irrespective of the semicircular ornamental plates around the arm-holes—is thus five hundred and fifty, including the six plates that were lost before the armour was cast down into the grave.

The semicircular plates around the arm-holes were best preserved on the right side, though it is clear that here, too, some of them are missing. They are nearly all slightly different in shape and in the placing of the rivets, so that their relative situation can be determined with considerable accuracy. Close to the front edge were found four plates in apparently correct sequence in relation to each other, viz. reckoned from the bottom No. 491, 490, 489 and 449. Of these, 491 is the smallest and 449 the largest, and they have two rivets located symmetrically, while 490 and 489 have both their rivets displaced downward, which shows that 491 and 449 had both sides free, while 489 had been overlapped by 449, and 490 had been overlapped by 489; No. 491 is furthermore, in contrast to the others, cut obliquely, which, as the reconstruction shows, corresponds to its position.

¹ We note that the situation of the armour in the soil, as has already been pointed out, makes it probable that just here a break had existed before it was thrown into the grave. It is not astonishing, therefore, that at this spot a plate has fallen off.

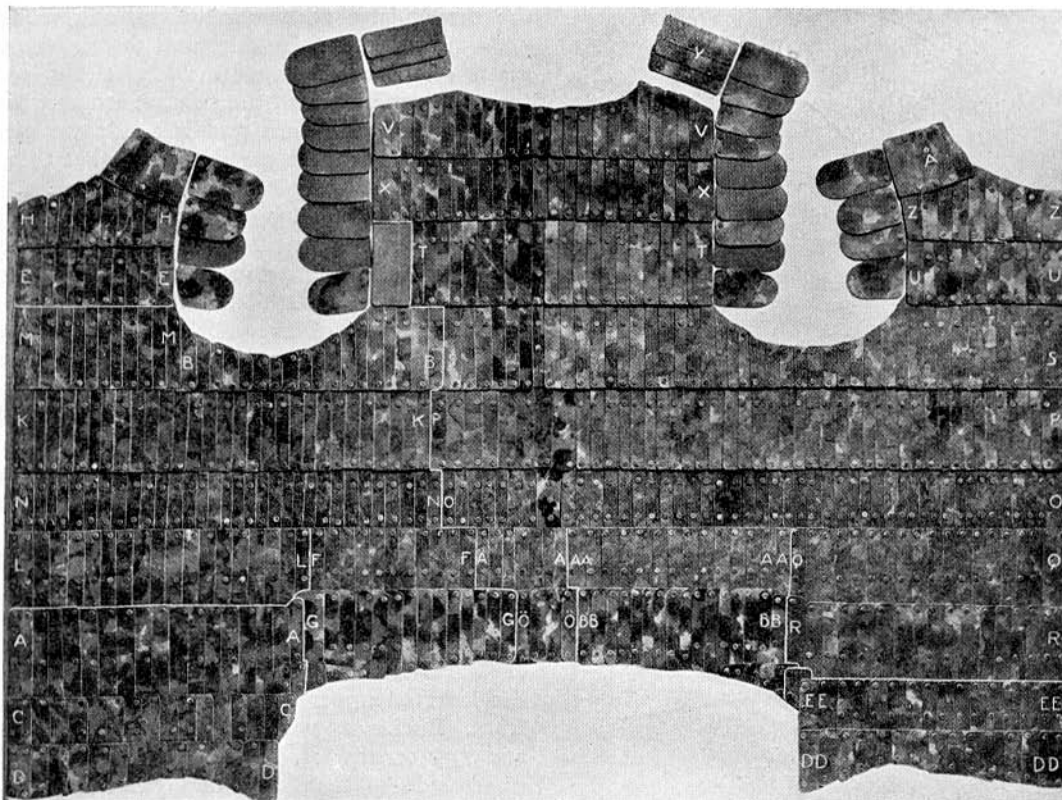


Fig. 385. Armour 24. Reconstruction in card-board spread out. In contradistinction to fig. 384:2 seen from the outside. Foldings and fractures indicated with white lines.

Transversely in relation to 489 and below this plate and with the straight edges adjoining group Y, lay three plates, viz. reckoned from the front, 537, 538 and 539. This position corresponds precisely to what we would expect in regard to the plates which had been lying on top of the shoulder, and that the group of plates had directly joined 449 is seen from 537 being the same size as the former, while the others diminish in length. It is impossible to decide whether 537 was overlapped by 449, since its nearest corner with the rivet is missing. But this was probably not the case in view of the circumstance that an opening existed between these two plates. It is certain that the rivets of the other plates were placed in such a way that 538 was overlapped by 537, and 539 by 538.

Near the back edge of the right arm-hole were found three more plates, viz. reckoned from above 448, 412 and 411. Of these, 448 lay quite near 539 and matches the latter in size, while 411 lay far down in the angle between the back and bottom edge of the arm-hole and was also the smallest. It is, therefore, probable that 448 had been next to 539, while 411 terminated the row of the semicircular plates. On all the three plates the rivets are displaced downwards,

for which reason the plates overlapped from the top downwards, and 448 thus was overlapped by 539. However, these three plates do not nearly fill the whole back edge of the arm-hole. To do so three similar plates are required, and it is probable that these existed originally but were lost before the armour was thrown into the grave.¹ The total number of semicircular plates surrounding the arm-hole would thus have been thirteen.

Of course, it may be assumed that the same number of plates also surrounded the left arm-hole. But here only four such plates were found. One of these, No. 1, lay with its inside upwards close to row T, i.e. in a corresponding spot in the left arm-hole as 411 in the right. As these plates also are alike in shape and size, it is clear that plate 1 had been located farthest down on the back edge of the left arm-hole.

Furthermore, there were three semicircular plates, 132, 139 and 140, below the turned-over, upper rows

¹ It is possible that the fragment of a broad plate, No. 413, which lay on top of 414 in row U, may have belonged to one of the now vanished plates, though it was very much out of its place. The condition of the fragment does not, however, permit of any safe conclusions in this respect.

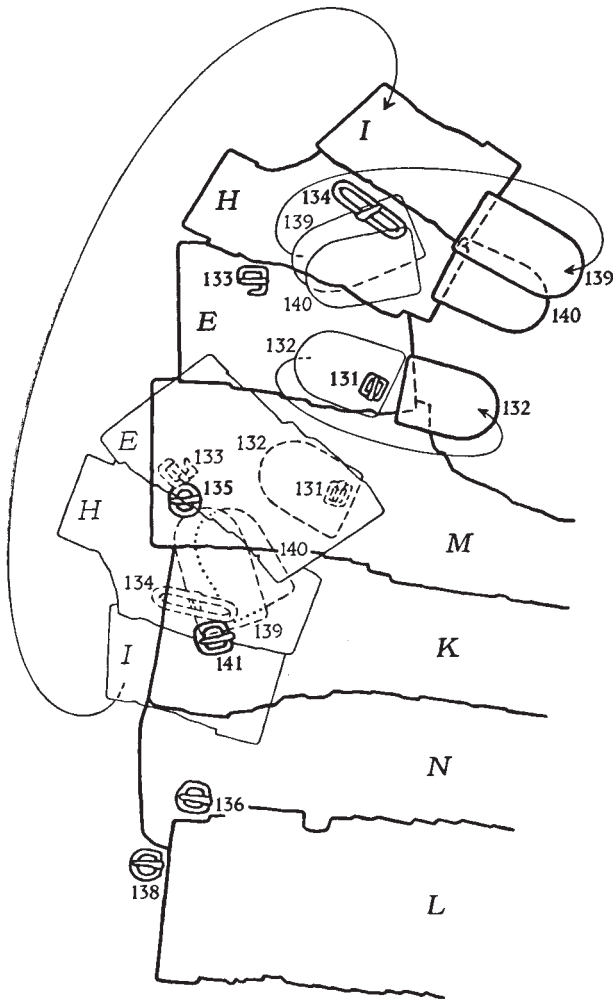


Fig. 386. Armour 24. Reconstruction of original position of buckles and semicircular plates of left front side. Scale 1:4.

on the left side of the breast, *I*, *H* and *E*. Fig. 386 shows how these three plates should accompany the rows *I*, *H* and *E*, in order to get into their proper place, when they are turned over in relation to the rows lying below. The semicircular plates will then lie on the others with their inside upwards, and in order to obtain the original position they should also be turned out with their straight edges as the axis of rotation. They will then with a slight correction be in a normal position close to the arm-hole, and 132 on the left side will then correspond to 491 on the right side, 140 to 489, and 139 to 449. The correctness of this placing is confirmed by the size, shape and the placing of rivets being similar in both groups of plates. Consequently, between 132 and 140 there had been another plate which is now missing, as also are

the three plates on the shoulders, corresponding to 537-539 of the right side, and the six semicircular plates of the back, except the lowest (No. 1). Thus from the conformity of the existing semicircular plates preserved on the right and left side we can prove what really might be assumed, viz. that these plates were arranged symmetrically on both sides.

There now remains only the study of the buckles of the armour, most of which were found along the left edge of the opening in the front. There were four buckles, 135, 141, 136 and 138, lying close to each one of the rows of plates, *M*, *K*, *N* and *L*, all with their tongues resting upon the top of the frame and with their points directed forward in relation to the main position of the skeleton, i.e. in the position one would expect if the buckles had been attached to the left side of the opening and held the armour together with the aid of straps fastened to the right side. Near 138 and 135 lay another two buckles, 137 and 133, with the points of their tongues directed in about the same direction as the others, but on the undersides of the frames. It is, therefore, probable that these buckles had been turned over, and their position is explained if we imagine them as having belonged to the inverted upper and lower rows of plates on the front. Buckle 133 will thus lie on row *E* (fig. 386) and 137 on row *A*, both with their tongues on the upper side of the frame and pointing in the same direction as the rest. It is seen from this that the armour was fastened together in front by means of six buckles, one at the side of each of the rows *E*, *M*, *K*, *N*, *L* and *A*. These buckles have been attached with extra rivets, of which only one, on plate 20 in row *A*, has been preserved. There are, however, traces of a corresponding rivet also on plate 172 in row *K*. The straps, too, which had been fastened from the opposite side by the buckles, were attached with extra rivets; such are preserved on rows *P* and *O*, on plates 309 and 264. If we may assume that the fastening device has been consistently arranged everywhere, the buckle must have been attached with a rivet to the second plate from the left outside edge, while the rivet for the strap was attached to the fourth plate from the right edge. From this we might conclude that it was intended that the left edge of the opening should overlap the right when the armour was fastened together. It is a striking fact that all these buckles are different, both in size and shape; this must be because the buckles had been torn off and lost on various occasions, and the owner had not been very particular to replace them by ones that matched. This indicates the significant fact that the armour was not new when used for the last time in 1361 but had been worn in battle several times before.

In the space between the rows *Q* and *AA*, which was probably caused when the contents of the grave decayed and became displaced (cf. before p. 387), a

buckle, 541, was found, which in size and appearance agrees fairly well with 133. As no function for this buckle can be discovered in the vicinity where it was found, it is possible that it belongs to the row of buckles in the front, and in that case it should be placed at the bottom, on row C. It must be admitted, however, that in that case it would have been very far from its original position.

Another four buckles, in like pairs, have belonged to the armour. One of these, 134, an elongated oval in shape, lay between the turned-over upper portion of the left front of the armour and row K, with the tongue pointing downwards and below the frame. This makes it clear that the buckle should belong to the turned-over portion and accompany it when turned back into its original position (fig. 386). Thus the original position of the buckle would be on row H, just below the upper edge of the row and parallel to it. The tongue will then lie on the upper side of the frame and point upward.

A similar buckle, 536, was found in a precisely similar position below the upper part of the right front. This lay below row A, near to and parallel to its lower edge, with the tongue below the frame and pointing upwards, i.e. if the armour is looked at from the outside, with the tongue on the upper side. The similarity in position of these two buckles indicates that in all probability they are in their original position. Nor are there any difficulties in explaining the function of two buckles in this position; they obviously held fast a strap coming from the shoulder. To make it easier to put on, the armour was certainly open on both shoulders in such a way that the shoulder portions were joined to the back but in front were fastened to the breast pieces by means of these two buckles. Thus the opening on the right side was between group Y and the semicircular plate 537 on the one side, and row A and the semicircular plate 449 on the other, and on the left side between the vanished counterpart of group Y and the likewise vanished, semicircular plate nearest the breast on one side and row I and the semicircular plate 139 on the other. This is confirmed on the right side by the rivets along the edge of plate 474 in group Y being nearest the breast, which shows that this edge needed special strengthening, and also because the overlapping semicircular plates change direction at this spot.

On plate 460, farthest to the left in the top row V of the back, there is an extra rivet which is unusually stout; on the right side no corresponding rivet can now be detected. It has either dropped off or the rivet on the left side is due to some repairs to the armour. Its function is indefinite, but it may have had something to do with the opening in the shoulder.

Below the turned-over upper portion of the left front there was another buckle, a small square one, 131, which like 134 lay with its tongue on the lower

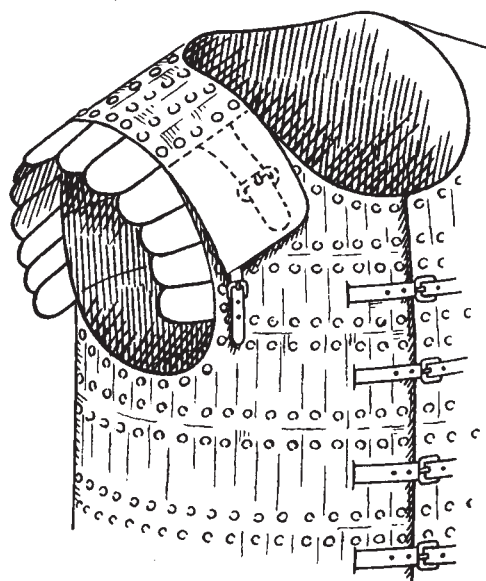


Fig. 387. Armour 24. Supposed reconstruction of shoulder opening.

side, and should consequently go with it when this portion is turned over. It will then lie on row E, very close to the arm-hole, with the tongue pointing upwards on the upper side of the frame. The buckle 415 was found on the right side having the same appearance and lying in an analogous position. It is not quite so easy to determine the function of these two buckles as for the previous ones. Perhaps it might be that there was not only a strap from the shoulder portion which attached it by the larger buckle to the front, but the cover also continued without reinforcing some distance over the breast, so that no gap should occur between the edges of the shoulder plates and the breast plates (fig. 387). In this way not only would the appearance of the armour be improved but also the construction would be strengthened if this continuation of the cover had been long enough to conceal the large buckle, so that both the latter and the connecting strap would be protected against violence. But this flap had to be attached in some way to the front, and this may have been done by means of the two buckles, 131 and 415. There was no need for them to be specially large and strong, for the weight of the armour and the strain caused by it did not rest upon them but upon the large buckles 134 and 536.

The covering of the armour was made of leather, which is clearly seen from the appearance of the coating on some of the plates. It is uncertain whether the covering concealed the semicircular plates altogether; but it is probable that it only overlapped their straight edges to enable them to be riveted to it, and that otherwise they were free, and showed the surface of

the metal. Had the covering concealed the entire plate it must have been glued to the metal, since no rivets are found except close to the straight edges. It is also uncertain if the bottom edge of the reinforcing followed that of the covering. The reason why the reinforcing in front extends lower down than at the back, must be so that the wearer could sit down more comfortably—perhaps this indicates that he was a cavalry-man—but this does not of course prevent the leather cover from continuing round the body to the same length as the bottom edge of the reinforcing in front. In this way the armour would undoubtedly have had a more attractive appearance; but it is confuted by the fact that the two skirt-like portions in front—both the right and the left ones—turned over when the armour was thrown in the grave, and came to lie upside-down, with the outside facing the outside of the superimposed rows of plates. This may indicate that the two lower rows in front were really free like a skirt. Otherwise the small reinforcing plates in the angles between the skirt and the back would scarcely have been necessary. It is, therefore, most probable that the cover more or less followed the outlines of the reinforcing.

RECONSTRUCTION.—The original appearance of the armour can from what is shown in the preceding investigation be summarized in the following way. It consisted of a sleeveless leather coat with an opening in the middle of the front; on the inside are riveted narrow, vertically arranged iron plates, which overlap like scales in horizontal rows, ten in the front and eight on the back. The coat was longer in the front than at the back, by the addition of two pendent skirt-like parts. The coat was fastened together at the opening in front by means of buckles, placed along the left edge, these buckles being six, or possibly seven, in number. On each shoulder there were three plates of approximately the same size as the others. Between these three plates and the front was an opening which was fastened together by the aid of a fairly large buckle, attached to the front. This opening and buckle may possibly have been concealed by a flap of the covering hanging down from the shoulder to the front, which was in its turn fastened down by a smaller buckle in front. Around the arm-holes the armour was ornamented with thirteen semicircular plates on each side, of which four belonged to the front and nine to the back and shoulder portion.

B. LAMELLAR ARMOUR.

No. 25. Type VI. Pls. 133–145. Common grave 2. Regn.No. *Quu* 5 (*Quu* 7). Uncovered and measured up by P. Nörlund and A. Karnups in July, 1939.

SITUATION.—The construction of this armour differs radically from the method of assembling which characterizes all the other armour found, that can be reconstructed. On the other hand, numerous major and minor fragments of such have been found in different places both in the course of earlier and later excavations (see p. 411). While in the armours previously described all the iron parts are free in relation to each other and are held together by each separate iron plate being fastened by rivets to a cloth or leather covering, generally on the inside of the latter, only in exceptional cases on the outside, the separate iron plates in this armour are fastened directly to each other. Each of the iron parts, of which the vast majority are of equal size and similar shape (cf. pl. 144)—length 9–9.5 cm., greatest breadth fully 2 cm., one longitudinal side straight, the other convex—is provided with seven small holes, four placed almost in the middle, in pairs close to each edge, and two at one end in the longitudinal axis, and one at the other end. There occur also a small number of broader lamellae of essentially two different types, (a) with both long-sides convex (pl. 144, Nos. 289 *b*, 261, 1 etc.), (b) with

one side convex and the other straight, like the lamellae of normal breadth (pl. 144, Nos. 281 *i*, 302, 194 etc.). These also show a different arrangement of the holes, of which more hereafter p. 401. Here and there are traces of leather thongs having been drawn through the lamellae, and from this it is apparent that they had been laced together with adjoining lamellae and rows of lamellae according to a method which will be dealt with more particularly later. There were also several rivets on each row of lamellae which had clearly fastened these rows to the inside of a covering. The rivets are generally placed just below the upper edge of the row of lamellae.

The armour was around the skeleton of a man who lay stretched out on his face (pl. 135). On his head he wore a mail coif. It was obvious that the armour had been open on both sides (pl. 136: 1). The back, which lay upwards, consisted of eight horizontal rows of lamellae, which were vertical and overlapped like scales. When the corpse was thrown into the grave the back of the armour had slipped up towards the back of the neck, and the rows of lamellae had become telescoped so that the lower part of the

trunk was left uncovered; thus the lower edge of the armour lay half-way up the back (pl. 135). Except for this the lamellae lay on the whole in correct order in their places. There were buckles on both sides showing that the back had been fastened to the front by means of straps. Over the shoulders on both sides near the topmost row lay several lamellae placed horizontally, which were also found in a corresponding position in front. From this it was seen that the breast and back had been held together and supported by bands of lamellae over the shoulders.

After the back of the armour and the skeleton had been removed, the breast portion was left with its inner side turned upwards (pls. 138, 139). Unfortunately, the lamellae were here in a considerably more fragmentary condition than on the other side and a large part of the left side had to be taken up as a whole in a cast of paraffin wax. A close study of the lamellae permits, however, a reconstruction here also of the original appearance. Over the breast, just below the shoulder bands, were three vertical rows of lamellae where the lamellae were fastened horizontally, similar to those on the shoulder bands but in contrast to what was the case in the rest of the armour. Below these three vertical rows, the armour was continued by six horizontal rows of the same kind as on the back.

All the rows overlapped from the bottom upwards. The different ways in which the separate lamellae overlap will be seen from the illustrations and detailed description which follows. The lamellae are everywhere placed in such a way that the end with the two holes is at the top, except in the bottom row of the back, where the opposite is the case. It is always the straight edge that is overlapped by an adjoining lamella. Near each shoulder was found a rather large, semicircular, domed shoulder plate (fig. 388).

DESCRIPTION.—We shall now pass on to a closer study of the different rows of lamellae, denoting these with letters as shown in pls. 142, 143, 145. The separate lamellae are numbered in sequence just as they were picked up. We shall deal with the armour in the order in which the rows of lamellae were taken up and begin, therefore, with the bottom row of the back.

The back. Row A. Farthest to the left lay seven lamellae (2, 3, 45-49), overlapping from right to left. These projected rather far beneath one another and under the lamella nearest to the right (1), for which reason the left edge of the row did not coincide with the lamella farthest to the left in the row above. Lamella No. 1, which belongs to the broader type of lamellae *a*, overlaps the adjacent lamellae both to the left and the right. Then to the right follow twenty-two lamellae (4-25) which overlap from left to right. Between 25 and 26 is a gap with room for seven to nine lamellae, after which the row continues with

another twelve lamellae (26-33, 36, 34+35¹, 37 *a*, 37 *b*).

Fragments of two lamellae (not numbered), one of them with traces of a bronze rivet, were found misplaced near lamella 37 *b*. It is possible that these fragments form the greater part of a lamella which had been lying outside 37 *b*, but it is also possible that they are parts of 37 *a* or *b*, which are not complete, or that they are parts of the lamella farthest to the right in row *B*. It is, therefore, safer not to reckon with them. The number of preserved lamellae in row *A* thus becomes forty-two. It is possible, even probable, that lamella 37 *b* belonged to the broader type *b*, like No. 91 in row *B*, which, as shall be shown later on, was located next above 37 *b*. If we may assume that the breadth of rows *A* and *B* were alike, which is extremely probable, the number of lost lamellae between Nos. 25 and 26 was eight, or nine if 37 *b* was of normal breadth.

Rivets have been noted on seven lamellae (2, 9, 13, 18, 28, 32, 37 *b*). Of these No. 13 is provided on its inside with the rectangular, horizontal washer of a rivet which also covers lamella 14. The rivet on No. 18 is also carried through lamella 19. The number of lamellae between the rivets is, therefore, three (twice), four (twice), six, and seventeen. If there were another two rivets here, which is quite possible since this portion contains the lost lamellae and several of the others are very fragmentary, the average number of lamellae between the rivets was five. The rivet farthest to the left is located on the seventh lamella from the outside, the one to the right on the first lamella.

Back. Row B. Farthest to the right lie five lamellae (135-139), which overlap from left to right. The lamella to the left of this series (44) overlaps the adjacent edges of the lamellae next to the right and left. It belonged to the broader type *a*. After this follow towards the left forty-four lamellae (38-43, 50-62², 64-71, 76 *a*, 76 *b*, 77-87, 88 *a*, 89-91) which overlap from right to left. The lamella farthest to the left (91) belongs to the broader type *b*. The total number of lamellae in this row is therefore fifty.

Rivets can be noticed on eight lamellae (44, 39, 53, 60, 67, 77, 84, 91). Of these No. 60 is riveted on the inside over the edge of 61. Besides this, there is a rivet on No. 138 which, contrary to the rule, is located half-way down the lamella; it is riveted also through No. 139. Probably a rivet placed in a corresponding way also existed on No. 90. These two rivets are placed on the outside but one lamellae to right and left respectively. The number of lamellae between the normally placed rivets is four (twice), five, and six

¹ Two fragments forming parts of one lamella disturbed from its position, the same as the part of No. 36 found to the right of these.

² No. 63 drops out; this number was noted on picking up, since the number of lamellae could not be precisely determined on account of rust and the coating of soil.

(four times). The rivet farthest to the left is on the outside lamella, the one on the opposite side on the sixth from the right.

On the lamella farthest to the left lay a horseshoe-shaped buckle (88 *b*); another of the same appearance (140) lay some little distance to the right of the outside lamella on the opposite side. It is probable that these two buckles had been attached to the lower rivets on the lamellae 90 and 138.

Back. Row C. On the extreme right lay two lamellae (134 *b*, 134 *c*) which overlap from left to right. The third lamella (134 *a*) belongs to the broader type *a*, and overlaps the adjacent edges of the two next on the right and left. Then follow to the left forty-six lamellae (134 *d*, 121-133, 92-101, 72-75, 102-119) which overlap from right to left. The total number of lamellae in this row is therefore forty-nine. The lamella farthest to the left (119) belongs to the broader type *b*.

Rivets have been noticed on eight lamellae, 134 *c* (not certain), 133 (also riveted through 132), 125, 100, 94, 75 (whose rivet-head overlaps 74), 108 and 113. The number of lamellae between the rivets is three and four (once each), five (three times), six (twice) and seven. The rivet on the extreme right is on the outside lamella, the one farthest to the left on the seventh from the left. Furthermore, lamellae 116 and 117 seem to be held together by a bronze rivet, which, however, has no head. It is placed slightly below the centre and its function is unknown.

Back. Row D. All the lamellae (142-166, 167 *a*, 167 *b*, 168-183) overlap from right to left. The lamella farthest to the left (183) belongs to the broader type *b*. The total number of lamellae in this row is forty-three.

Rivets placed near the upper edge have been noticed on seven lamellae: 148 (the head projecting over 147), 153, 158 (the head also projecting over 157), 164, 170, 176 and 183. The number of lamellae between the rivets is four (twice), five (twice) and six (twice). The outermost rivets are located to the right on the seventh and to the left on the first lamella, reckoned from the outside. There are, moreover, two rivets placed lower down on the lamella farthest to the left (183) and the third lamella from the right 144 (it also passes through 143). Near each end of the row lies a horseshoe-shaped buckle (141, 120). These were certainly attached to the two last-mentioned rivets, this being especially evident with respect to 141.

Back. Row E. All the lamellae (203-226, 184-193) overlap from right to left. The total number of lamellae in this row is thirty-four.¹ The lamella farthest to the left (184) belongs to the broader type *b*.

¹ Nos. 203 and 204, which are very fragmentary, may possibly form parts of the same lamella, in which case the number will be thirty three. But this is improbable because the distance between adjacent lamellae is so great that it indicates that two lamellae belonged there.

In this row six rivets have been noticed, viz. on the lamellae 184, 189 (the rivet-head also partly covers 190), 203, 210 (the rivet-head projects over 211), 216 and 222. The number of lamellae between the rivets is four (twice), five (twice) and six (once). The rivet farthest to the left is located on the outside lamella, the one at the opposite end on the fifth lamella from the right.

Back. Row F. This row is composed altogether of twenty-nine lamellae, of which the fourteen on the left (194-202, 244-246, 227, 228) overlap from right to left, while the fourteen on the right (230-243) overlap from left to right. The central plate (229) thus overlaps the adjacent edges of the next lamellae. This plate belongs to the broader type *a*. The two outside lamellae (194, 243), again, belong to type *b*.

In this row five rivets occur (on lamellae 194, 202, 229, 234, 243). The number of lamellae between the rivets is four, five, seven and eight.

Back. Row G. This row is similar to the preceding one. The number of lamellae is the same, twenty-nine. In the middle lies lamella 261, to the right 262-275, to the left 247-260, of which 261 belongs to type *a* and 247 and 275 to type *b*.

The arrangement of the rivets, too, (on lamellae 247, 253, 261, 270, 275), and the number of lamellae between these corresponds to row *F*, with the exception that the rivets located between the outside lamellae and the central lamella, are somewhat displaced laterally.

Back. Row H. This row, too, agrees in the arrangement of the lamellae with the two preceding ones. Their number is thus still twenty-nine. In the centre lies No. 289 *b*; to the right, 289 *c*, 290-302; to the left, 281 *a-i*, 285-288, 289 *a*, of which 289 *b* is of type *a* and 281 *i* and 302 of type *b*.

In this row four rivets have been noticed, one on the central lamella (289 *b*), one on the third lamella to the left of the former (287), one on the fifth lamella to the right of the same (293) and one on the lamella farthest to the left (281 *i*). The last-mentioned rivet is joined to the lamella located above in row *I* (277 *a*), and the rivet-head is thus on the outside of this lamella. On the inside of lamella 281 *i* the shank is clinched to an irregular, rather large washer. The upper part of the lamella farthest to the right (302) is lost, and it is therefore possible that there was a rivet there also, in which case the number and arrangement of the rivets would resemble that of the two preceding rows. Assuming this, the number of lamellae between the rivets is two, four, eight and ten.

Left shoulder-strap. Row I. With the back were taken up five, or possibly six, lamellae (277 *b*, 277 *a*, 278-280, possibly 282+311), which by their situation and their horizontal placing (in contrast to the otherwise uniformly vertical lamellae of the back) clearly prove to be the part of the strap or band nearest

the back, which united the back and front over the left shoulder (we will call these lamellae group *a*). These join row *H* of the back in such a way that their left-edges approximately coincide with the left outside edge of row *H*. The three lowest lamellae of the shoulder-strap (277 *b*, 277 *a*, 278) lie on top of the left-hand lamellae in row *H* and the central one of these (277 *a*) is attached to the lamella farthest to the left (281 *i*) in row *H* by means of a rivet, which passes through both and is located near the outer left edge of 277 *a*. The lowest lamella (277 *b*) of the shoulder-strap is also provided with a rivet which is here placed near the right edge. It cannot now be determined whether it passed through the lamella (281 *c*) lying below in row *H*, but it is probable that this was the case. The uppermost lamella (280) of group *a* had two rivets, one to the right (283) and one in the centre. To judge from a fragment associated with the latter rivet, it is probable that above 280 there was another lamella (282). In that case a fragment of a lamella (311) found separately somewhat further down close to the mail coil is probably a part of the same. The lamellae in group *a* overlapped from the top downwards, i.e. from the breast to the back.

On being thrown into the grave the shoulder-strap had clearly broken into two pieces above 280 (or 282) and the remainder of it was picked up in conjunction with the breast portion. Unfortunately, the state of preservation of the lamellae and their position was considerably worse here than on the back, but the main features of the reconstruction can nevertheless be laid down. The lamellae belonging to the shoulder-strap lay in three groups; *b*) four (441-444), which overlapped from the bottom upwards (from the excavators view); *c*) four (460-463)¹ whose topmost lamella (460) slightly overlapped the lowest in group *b* (444); these lamellae overlapped from the top downwards²; *d*) three (457 *f*, 457 *g*, 457 *h*, supplemented with fragments from group *c*). These three lamellae were all fastened with a rivet near the right edge to the outside of the front lamellae No. 457 *a* and *b*, the rivet in question thus passing through five lamellae. There half the lamella 317 was also found lying loose on top of this group; it may have belonged to the shoulder-strap or to one of the rows which cover the breast; or it may have constituted the remainder of a fragmentary lamella which has been recorded elsewhere—we shall, therefore, not reckon with it. In group

¹ No. 464 drops out (part of another lamella).

² It should here be remembered that pls. 141 and 143 show the front of the armour seen from within in contrast to pl. 145, which show the outside of the armour. The lamellae overlap thus here from the top downward though in pl. 145 it looks the other way round. Furthermore, on pls. 141 and 143 the rivet-heads placed on the outside cannot be seen, but only the washers on which they in most cases are clinched at the inside. Right and left is here always understood as from the excavator's view, and agrees thus with pls. 141 and 143 but not with pl. 145.

c No. 461 had a rivet near the right edge; it was provided with a square washer on the top, from the excavator's view, i.e. on the side that was turned inwards when the armour was worn. In group *b* there were two rivets near the middle of 442 and 444; the latter was provided with a square washer on the under-side (from the excavator's view) and the former with a round rivet-head on the upper side. This, together with the previously mentioned fact of the lamellae in groups *b* and *c* overlapping in the opposite direction, shows that group *b* must be turned over so as to get it into its proper position in relation to *c*. This is also confirmed by the end with two holes lying to the left in group *b*, in contrast to the other lamellae in row *I*, where this can be observed. The lamellae in group *b* and *c* thus originally overlapped from the bottom upwards as seen from the outside when the armour was worn, i.e. from the breast to the back, precisely the same as in group *a*.

The sequence of the lamellae on the left shoulder-strap would, starting from the back, probably be: 277 *b*, 277 *a* (riveted to the back), 278, 279, 280, 282, 441, 442, 443, 444, 460, 461, 462, 463, 457 *f*, 457 *h*, 457 *g* (the three last-mentioned riveted to the breast). The whole number of lamellae would thus have been seventeen.

Between the groups *a* and *b* a horseshoe-shaped iron buckle (310) was found. This shows that the shoulder-strap was divided into two parts which were fastened together by the buckle. It is quite natural to assume that the opening was between the groups *a* and *b*, i.e. between the lamellae 280 (or 282) and 441, and this agrees with the fact that there had been rivets in the centre of the lamellae on either side of this opening for attaching the buckle and the end of the strap. Curiously enough, it results then in six lamellae having been located on the back and eleven on the breast on either side of the buckle. One might have expected the shoulder-strap to have been divided into two equal parts. But the normal explanation is that the top row of lamellae in the back reached higher up the neck than in front, so that the number of shoulder lamellae had to be fewer on the back to make the buckle come in the middle of the shoulder.

All the lamellae belonging to the left shoulder-strap are turned in such a way that the end with two holes lies to the right, i.e. towards the neck.

Near this side lay on edge, leaning against the cranium, a rather large semicircular plate (312), slightly domed and provided with two holes near the straight edge. This was clearly a shoulder plate which had been fastened to the shoulder-band by means of the two holes (fig. 388).

Right shoulder-strap. Row K. With the right side of row *H* of the back two lamellae (303, 304), situated symmetrically in relation to the lowest lamellae of the left shoulder-strap, were picked up. We denote

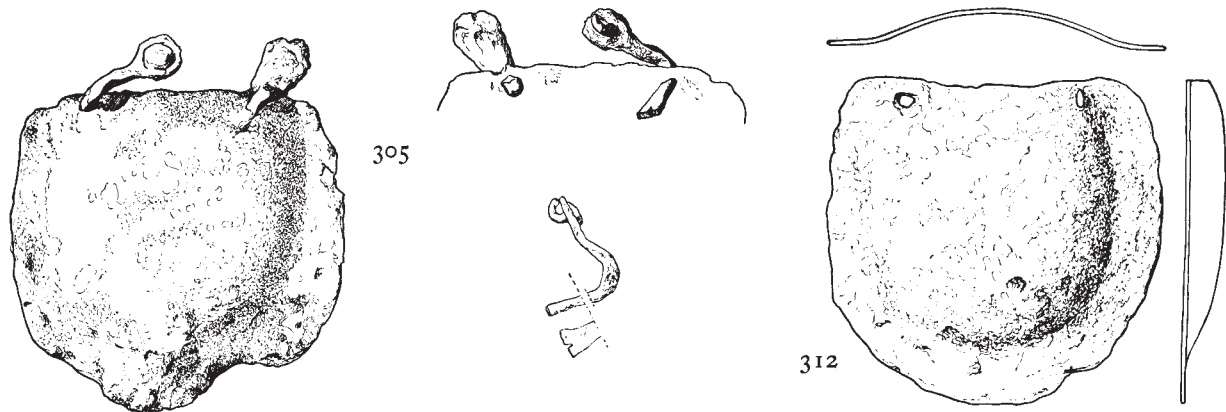


Fig. 388. Armour 25. Shoulder plates. Scale 1:3.

these as group *a*. No rivets are preserved on them, but the lowest, (303), has a rather large hole on the left side, which looks as if it had been pierced.

The lamellae taken up with the front, and belonging to the right shoulder-strap, lay in still greater confusion than those on the left side. In a position corresponding approximately to group *b* of the left side lay five lamellae (group *b*: 306-308, 309 *a*, 309 *b*). The lowest of these (309 *b*) had a rivet on the left side whose square washer was turned upwards (from the excavators view). In contrast to group *I*:*b* the lamellae in group *K*:*b* overlapped from the top downwards.

Alongside lay an iron hinge-fitting (*c*) consisting of two iron bands doubled over (314 *a*). The central portion of one is narrower and forms a semicircle which fitted into a groove in the central portion of the other. Between the two is inserted an iron pin of the same length as the width of the band, around which the iron hinge is articulated. One side is provided with two rivets and covers the remains of three lamellae (314 *b*, *c*, *d*) which overlap each other like scales. The other is fragmentary and has one rivet, but probably was originally just as long as the other, and had two rivets likewise. If the three lamellae 314 *b-d* are reconstructed *in situ* they will lie at right angles to group *B* towards the neck.

Parallel and close to these, nearer the neck, lay three fragmentary lamellae (group *d*: 313 *a-c*). The best preserved of them (313 *b*) had about two-thirds of its length left, which shows that these hardly form the continuation of the fragments 314 *b-d* but are remainders of the lamellae which had been lying close to the latter.

Parallel to group *b* but separated from it by the groups *c* and *d* and in direct contact with the upper lamellae of the breast on the right side, lay two lamellae (group *e*: 316 *a*, *b*), and at right angles to these and on top of group *c* and the shoulder plate 305 lay a lamella (group *f*: 315) of the broader type *b*.

It is clear that the lamellae of the right shoulder-strap were found in a distorted position, but their sequence can, nevertheless, be deduced with some probability. Of course it is certain that next to the back comes group *a*, which lies in position in relation to row *H* of the back; then follows group *b*, which had probably been covered by the damaged part of the hinge 314. That the shoulder-strap broke between the groups *a* and *b*, is, of course, explained by the fact that the side of the hinge held together the lamellae in the middle of the shoulder more strongly than the straps which united them. The number of lamellae between the hinge and the back would thus be seven, which in fact corresponds pretty nearly to the six lamellae of the shoulder-strap on the left side which were between the buckle and the back. Then follow on the breast the three lamellae in group *c*, which are covered by the unbroken side of the hinge; then the three lamellae in group *d* lying next to these, and finally groups *e* and *f*. The number of lamellae on the forward side of the hinge thus becomes nine, corresponding to eleven placed in opposite positions on the left shoulder-strap. It should, however, be noted that the one located next to the breast on the right side, is broader than the others.

The relative sequence of the lamellae in the right shoulder-strap, reckoned from the back, would thus be: 303, 304, 306, 307, 308, 309 *a*, 309 *b*, (the hinge 314 *a*), 314 *b*, 314 *c*, 314 *d*, 313 *a*, 313 *b*, 313 *c*, 316 *a*, 316 *b*, 315. The total number of lamellae is then sixteen, of which one is broader, i.e. the length of the band or strap becomes exactly like that of the left shoulder-strap, which consisted of seventeen lamellae of normal breadth. How the shoulder-strap was attached to the breast and back, is not immediately obvious, but, like the other, it was probably riveted, though its fragmentary state does not permit of a safe decision in this matter. All lamellae whose position is undisturbed show that they had overlapped from breast to back, as had also been the case on the other

side. Also, like the latter side, the lamellae are placed in such a way that the side provided with two holes lies nearest the neck.

On top of the hinge 314 lay a shoulder plate (305) of the same appearance as No. 312, with its concave side upwards and the corner of the straight edge next to the groups *b* and *e*, i.e. in a perfectly correct position in relation to these two groups and the main direction of the right shoulder-band. In the two holes near the straight edge there are two clamps with narrow, bent shanks and flattened ends (one half broken off, the other somewhat fragmentary); in one of these clamps is a rivet or nail with bent shank. These two clamps were certainly fastened to the shoulder-straps on either side of the hinge, and held the plate in this way. On its lower edge the shield is somewhat dented and fragmentary, which might indicate that the armour was damaged in the right shoulder during the battle and which might explain the disturbed position of the lamellae on that side (fig. 388).

The Front. Row L. The top part of the front, which, after the back and the skeleton had been taken up, lay with its inside upwards, was, of the whole armour, the part which was in the poorest state of preservation. The lamellae lay rusted together in lumps, and it was possible only in exceptional cases to distinguish on the spot the number of lamellae in each lump of rust (pl. 139). These were taken up whole and given a joint number, and it was not until the work of preparation at the museum that the number and mutual association of the lamellae was fixed. During this work the different lamellae were given letters, in addition to the numbers given to the groups of lamellae in the course of the excavations. It was then found that different parts of the same lamella often formed part of different groups, and for this reason the same lamella often received two numbers.

Even during the excavations it could be seen that the lamellae which had protected the breast, in contrast to all others, were placed horizontally and formed three vertical rows. In the right row in sequence were fourteen lamellae (from the top: 447 *a*, 447 *b*, 448, 449, 450+438 *a*, 439 *a*+438 *b*, 439 *b*+438 *c*, 439 *c*+438 *d*, 439 *d*+437 *a*, 328+437 *b*, 327+437 *c*, 326+329, 325, 324), which overlapped from the bottom upwards, although 447 *b* lies below 448, from the excavator's view; this might be explained as a later displacement. Of 447 *a* only trifling fragments remain, rusted fast to 447 *b*, yet sufficiently clear to enable us to decide that there had been a lamella above 447 *b*. To the left of this lay a bit of a lamella, 452 *d*, which may have formed a part of 447 *a*, though it cannot be proved that it fits the small fragment. Lamella 452 *d* has a rivet near the left end with the head on the outside. Traces of a rivet at the right end of lamella 452 *a* in row *M* correspond to this.

Very likely the two uppermost lamellae in rows *L* and *M* had been riveted to each other. At the left end there are also rivets on the lamellae 439 *c* and 325. The former is riveted to lamellae 440 *a* and *b* in row *M*. As an exception the rivet-head of 325 is on the inside of the armour. At the right end there are rivets on lamellae 449 and 437 *b*, both provided with square washers on the inside. The rivet on 449 bears traces of bronze, but it cannot be determined if the bronze comes from the shank of the rivet or if it is due to something else. This rivet corresponds in position to the rivet on 457 *a* in row *N*; it is probable that the same, analogous to the latter, had been riveted to the right shoulder-strap, very likely to No. 315, and had thus held together rows *K* and *L*. The lamellae are placed so that the end which is provided with two holes faces to the left.

Front. Row M. In this row twelve lamellae can be distinguished (from the top: 455 *a*+452 *a*, 455 *b*+452 *b*, 455 *c*+452 *c*, 454 *a*+451 *a*, 454 *b*+451 *b*, 451 *c*+440 *c*, 451 *d*+440 *b*, 440 *a*, 323 *b*, 323 *a*, 322, 321) which overlap from the top downwards, i.e. in the opposite order to row *L*. The lamellae are also completely reversed so that the end provided with two holes is turned to the right. As 321 (of type *b*) is so much broader than the others (3.8 cm.) that it is equivalent to three lamellae of normal size, the length of this row corresponds to row *L*. Row *M* overlapped row *L*, from the excavator's view, and the two rows had been riveted to one another by means of one or perhaps two rivets, which passed through 452 *a* and 440 *a* and *b*.¹ There had been at least another two rivets in this row, located approximately in the centre of the lamellae, one on 455 *b* and one on 323 *a*; both are provided on their insides with square washers, the latter also passing through 323 *b*, on the outside of which is located the round rivet-head.

Front. Row N. To this row may be consigned fifteen lamellae, of which thirteen (from the top: 457 *d*+453 *b*, 457 *c*+453 *a*+456 *d*, 457 *b*+456 *c*, 457 *a*+456 *b*, 459 *c*+456 *a*, 459 *a*+458 *d*, 459 *b*+458 *c*, 458 *b*, 445 *d*+?458 *a*, 445 *c*+446 *b*, 445 *b*+446 *a*, 445 *a*, 319+318) overlap from the top downwards, i.e. in the same way as row *M*. Unlike that row they are, however, turned in such a way that the end which is provided with two holes is to the left. We shall revert to the two remaining ones (457 *e*+456 *e*, 456 *f*) later. The lowest lamella (of type *b*) is so much broader than the others (3.2 cm.) that it is equivalent to two lamellae of normal breadth, and the length of this row thus corresponds to the rows *L* and *M*. The sequence of the lamellae can be followed everywhere, except in two places, namely between groups 458 and 445 and between groups 445 and 318+319. The bottom lamella in group 458 (458 *a*),

¹ Mention of these rivets has already been made in connection with row *L*.

like the top one in group 445 (445 *d*), consists only of trifling fragments which are rusted fast to adjoining lamellae above and beneath, as the case may be. Though they do not fit together, it has here been assumed that they form part of the same lamella, which is probable because the number of lamellae in the row by this means becomes such that the length of the row agrees with that of *L* and *M*. The lowest lamella in group 445 (445 *a*) consists of only a tiny fragment. That this could not be a part of 318+319 is, however, obvious because the central portions of both, containing the two pairs of holes, are preserved.

The lamella 457 *e*+456 *e* was clinched on the inside, i.e. the side that was turned upwards on uncovering, near the upper edge of the row. On its left side it was provided with a rivet that also passed through lamella 457 *c*, and on the right side with another rivet fastened to 453 *a* and *b*, the round heads of both these rivets being, as an exception, turned inwards, i.e. from the excavator's view, upwards. This lamella was also pierced by a third rivet located about the centre of the lamella; it was provided with a square washer on the inside and passed through the lamellae 457 *b* and *c* and 456 *f*, a fragment of a lamella, which like a washer was inserted between the round rivet-head and the row of lamellae. It is quite possible that it was already fragmentary, when it was put into position as some kind of reinforcing, but more likely it served some special purpose. It is clear that it is the left end of the lamella which is fastened to the rivet; it would thus have been able to reach right along to the rivet located on a level with it in row *M* (lamella 455 *b*) and to be attached there. Its purpose would then have been to fasten rows *M* and *N* together, and the reason why this has not been done here directly by means of a joint rivet in the edge, as is the case in the fastening of the rows *L* and *M*, is clear enough: it was impossible to put another rivet in the upper right-hand corner of row *N* where the rivet which fastened 456 *e* was already located. An attempt to explain the peculiar placing of the lamella 456 *e* will be made in the summary of the reconstruction of the armour.

No other rivets that held together the rows *M* and *N* are visible, but this may be due to the extremely fragmentary condition of the armour at this point. Probability is strongly in favour of such rivets having existed, and a large hole to the right of lamella 318 is perhaps a trace of such a rivet.

On lamella 457 *a*, near the left edge, there is a rivet which also passes through 457 *b*, as well as through 457 *f*-*h* in row *I*. This rivet has thus held together rows *I* and *N*. Finally, there is farther down, in the centre of lamella 446 *b*, a rivet with a square washer on the inside and a round rivet-head on the outside.

Front. Row O. The entire left part of the front below the vertical rows was, on account of the moisture

of the soil and the rusty condition of the lamellae, in such a state that the lamellae there could not be taken up separately, but had to be lifted as a whole in a paraffin wax casting. At the museum the preparation and examination of the separate parts could then proceed without any difficulty. The lamellae in this portion were numbered 465-539.

The uppermost horizontal row was composed of three groups of lamellae which overlapped in such a way that the two outside ones overlapped from left to right and the central ones from right to left, from the wearer's view. They were riveted together at the two joints. The left group (*a*) consisted of thirteen lamellae (from the right: 521 *a*, 522-533), the central one (*b*) likewise of thirteen (from left: 521 *b*, 330, 331+320, 332-336, 338-342), and the right one (*c*) of nine (from the left: 343 *b*, 343 *a*, 344, 345, 348-352). The total number of lamellae in row *O* was thus thirty five. At the joints the groups overlapped for the purpose of riveting, clearly because the three groups were first riveted together and then riveted to the cover. Some of the rivets which held together the groups also have their heads placed on the inside, in contrast to what is generally the case; from this it is obvious that the riveting must have been done before putting on the cover.

Lamella 521 *b* in group *b* overlaps lamella 521 *a* and 522 in group *a* and has been fastened to the latter by at least two rivets; one at the top with the head on the inside, which passes through 521 *a* and *b*, one in the middle which passes through 522 and 521 *b* and has its head on the outside. A third rivet at the bottom on 521 *a*, with its head on the inside, very likely also passed through 521 *b*, though this cannot now be proved on account of the fragmentary condition of the latter lamella.

Lamellae 343 *a* and *b* in group *c* overlap lamellae 341 and 342 in group *b*. The groups were fastened together with two rivets with their heads on the inside, one at the top and one at the bottom, and these are passed through the lamellae 342 and 343 *a* and *b*; the lower one of these is provided on the outside with a square washer. Also in the middle of 342 there is a rivet with the head on the inside; but, strangely enough, this does not seem to pass through any one of the lamellae in group *c* and its function is therefore enigmatical.

There are some more rivets on row *O*; in group *a* one in the middle of 525, which also passes through 524 and has its head on the inside of the latter lamella, and one that passes through the top of 522 and 523 with the rivet-head on the outside; in group *b* one at the top of 340 which also passes through 341 and has the rivet-head on the outside; in group *c* one at the top through 352 and 351, with the head on the outside of the latter. Probably there were several more rivets, at any rate one symmetrical to the last at the

extreme outside of group *a*; the upper parts of the lamellae are broken there. This is confirmed by fragments of some lamellae (534-539) lying on top, i.e. on the inside of lamellae 523-526, clearly in a confused position. They cannot now be placed with certainty but may be parts of the near-by fragmentary lamellae in row *O* (531-533, 528-529, 330, 332-333) or *N* (445, 318). Two of these lamellae were provided with rivets.

Two lamellae in row *O*, the innermost ones respectively in group *a* and *c* (521 *a*, 343 *b*), had, though they were of normal size, more holes than the rest. Lamella 521 *a* had two holes at its lower end instead of one, and at the curved edge one hole between that one and the pair of holes in the middle. Lamella 343 *b* had at least one hole between the upper end and the middle, near one edge, and two at the other end. This indicates that these two lamellae had originally been placed at the outside of a row of lamellae.

Front. Row P. All the lamellae in this row (520-514, 513+337 *a*, 337 *b*, 353-366, 368-374) overlap from right to left. Nos. 513 and 337 *a* consist of small fragments which certainly do not fit together, but which are assumed to be parts of the same lamella. There is a gap between 366 and 368, which probably should be filled by two fragments (360+364 *a*, *b*) that had got out of position and were picked up together with group 360-364. With this assumption the number of lamellae in this row becomes thirty-two. The reason why the number of lamellae in this row is fewer, instead, as one would have expected, greater, than in row *O*, is, of course, that the groups of lamellae of row *O* overlapped at their two joints just enough for the breadth of three lamellae to be eliminated. If row *P* were to be the same breadth as row *O*, it must have three lamellae fewer than the former, which in fact may be the case.

In this row four rivets can be observed, all with their heads on the outside and placed in the upper part of the row of lamellae, viz. on lamellae 513 (also through 514) 363, 371 and 373 (also through 372); the last two are clinched on the inside to a washer, common to both and consisting of a broken lamella, placed horizontally. Probably there were originally at least another two rivets here, one on one of the outermost lamellae to the left and one somewhere in the middle, between 513 and 363.

Front. Row Q. All the lamellae in this row (512-504, 503+442 *a*, 441 *a*-439 *a*, 438 *a* 1, 438 *a* 2+397, 396-394, 393 *a*, 393 *b*, 389-386, 367+375, 376-385) overlap, like the preceding ones, from right to left. The number of lamellae in the row is thirty-five.¹

In this row eight rivets are noticed, all with their heads on the outside, of which two are placed half-way

¹ It is possible, but difficult to maintain for certain, that 512 belongs to the broader type *b*.

down the lamellae and the others near the upper end. The two first-mentioned are near the two outer edges, one on lamella 510 and passing also through 511 (and 512?), the other on 384 and passing also through 383. Both are provided with square washers on the inside. The remaining six rivets are on lamellae 508, 503, 396, 387, 379 and 385, of which only the last-mentioned has a square washer on the inside. The number of lamellae between the rivets placed on top is four, five or six. Of these, the rivet farthest to the right is on the outermost lamella, and the rivet farthest to the left on the fifth from the outside; possibly at this end there had also been a rivet at the top on the outermost lamella.

Front. Row R. All the lamellae (502-489, 488+436 *d*, 437 *a*+436 *c*, 436 *b*, 436 *a*, 406-402, 389 *a*+427 *a*, 392 *a* 2+427 *b*, 392 *a* 1, 391 *a*, 392-390, 418-416, 391 *b*, 392 *b*, 393, 394 *a*-397 *a*, 398) overlap, like the preceding rows, from right to left. The total number of lamellae in the row is forty-one. Of these, No. 398, i.e. the outermost lamella to the right, differs from the others, not only in breadth (4.3 cm.), which in fact has been noted several times above, but also in length (10 cm.), which has not been found before. The metal, too, seems to be different and coarser than in the other lamellae. No holes can be seen on this lamella.

Near the upper edge of this row six rivets can be observed, all with their heads on the outside; on Nos. 501 (passes also through 502), 497, 492, 392 *a* 1 (with square washer on the inside) and two on 398, one of which also passes through and holds 397 *a*. To judge from the great gap between the rivet on 392 *a* 1 and the nearest rivets on either side, there had probably existed originally another rivet on each side. Somewhat below the middle of No. 501 there is another rivet with a bronze head on the outside and passing through 502; it secures an iron loop, formed from a clamp which grips the lamella on both sides (fig. 389: 1). At the bottom of lamella 397 *a* is a rivet with its head on the inside, which is clinched on the outside of 398.

Front. Row S. The number of lamellae, as in the preceding row, is forty-one (487-475, 474+436 *i*, 436 *h*, 436 *g*, 436 *f*, 436 *e*, 407-409, 434-429, 428 *a*, 428 *b*, 426 *a*, 426 *b*, 426 *c*, 425-422, 421+420, 419, 399-401), and they overlap, as there, from right to left. In agreement with the preceding row the outermost lamella to the right (401) is also larger than the others (breadth 6 cm., height 10.3 cm.); its upper edge is slightly curving and the metal appears to be coarser; nor could any holes be observed.

In this row there are eight rivets near the upper edge, viz. on lamellae 487, 480, 474 (with square washer on the inside) 407, 431 (an irregularly square washer on the inside), 423 (only the hole left), 400 (also passed through 401), and 401. Of these only

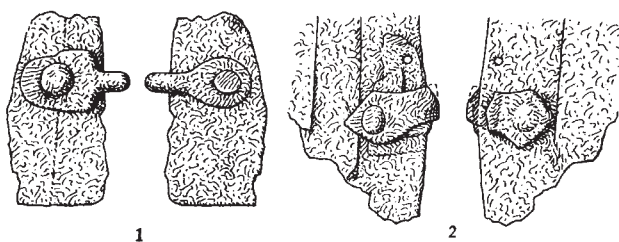


Fig. 389. Armour 25. Iron loops. 1. On lamella No. 501, row R. 2. On lamella No. 487, row S. Scale 1:2.

the rivet on 400 has its head on the inside; this rivet clearly only served to fasten together the lamellae 400 and 401, and very likely, judging by a corresponding rivet in row R, there was a similar rivet at the bottom. The number of lamellae between the rivets is four to six, except between 423 and 431, where they number nine; probably there had been another rivet there. Also there is a rivet on lamella 485 slightly above the centre; this also passed through 486 and has its head on the outside. The same is the case with a rivet below the middle of 401. Finally, there is on 487 a rivet with a bronze head on the outside, below the centre. It secures an iron clamp, like the corresponding rivet on 501 in row R (fig. 389:2).

Front. Row T. The lamellae in this row were largely in a fragmentary condition, also farthest to the left some lamellae were missing, which were, however, found at a somewhat deeper level in the same square, rusted together into one lump. This lump was marked *Quu 7*. That they belong to this row is apparent because two of them (*f, g*), which are fragmentary, fit the two fragmentary lamellae farthest to the left in row T (473, 472). The lamellae belonging to this row are thus: *Quu 7 a, b, c, d, e, f+473, g+472, 471, 470, 469, 468, 467, 466+436 o, 465+436 n, 436 m, 436 l, 436 k, 436 j+410 b, 410 a, 411, 412, 434 a+435 h, 434 b, 434 c, 434 d, 434 e, 434 f+435 g, 435 i, 435 j, 435 a, 435 b, 435 c, 435 d, 435 e, 435 f, 414 a, 413, 414*. They number thirty-eight, of which two are larger than the others: *Quu 7 a* (breadth 3 cm., height 9 cm.), and *414* (breadth 6 cm., height 8.5 cm.). In comparison with row S, this row would be slightly shorter. But there is no direct contact between 435 *j* and 435 *a*, and as the row displays many defects, it is probable that there had been some more lamellae here, probably two, so that the length of rows S and T would become equal; for, in row S there is only one larger lamella (401) which corresponds to 414 in row T, and *Quu 7 a* in row T may be estimated to correspond to the breadth of two lamellae in row S. The total number of lamellae in row T would therefore be forty.

That a gap already existed between 435 *j* and 435 *a* when the armour was thrown into the grave, becomes

probable also from the fact that all the lamellae as from 435 *a* towards the right, lay upside-down, i.e. the end with two holes lay downwards. This was certainly due to the fact that this right part of row T, on account of the damage where these two lamellae are missing, had loosened from the rest of the row when thrown into the grave, turned over upside-down, and remained lying with the outside up. These lamellae also overlapped *in situ* in the opposite direction to the others. By a reversal of group 435 *a-414* all this is corrected and the lamellae overlap in the same way as in the row above, i.e. from right to left, yet with the difference that 414 is overlapped by 413. If the group of lamellae *Quu 7* is fitted in its place in relation to the lamellae 473 and 472—as has been done on pls. 141 and 143—it is seen that also *Quu 7 a-d* got doubled up on being thrown down, but in a lateral direction, so that the outside of *a* is seen below 472-473, which have the inside upwards, from the excavator's view.

At the upper edge of row T six rivets can be observed, viz. on *Quu 7 a* (an irregular washer on the inside), 470, 434 *c*, 435 *d* (a washer on the inside, also passing through 435 *c*), 413 (also through 414) and 414. All these have the rivet-heads on the outside. Probably there originally existed at least one other rivet, between 470 and 434 *c*. Below the centre there is another rivet on *Quu 7 a*, and at the bottom there is another on 413, like the other, with the head on the outside and passing also through 414.

Plate 414, like 401, appears to be made of coarser metal than the others, while *Quu 7 a* seems to agree with the broader lamellae of type *b*. No holes can be observed on either of them, but the fact that the latter had been fastened with thongs to *Quu 7 b* is apparent from its not having been riveted to it.

RECONSTRUCTION.—As is shown by the placing of the rivets, each row of lamellae had by means of these been fastened to a covering which overlaid the whole iron reinforcing. It is clearly apparent from the numerous traces on the outside of the armour—both in front and on the back—that the covering was of leather. On the inside there occur in several places traces of coarse cloth. Whether these are the remnants of a lining that had been fastened to the inside of the armour, or whether they formed the underwear which during decay had been lying against the iron, cannot be decided. The number of rivets which could be ascertained on the lamellae in their present, very fragmentary and rusty condition, and which are marked on pl. 145, is, of course, not complete. A glance at pl. 145 will show clearly where rivets should be added, first and foremost certainly one on each of the outside lamellae in each row.

Since only a small number of lamellae are provided with rivets, it is clear that the lamellae in each row had been fastened together with the aid of thongs

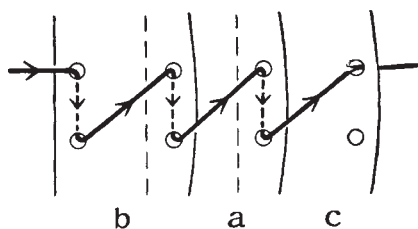


Fig. 390. Armour 25. Diagrammatic illustration of lacing with one thong. Scale 1:1.

that were passed through the holes in the lamellae. Traces of these thongs are preserved here and there. They had been passed through the four holes in the centre of the lamellae in such a manner that one lamella overlapped the adjacent one sufficiently for the holes to the right on one of the lamellae to overlie the holes to the left on the next one, and so on. The lacing had, to judge from the traces preserved, been arranged in two different ways. In one case (fig. 390) the thong was passed from the upper hole on the inside of a lamella (a) down to a lower hole near the same edge of the lamella, then through the latter and the corresponding hole on the superimposed lamella (b), and out on the outside, then obliquely up to the upper hole near the other edge of the first lamella (a), through this and the underlying hole on the next lamella (c) and out on the inside, then straight down to the lower hole on the same lamella (c), up through this and the hole above on the first lamella (a) and out on the outside, etc. The thongs in this way form on the inside short, vertical lines and on the outside somewhat longer diagonal lines. Traces of this lacing with thongs are to be found in row *A* (Nos. 22-24, inside), *O* (524-525, outside) and *P* (513-515, outside and inside). In the other method the thongs form a line of saltires (distinct insides of this method have not been preserved). This means merely a doubling of the lacing just described, in that this has been done with two thongs but on the same principle (fig. 391); two thongs have been drawn through each hole, but when one of the thongs for example comes from below and protrudes through the hole on the outside, continuing obliquely upwards to the right, the other thong on the outside comes obliquely from the top and is passed through the lower hole. Traces of this lacing are to be found in row *Q* (Nos. 504-508) and *R* (488-496).

The broader lamellae are, as we have already noted, of two different kinds¹, of which one type, *a*, has both edges curved. These lamellae, whose breadth varies between 4 and 4.6 cm., have, half-way down their length, two pairs of holes like the normal lamellae but on the other hand there are two holes beside

¹ Apart from Nos. 398, 401 and 414, concerning which see below.

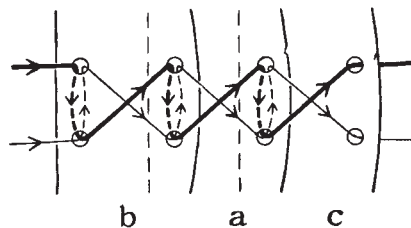


Fig. 391. Armour 25. Diagrammatic illustration of lacing with two thongs. Scale 1:1.

each other, near the upper and lower edges. They always occur inside a row, in rows *F*, *G*, and *H* in the middle, in rows *A*, *B* and *C* displaced to one side. The second position seems peculiar and hardly original, and one feels inclined to assume that the whole armour was originally constructed like rows *F*, *G* and *H*, with a large lamella in the middle whence the other lamellae issued in both directions. In that case the present composition of the armour would be due to later careless re-lacing, probably after it had been damaged in battle. It is also feasible that some of the larger lamellae had been damaged or lost and been replaced by others of normal size. The other kind of larger lamellae, type *b*, has—like the normal lamellae—a straight and a curving side. They have, near the straight side, two holes in the middle, two holes as a rule near the upper and lower edges, and along the curving edge between these are three holes at approximately equal distances from each other. Only lamella 184 in row *E* differs, as far as can be seen, from this scheme, in that at the upper, and probably also near the lower edge, it has three holes and between these, near the curving edge, probably four holes. This may mean nothing but carelessness in the manufacture, as may also the varying breadth, 2.8-3.7 cm.² These lamellae are always located at the termination of a row with the curving edge outwards (regarding those in the rows *K*, *M* and *N* see below) in order to give greater steadiness to the end of the lacing, and it is very probable that they had originally existed in all rows. The lacing of these lamellae was different from the normal one, to judge from traces which are particularly distinct on No. 194 in row *F*, where two thongs are simultaneously passed through the holes near the curving outer edge, so that the thongs lie parallel to the latter.

In contrast to the separate lamellae, the different rows need not, of course, have been mutually united in any other way than by means of the covering, to which they had been riveted, nor is there anything to indicate that they had really been united in any other way³;

² In two cases, row *O*, occur lamellae of normal breadth but with the same placing of the holes as in type *b* (see for these p. 399).

³ With the exception of the vertical rows on the breast having been riveted directly to one another and to the shoulder-straps.

no certain traces of thongs have been noted either in the upper or lower holes on the lamellae. However, it is quite certain that these holes had been intended to attach the rows of lamellae to each other by means of thongs. This is seen perfectly clearly from similar suits of armour of a later date, which are known from Asia (figs. 236–238). This shows that the riveting on to the covering in this armour is a subsequent device, the armour originally having been provided with no covering, so that the plates were exposed, and the whole armour held together merely with the aid of lacing with thongs.

Various details in the construction of the armour confirm this. Thus, the lamellae in the bottom row (*A*) of the back are the reverse of those in all other rows—the end with two holes is turned downwards instead of upwards, and the broad plate in this row (No. 1) is on the left instead of, as in rows *B* and *C*, on the right side. This indicates that row *A* was turned upside-down during the process of riveting.

Further, the riveting, as can be observed in several places, is done extremely carelessly and differs in this respect from the meticulous precision of the work otherwise displayed by the armour. Many a time a rivet pierces two and even more lamellae, which, of course, reduces the elasticity and flexibility which the construction is designed to produce.

A study of the upper part of the front is interesting in this connection. In row *N* there was on the inside, near the edge of the row towards row *I*, an extra lamella (*457 e + 456 e*) which in the present composition of the armour is without any function. It may be explained by assuming that in the original condition of the armour the two shoulder-straps (*K* and *I*) had formed the direct continuation of the two outer vertical rows on the breast (*L* and *N*), which in itself is the only natural explanation. If the shoulder-straps, as in the subsequent arrangement, had been united with the breast piece by only half their length, it would have been difficult without covering and riveting to bring about a strong and reliable junction at these points, merely by lacing with thongs. It would than be natural, if, when the armour was altered, this arrangement had been retained, and the lowest lamella of row *I* riveted to the upper part of row *N*. That this was done before putting on the leather covering, is seen from the fact that the rivet-heads are on the inside and the clinching on the outside of the iron, which could not have been done if the covering had already been attached. In assembling the three vertical rows of the breast (*L*, *M*, *N*), the process was, however, that the edge of row *L* was made to overlap row *M*, after which the two rows were riveted together. The same process was probably resorted to when assembling rows *M* and *N*, though some rivets there cannot be fixed now. The neck-opening between the shoulder-straps, whose breadth

had previously been equal to the length of a lamella, or 9 cm., was in this way reduced by a couple of centimetres on each side, or altogether 4–5 cm., i.e. from 9 cm. to 4 or 5 cm., which made it far too tight. This had perhaps been overlooked, and the lacing of thongs with which the lamella already riveted was connected to row *I*, had to be undone; this lamella thus remained in its position without exercising any function. Instead of that, the lower part of row *I* was allowed for half its breadth to be overlapped by the uppermost lamellae of row *N* and was riveted in this position, after which row *K* was attached to row *L* in a corresponding way. It is clear that this was not a satisfactory solution, either from a point of strength or appearance—and this strongly advocates the correctness of the assumption that the cover on this armour is a later device—but as the rows *L*, *M*, and *N* had once been riveted together, nothing else could be done.

If it is correct that rows *K* and *I* originally formed a direct continuation of rows *L* and *N*—and everything speaks in favour of this theory—these rows should also originally have been laced together. This may without any further doubt be accepted in regard to rows *K* and *L*, the lamellae of which overlap from the bottom upwards, and whose ends with two holes point to the left. As to rows *I* and *N*, it must be assumed that row *N*, when riveted, was turned upside-down, for here the lamellae overlap in the opposite direction and their holes face in different directions. If we turn row *N*, it also brings the broad lamella up to the border between rows *I* and *N*, as on the opposite side. Probably these lamellae had been applied here to strengthen the really weak portion at the upper edge of the front.¹ Consequently, probably row *M* also is upside-down. All three vertical rows of the front would thus have been arranged in such a way that the lamellae overlapped from the bottom upwards. The reversal of one of these rows is also necessary for structural reasons, in that otherwise two of the rows would meet at the sides which are provided with only one hole, which is improbable. Very likely, both the hinge on the row *K* and the buckle in row *I* were added when the armour was provided with a covering in order to give it a more modern appearance. The same remarks hold good about the large, semi-circular shoulder plates, which are quite foreign to this type of construction.

Whether also the buckles on either side of rows *B* and *D* are original or additions, cannot be decided with certainty, but I feel inclined to assume the latter, due to the presence of the small loops on the left edge of rows *R* and *S*. The latter may certainly be explained as fastenings for the strap which corre-

¹ The circumstance that the broad lamella in row *L* is higher up than the one in row *N* might perhaps be explained as being due to an incorrect re-lacing when the armour was being altered.

sponds to the buckle on the left side of row *B*, but no corresponding buckle has, as far as we are able to see now, been found for row *C*. I shall, therefore, assume that the two loops are original devices for lacing and that the front and back of the armour were laced together with thongs. Any other loops of this kind would have been removed when the armour was being renovated.

The three plates in rows *R*, *S* and *T* (Nos. 398, 401 and 414) which differ from all other parts of the armour, can be explained as having been added at the alteration of the armour, probably in order to replace lamellae then lost and to extend the three rows to their original length. The thick metal, lack of holes and the unique shape of 398 and 401 make them disagree altogether with the appearance of the others.

The general appearance of the armour, too, is in favour of the outside of the reinforcing having been intended originally to appear without a concealing covering. The three topmost rows (*F*, *G*, *H*) of the back are symmetrically arranged in such a manner that in all three cases a larger plate is located in the centre, and the lamellae thence overlap from the inside out. No constructive need or benefit from this can be imagined; it can only be explained by aesthetic considerations which would be abandoned when the reinforcing was concealed.

In any case, the larger plates in rows *A-E* and *T*, which are placed unsymmetrically, are peculiar. Here, as has already been suggested above, we must resort to the explanation that these rows had to some extent been relaced. But it is probable that the armour at the time of its renovation and the addition of the covering, on the whole retained its original construction and composition.

With the aid of the above observations, it is possible to reconstruct with a high degree of probability the appearance of the armour before the covering was put on. It differs from the covered armour previously described mainly in the absence of rivets, the reversal of some of the rows of lamellae (*A*, *M* and *N*), some plates (398, 401 and 414) in the reconstructed armour which differ in appearance being replaced by lamellae of a normal type, the shoulder bands *I* and *K* continuing straight into the rows of lamellae *L* and *N* in the front, and the hinges and buckle (310 and 314) on the shoulder-straps and the semicircular shoulder plates (305 and 312) being removed. Whether the armour at this stage was fastened with buckles or laced together at the sides, is uncertain; but the latter alternative is more probable. It is on this stage that the reconstruction reproduced in pls. 133-134 is founded, while pl. 145 diagrammatically elucidates the composition of the armour after being riveted to the covering, i.e. in the condition in which it was thrown into the grave. The original lamellae, unfor-

tunately, could not be mounted in the same way as all the other armour on account of the extremely fragmentary condition and brittleness which especially distinguished these lamellae, which, moreover, were often rusted together into big lumps. Such mounting would also have made future detailed study of the lamellae impossible.

On the whole the armour would thus before its renovation have looked as follows: the front consisted of six horizontal rows of lamellae (*O-T*), with three rows of vertical ones (*L-N*) above. The lamellae in the five lower rows (*P-T*) overlap from right to left. The number of lamellae in the bottom row (*T*) was approximately forty-two ordinary ones and one broader lamella of type *b*; in the second row from below, (*S*), forty-four; in the third row, (*R*), forty-three; in the fourth row, (*Q*), thirty-five; and in the fifth row, (*P*), thirty-two. The uppermost horizontal row (*O*) is composed of three groups of lamellae; in the two outer groups, the lamellae overlap from left to right, in the central one from right to left. The number of lamellae in the right group is nine, in the middle and left group thirteen, i.e. altogether thirty-five. The length of this row has, nevertheless, been the same as that in the row below because the lamellae at the two joints between the groups overlapped. In the three vertical rows across the breast, the lamellae overlap from the bottom upwards; their number is fourteen on the right, (*L*), eleven in the middle, (*M*), and twelve on the left (*N*). All the rows terminate at the top in a broader lamella of type *b*.

The back consisted of eight horizontal rows (*A-H*). In the three bottom rows (*A-C*) the lamellae overlapped chiefly from right to left but there are a few lamellae on the right side which overlap in the opposite direction, which are separated from the former by a larger lamella of type *a*. The number of lamellae in the lowest row (*A*) to the left of the large lamella is forty-three, and to the right seven; in the second row from below, (*B*), respectively forty-four (of which the outside one farthest to the left is of the broader type *b*) and five; and in the third row from below, (*C*), respectively forty-six and two (here, too, the lamella farthest to the left is of type *b*). In the fourth and fifth rows from below, (*D*, *E*), the lamellae overlap from right to left. The number in the fourth row, (*D*), is forty-three, and in the fifth, (*E*), thirty-four; in both rows the lamella farthest to the left is of the broader type *b*. The three uppermost rows (*F-H*) are identical: in the middle there is a broad lamella of type *a*, with fifteen others on either side, of which both outside ones belong to the broader type *b*; the lamellae overlap from the centre outward.

The front and back are united over the shoulders by two rows of lamellae, the one on the right shoulder, (*K*), consisting of eighteen, that on the left, (*I*), of fifteen lamellae, which overlap from the front to the

back and form a direct continuation of the two outer vertical rows on the breast (*L* and *N*).

The total number of lamellae in this armour would thus have been six hundred and twenty-five, of which six hundred and five of normal type, six of the broader type *a* and fourteen of type *b*.

This reconstruction of the armour as it appeared before it was provided with a covering, cannot, however, be considered to reproduce its original condition. As has already been pointed out, the unsymmetrical arrangement of rows *A*, *B* and *C* indicates that these rows had on some occasion been carelessly relaced, and also the fact that rows *B*, *C*, *D*, *E* and *T* on one side, but not on the other, terminate in a broader lamella of type *b*, indicates a later alteration. If we compare with this rows *F*, *G* and *H*, which both with respect to the number of lamellae and their arrangement stand out as the most decorative part of the armour, it strikes one as extremely probable that the whole armour had originally been constructed in agreement with them, i.e. that all the horizontal rows had had a broader lamella of type *a* in the middle, from which the others had issued symmetrically on both sides, and that also at both ends they had terminated in a lamella of the broader type *b*. Constructive reasons may be said to prove the correctness of this assumption; the difference in the arrangement of the holes on the curving outer edge provides at the same time a steadier fastening of the ends of the thongs and an attractive frame for the armour, while, on the contrary, if a lamella of the normal type is placed at the extreme outside of a row, the lacing can only be finished off in a very haphazard way. This holds good especially in those cases where the straight edge of a lamella forms the end of the row. In reality a single glance at the reconstruction is sufficient to convince one that this cannot have been originally intended; the armourer who devoted to some parts of the armour such care and attention as to give the edges an attractive appearance, cannot in other places have allowed the edge to form sharp corners and the lacing to be finished off so casually. Row *O*, too, with its three groups of lamellae gives an impression of not being preserved in its original arrangement. If these groups had been symmetrically assembled, one might have imagined a decorative purpose here, and possibly the equal number of lamellae, thirteen, in two of the three groups preserve the traces of such, though the sequence has been reversed. That a relacing of this row on some occasion actually took place, is proved by the fact that two lamellae, which, to judge from the arrangement of the holes, originally termi-

nated the row at the sides, are now at the inner edges of the two outer groups. Finally, the placing of the broad lamella between the groups *K* and *L* unsymmetrically in relation to the one between *I* and *N*, can be explained as a defect in the relacing. Probably the three broader plates in rows *L*, *M*, and *N* should be considered as the upper termination of the front.

There are, thus, valid reasons for the armour in its original condition displaying an arrangement of rows of lamellae which in principle agreed with the rows *F*–*H*. This original appearance of the armour cannot, however, be reconstructed in detail, for we are ignorant of the number of the lamellae which have been lost in the different processes of relacing which the armour may have undergone. Strictly speaking, the armour may have differed in its essential features from the type whose reconstruction we have succeeded in effecting, for if the lamellae were once, or perhaps many times, taken to pieces, they can of course have been re-assembled in several different ways.¹ But on the other hand it may be more probable that the armour was re-assembled on the whole like its original condition, to which the number of lamellae was also adapted.

We have thus been able to demonstrate three stages of development in this armour: (1) The original condition which we cannot reconstruct in detail, but whose main features we can suggest by analogy. (2) The condition immediate prior to the putting on of the covering; this stage can very probably be reconstructed correctly (pls. 133–134). (3) The condition after putting on the covering and some alterations and repairs in conjunction with that, i.e. the condition which can be reconstructed with reference to the position in which it was found (pl. 145). Whether perhaps the stages 2 and 3 coincided, i.e. whether certain relacings, which may equally well have been done before, were in fact done at the same time as the changes which we are able to show were made simultaneously with the riveting on of the covering, we are unable to decide. At any rate the reconstruction of the armour in stage 2 has restored it to the most original condition which we are able to determine, and to a shape in which it could be worn as a lamellar armour without cover.

¹ E.g. one cannot deny the possibility of the three lowest rows of lamellae in the front (*R*, *S*, *T*) and back (*A*, *B*, *C*) originally being united on the right side, and the armour thus being open right down only on the left side, for we note that the lamellae in the front overlap from left to right, as do the right parts on the corresponding three rows on the back.

C. PARTS OF COATS OF PLATES.

No. 26. Common grave 2. Regn.no. *C*: *k-t*. Uncovered in 1924. Fig. 392.

Apart from the plates which have been assembled into armour 12, some more parts of armour were found during the work which damaged common grave 2 in 1924, but, because of the type of the plates or the appearance of the material, these cannot have belonged to that armour. Two of these, *k* and *l*¹ have the characteristic shape that shows that they were intended to protect the breast near the shoulders. But they differ in a puzzling way from all similar plates, in having plates riveted on to the inside in such a manner that the concave edges of the plates, which were nearest the shoulders, have become convex, on *k* more so than on *l*. The piece *k*: 2 riveted to *k*: 1, is an elongated, slightly irregular oval, with a greatest length of 21 cm. and a greatest breadth of 7.5 cm. Though it is somewhat obliquely placed in relation to its vertical axis, it projects at the top above the upper edge of the plate which is 18.5 cm. high. This carelessness in the arrangement indicates that the under plate (*k*: 2) had been attached later to the upper one (*k*: 1). Both pairs have rivets, of which at least some pass through both plates (1 and 2), fixing them together. The iron piece *l*: 2 riveted to *l*: 1 is also 21 cm. long and projects a little above *l*: 1. I am unable to explain these plates. To fill up the concave outlines must have hindered the movement of the arms if the plates still retained their original position beside the shoulders.

A rectangular plate, *m*, 18.5-19 cm. long and about 8.5 cm. broad, may have been meant to be placed between the two plates *k* and *l*, because their lengths agree. But it is also possible that the plate belonged elsewhere in the armour.

Found at the same time as these parts of armour were seven rectangular plates (*n-t*)², all rather badly damaged and of varying dimensions, but which, nevertheless, appear to belong together. The smallest of these plates is about 20 cm. long and 9.5 cm. broad,

while the largest is 22.5 cm. long and 14 cm. broad. The measurements of the others lie between these, the majority approaching the smaller one. The rivets, of which several have unusually large heads, are mostly placed two at one end and two at the other; of these, two are close to the inside edge of one side, while the other two are slightly withdrawn from the opposite edge. Also, a rivet sometimes occurs approximately half-way down the plate. In shape, two of the plates (*o* and *q*) display a piece cut out at one corner, reminding one of the same peculiarity on the plates *E* and *O* in armour 4. From this, and also from the dimensions of the plates, it seems that in all probability the seven plates form the back plates of an armour, though their relative positions cannot now be determined.

Only armours of type I are provided with back reinforcing of this kind. Of these there are only two that are without back plates: Nos. 2 and 6. The former is, however, from common grave 1 and, therefore, can hardly be taken into consideration; besides, its plates are too narrow when imagined as having any connection with reinforcing of the back of such dimensions as these. Armour 6, on the other hand, has very broad stomach plates, and its type agrees with these back plates. There is, therefore, nothing to prevent the group of plates *C*: *k-t* having belonged to armour 6, but since some more back plates unconnected with fronts, which can equally well be attributed to that armour, have been recovered from the same common grave, no definite assertion can be made.

¹ The lettering has been introduced in sequence with the numbers on the plates belonging to the armour 12. The plate *k* was stored in case *C* 3, *l* in case *C* 1.

² Of these, one had been stored in case *C* 1, five in *C* 2, and one in *C* 3.

No. 27. Common grave 1. Regn.nos. *B II*, *B III*. Uncovered in 1905. Fig. 393.

Among the few finds from common grave 1 there were, in case *B III*, several plates which have no counterparts among the other finds. In Chapter III (fig. 104: 2) mention has already been made of the oval plate from this case, which we have interpreted as an elbow guard. But I am unable to find any explanation for the others, so that no reconstruction of them could be made. In case *B II*, with finds from the same common grave, lay some plates (here denoted by the

letters *a-h*), which show such close agreement with some of the plates from *B III* that they will be dealt with together.

The plates 1-7 clearly form, to judge from their shape and the position of the rivets, a sequence, one edge of which is straight while the other is curved, for the two outermost plates (1 and 7) are longest, the central one (4) shortest, and the oblique edges of the intervening ones form the transition between these.

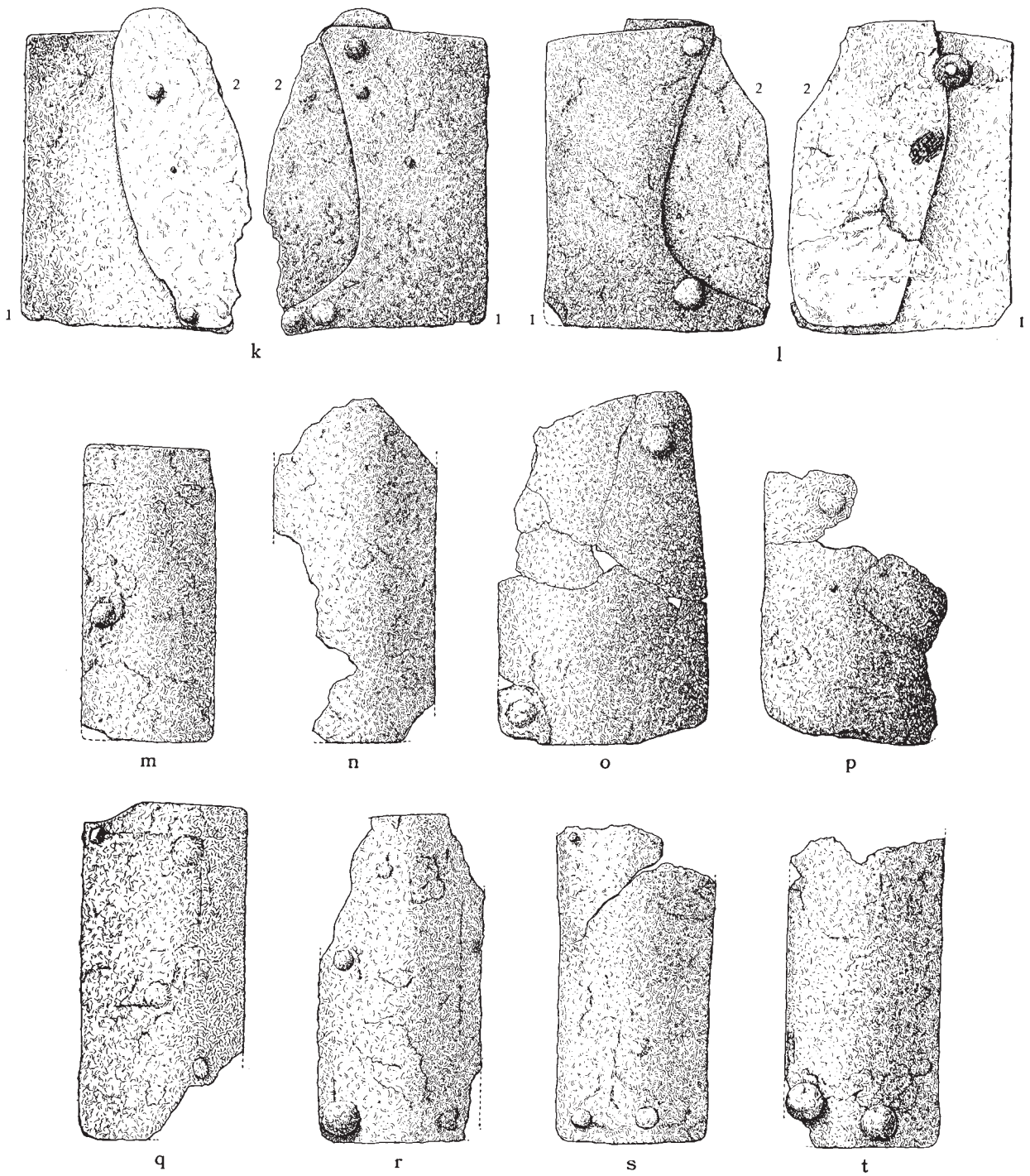


Fig. 392. Armour plates No. 26. Scale 1:4.

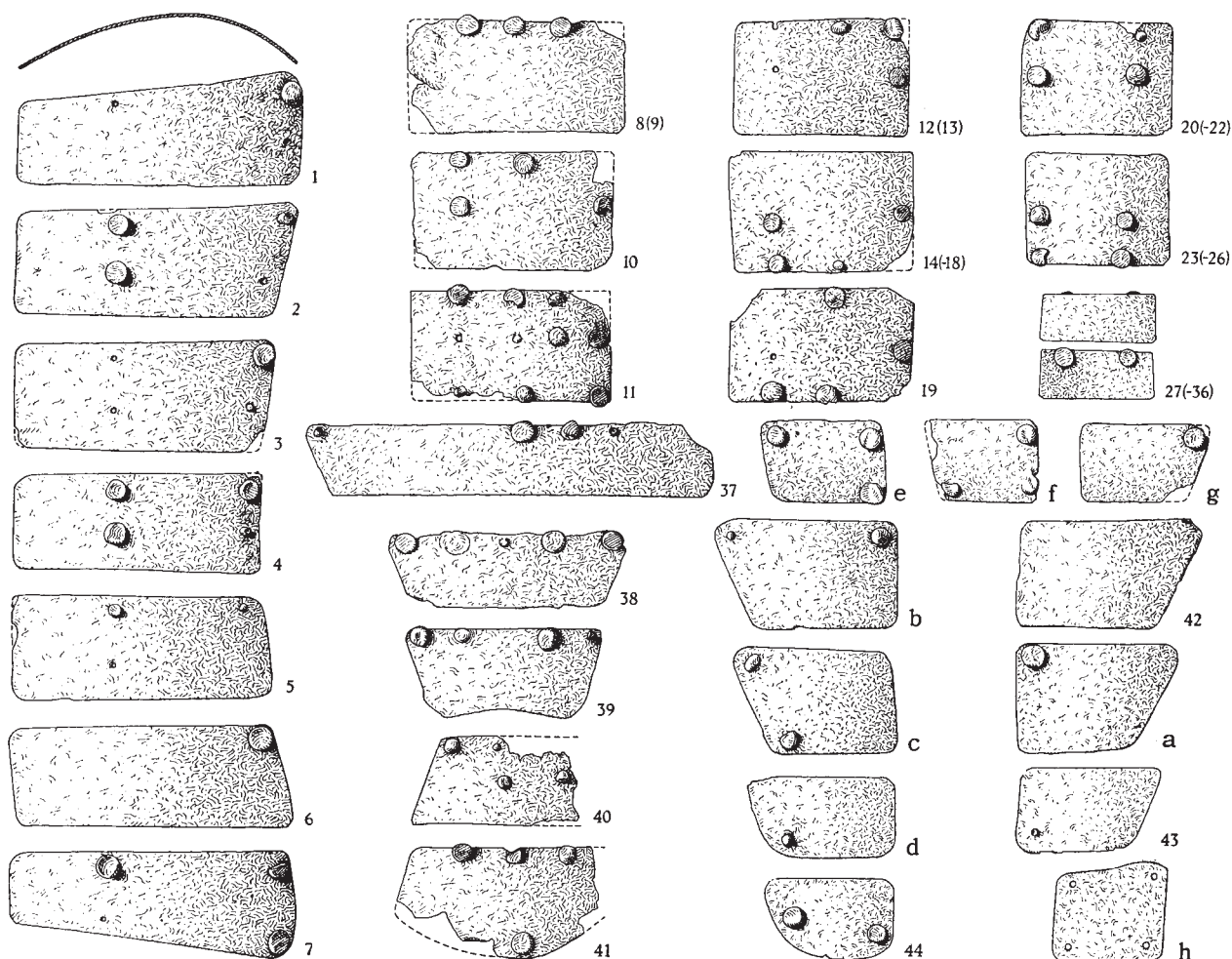


Fig. 393. Armour plates No. 27. Scale 1:4.

One might almost be tempted to think that these plates form the reinforcing of the upper part of the breast, e.g. on an armour like No. 19, if this were not made impossible principally by the fact that they are strongly bent, and also by the shape of the two outside ones, which lack the characteristic incurving which always occurs. I am unable to make any really plausible suggestion as to their position; one might guess that they have had their place on one side of an armour of unknown type or that they had been attached to the thigh, but neither of these suggestions is very convincing.

Most of the plates, (8-26), are rectangular and 6 cm. broad, and they may be divided into three groups according to their length and the position of the rivets. The three largest, (8-10), are about 11 cm. long. The rivets, of which there were originally probably eight on each plate, are, in two rows, one near the edge, the other a little lower down, in such a way that two of the edges are free from rivets. The rivets were

also arranged in this way in the other rectangular plates except two. One of these, (11), is the same size as plates 8-10; it has three extra rivets, placed at one side symmetrically with those along the opposite side. The plates belonging to the next group, (12-19), are about 10 cm. long and, with the exception of one, (19), have six rivets each. On two of these plates (12, 13) the rivets are on the opposite side to the others (14-18). Plate 19 originally had three extra rivets, placed in the same way as in plate 11. The plates in the next group (20-26) are about 8 cm. long and have four rivets each, three (20-22) having the rivets placed symmetrically in relation to the other four (23-26). In view of the equal width of plates 8-26 it is probable that they formed part of a structure in which the plates overlapped both laterally and upwardly. The plates remind one very much of the small back and side plates from Küssnach (figs. 318-323), so that they should probably be reconstructed like these. The symmetrical position of the rivets on

plates of the same size can be explained by these plates having been placed symmetrically on each side of the armour, the plates with rivets along both sides, (11, 19), forming the lower termination of a row, or in a vertical row of equally large plates overlapping from the centre upwards or downwards, as the case may be, in which case 11 and 19 and a similar plate belonging to group 20-26, that has now disappeared, were in the centre.

Also, there are ten small, rectangular, slightly curved plates, (27-36), with two rivets each, placed on the concave side, in contrast to the others. I cannot make any suggestion as to their function.

Five plates (37-41) with irregular shape and position of rivets, and with oblique ends, might be parts of a skirt, the semicircular plate 41 perhaps forming part of the lower edge, if it was not too early for a skirt of this type, which necessitates a tight waist. Possibly the small plates may be connected with the next group.

Six small plates, (42, 43, a-d), are oblique at one

end and straight at the other in such a way that they form symmetrical pairs. If they are placed in two groups, (42, a, 43 and b, c, d), slightly overlapping, we get two symmetrical groups with one side straight and the other oblique, and if we join to the narrow end of group b-d the obliquely rounded plate 44, we get something that might constitute the armour of a shoe, not so pointed and curved as the shoe-armour *Pss 10* (fig. 111), but yet not unlike it. In that case there would have existed a lost counterpart to plate 44 belonging to group 42, a, 43. This interpretation is perhaps confirmed in some degree by three plates, (e, f, g), which remind us of the plates *Pss 7* and *Pss 10: AI*, recovered with the shoe armour *Pss 10*, which like these, are faintly curved across, instead of being curved lengthwise like the other ones, but in contrast to them having rivets on the convex side and cut off obliquely at one side. In case *B II* there was also a smaller, almost square plate (h) which had a rivet in each corner.

No. 28. Common grave 2. Regn.no. *V*: 6. Uncovered in 1929. Pls. 73, 74, 77.

Near point *Mp* four plates were found in 1928 in a surface layer of soil. Two were of the shape characteristically curved on one side, showing that they were placed on either side of the breast, close to the shoulders; the other two are the same size and match the former in length and the faint curving. They were obviously attached between these, and overlapped from right to left, which was also evident from the position *in situ*. The plates surrounded a lump of fragments of mail and disturbed skeletal parts: lower maxilla, cervical vertebrae, clavicle and humerus.

Since type I and II have only two or three breast plates and the other types at least six, it is very probable that the group belonged to an armour of type III. All three armours of this type were found without breast plates. Armour 17 cannot, however, be taken into consideration, because its breast plates were certainly smaller. On the other hand the group might fit both Nos. 16 and 18, but it cannot be decided which. The group of plates has been mounted with armour 16.

No. 29. Common grave 2. Regn.nos. *Luu 1*, *Pyy 1*. Uncovered in 1930. Pls. 30, 31.

In squares *Luu* and *Pyy*, in common grave 2, i.e. only a couple of metres apart from each other, two plates were found quite near the surface, which had the characteristic shape showing that they had been attached to the breast, to the right and left next to the shoulders. To judge from their size, shape and the position of the rivets, both belonged to the same

armour. From their breadth it is probable that a rectangular plate had been attached between them. Since one of them is slightly broader than the other, the intervening plate probably overlapped the one and was overlapped by the other. At the top both are curved for the neck. They have been mounted with armour 6.

No. 30. Common grave 2. Regn.no. *Nö 20*. Uncovered in 1930. Pls. 45-47.

In 1930, in square *Nö*, a single armour plate was found, of such a shape that it must have been attached to the left side of the breast, close to the shoulder. The plate has a deeply rounded piece cut out for the neck,

like a corresponding plate (*Lå 6:g*) in armour 10. It is, therefore, possible that this one also belonged to an armour of type II. The plate has been mounted with armour 9.

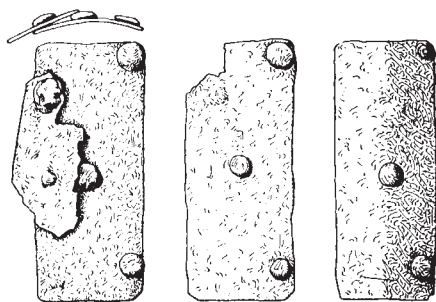


Fig. 394. Armour plates No. 31.
Scale 1:4.



Fig. 395. Armour plate No. 32.
Scale 1:4.



Fig. 396. Armour plate
No. 33. Scale 1:4.



Fig. 397. Armour plate No. 35.
Scale 1:4.



Fig. 398. Armour plate No. 36.
Scale 1:4.

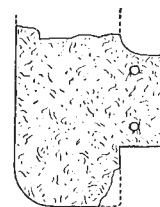


Fig. 399. Armour plate No. 38.
Scale 1:4.

No. 31. Common grave 2. Regn.no. *Qyy II*. Uncovered in 1930. Fig. 394.

A series of rectangular plates, about 6×13.5 cm., of which one is in small pieces. They had, to judge from the position *in situ* and the placing of the rivets, overlapped each other and are similar to those of row

A in armour 22. They may therefore have belonged to the back of an armour of type V, but their shape also allows other reconstructions, e.g. as back plates in an armour of type I-III, though these are usually longer.

No. 32. Common grave 2. Regn.no. *Oå 2*. Uncovered in 1929. Fig. 395.

Rectangular plate, 21.5×10.5 cm. Provided with two (originally probably four) rivets, one in one corner and one at the same end, 4 cm. from the other corner.

Probably part of back of an armour of type I, rather like armour 4.

No. 33. Common grave 2. Regn.no. *Vss 9 : a*. Uncovered in 1929. Pls. 15: 1, 18. Fig. 396.

An approximately rectangular plate, 25.5×16 cm. having a rivet in one corner, another 4 cm. from the other corner on the same end, and another opposite this at the other end but about 6 cm. from the corner; the fourth corner is broken off but here, too, there certainly had been a rivet; at the edge between the first and last of these rivets there is a group of two, originally three, rivets. The first rivet holds an iron loop. This loop

and the group of rivets at one edge show that the plate forms the part of the back of an armour nearest the opening, and, judging from the size of the plate, for an armour of type I. The plate is the largest of this kind that has been found and agrees approximately with plate 5 in armour 7. It bears traces of cloth on the outside.

No. 34. Common grave 2. Regn.no. *Rss II*. Uncovered in 1930. Pls. 30, 31.

An approximately rectangular plate, broken into many pieces, measuring about 15.5×23 cm. In one (the upper right-hand) corner an iron loop is riveted, which shows that the plate formed the part of the armour nearest the opening in the back, probably of type I. In the lower right-hand corner there is a rivet,

and about 3 cm. from the left edge two rivets, one at the top and the other approximately opposite, on the right side. The plate is very like plate 5 in armour 7, and belonged perhaps to the parts of armour 6 found close by, with which it is mounted.

No. 35. Common grave 2. Regn.no. *Nö 17*. Uncovered in 1930. Fig. 397.

Quite close to, but not in immediate contact with the plate *Nö 20*, (No. 30), lay an elongated plate cut straight at one end and obliquely at the other. It is very like plate *f* in armour 16. At the oblique end it has two rivets, one of them slightly withdrawn from

one edge. At the other end there is, oddly enough, close to the latter edge, a large rivet. Whether the plate belonged to the same armour as *Nö 20*, is quite uncertain.

No. 36. Common grave 2. Regn.no. *Rå 8: a*. Uncovered in 1929. Pl. 70. Fig. 398.

Very close to plate *l* in armour 15, a small plate, *a*, was found which apparently did not belong to this armour, although when uncovered it was thought to be part of it; probably it is an odd plate which came into contact with it by chance. The plate is small and irregular in shape. One side is concavely curved, so that one corner forms a projection or lobe. Near this edge are two rivets on the outside. The plate agrees on the

whole both in size and shape with plate *d* in armour 16, and it is, therefore, probable that it occupied a corresponding place on the right side in the bottom row of an armour of type III. Also the reconstructed small plate beside plate *VII: 7* in armour 17 has a similar shape. It is, however, not impossible that this plate is a piece broken from a larger plate.

No. 37. Common grave 2. Regn.no. *Rss 17*. Uncovered in 1930. Pls. 30, 31.

In 1930, near the bottom of common grave 2, a fragmentary semi-oval plate was uncovered, which has no counterpart amongst the other finds. The length from apex to apex is 36.5 cm.; the greatest breadth 10 cm. The plate is slightly curved; it has probably become somewhat flattened by the pressure in the grave. In one apex there is a rivet, but some distance from the straight edge. Possibly there is a rivet symmetrical to this, and two others close to the curved edge.

The shape is very like the bottom plates in armours

of type I (armour 1, plate *a*, armour 3, plate 3), though it is shorter than these and the position of the rivets is different. Yet it is not impossible that it was such a plate, and at any rate no other explanation can be given. It should be added that in the same square, though on a considerably higher level, lay another plate (*Rss II*, No. 34) which probably belonged to an armour of type I, and other parts, *Pss 14*, have been found in the neighbourhood. It is possible that all these originally belonged together. The plate has been mounted with these in armour 6.

No. 38. Common grave 2. Regn.no. *VII: 17*. Uncovered in 1928. Fig. 399.

Armour plate(?), fragmentary. One corner rounded; on the opposite side a rectangular and a rounded piece cut out; between these, two round holes. Since

the plate has no counterparts amongst the other finds, its original shape cannot be reconstructed, nor can its function be determined.

No. 39. Common grave 2. Regn.no. *A 38*. Uncovered in 1912. Fig. 400.

In the same case as the plates which have been associated with armour 5 lay a fragmentary hinge which, however, there is no reason to connect with

these. It originally consisted of two pieces of sheet iron, one edge of which had been formed into tongues which are alternately bent round an iron rod. On one

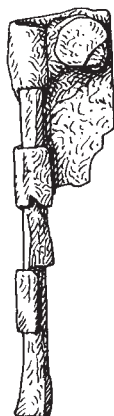


Fig. 400. Hinge No. 39. Scale 1:2.

of the pieces there remains a rivet which held the hinge either to another plate or to the armour covering; the latter is perhaps more probable, since otherwise

some fragment of the plate riveted to it would have remained. That the covering was sometimes articulated with hinges is seen in armour 21, which has three small hinges on each shoulder, (Pl. 102), but of a different type from this. Except for this, hinges only occur in armour 25 on one shoulder, (pl. 144: 314), on some of the large shoulder plates, (figs. 102, 367), and on the gauntlets. The hinge most like this one is on the cylindrical cuff of gauntlet 5 (fig. 419: 8), and it is, therefore, possible that it had a similar function, although the metal appears to be rather stouter and more like that used for armour plates proper.

Apart from the parts of armour already described, belonging to coats of plates, during the excavations several scattered objects were found which could not be associated with any others. But since they do not present anything of especial interest, no description or illustration of them has been considered necessary.

D. PARTS OF LAMELLAR ARMOUR.

From common grave 1 several hundred lamellae and fragments have been recovered, most of them of normal shape and size, though small variations occur both in the length and the shape of the curved edge. Also some lamellae of the broader type *b* (see p. 392) occur amongst these, two of them being almost whole. One is 4.5 cm. broad and has two holes near the straight edge and five near the curved edge. At each end, except at the ends of the curved edge, there is one hole. The other lamella is 2.9 cm. broad and like the former, except that it has seven holes near the curved edge. There are also some unusually narrow lamellae (up to 1.6 cm.). Only a small rivet has been noted on the lamellae from this grave. No distinct traces of thongs are noticeable, but there are traces of both leather and cloth.

*

In common grave 3 a few lamellae only have been found, and these are the only parts of armour uncovered in this grave. Some ten lamellae without particular interest lay scattered, especially in the southern part of the grave. Only in burial IV some more coherent lamellar complexes were found, but these only consisted of together twenty lamellae (*Gk 2*), and were only partly in their original position in relation to each other. The size of the lamellae and their shape is approximately the same as those in armour 25—perhaps they are on an average slightly longer and the breadth may be reduced as much as to 1.5 cm.; some of the lamellae have both sides straight and parallel.

The holes, also, with a few exceptions, are in the same position. The outermost lamella has six holes along one side and another hole close to each end, i.e. the same placing as in some of those which terminated the rows on armour 25. Another two lamellae display a corresponding type though the number of holes cannot now be determined. One of them has two holes along the central axis at one end, like the normal lamellae; another has two holes at both ends along the central axis, and between these, as well as between the four normal holes in the middle, another two holes. On a group of three lamellae, that have rusted together, a hook is riveted. This lies downwards, when the end of the lamella which is provided with two holes, is turned upwards. However, the hook may be out of its position as it is only fastened with one rivet. Oddly enough, the hook appears to be on the inside, for the curved sides of the lamellae are visible on the opposite side. The rivet with which the hook is attached, is the only rivet that can be observed on these lamellae.

*

Unlike what was found in the graves 1 and 3, a very large number of lamellae were found in common grave 2, both single ones and some in fairly large groups, which were more or less clearly the remains of whole armours. But only one of these could be reconstructed (armour 25). The other armours of type VI had obviously all been so damaged when they were thrown into the grave that, when uncovered, no

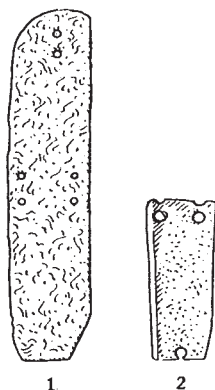


Fig. 401. Armour lamellae. Scale 1:2. (1) Regn.no. A 34. (2)—A 39.

conclusions regarding their construction could be drawn from their position. Whether all the armour of type VI had the same appearance as armour 25, cannot, therefore, be decided. Only this much can be said, that the armour, of which large parts were found in squares *N O P â* and *S t u v* and near-by, had been provided, like No. 25, with a covering fastened to the outside. The absence of actual traces of rivets on other lamellae finds may perhaps mean that at least some one of the armours of type VI did not have such a covering. If the lamellae finds, whose position is known, are marked on a plan of the grave it is seen that lamellae have been found over practically the whole grave area, yet noticeably less frequently in the central part of the grave. But this is probably because this part of the grave was investigated in 1912, and the lamellae found on that occasion would be distributed within this area.

From the 1912 excavation there are some hundred lamellae, of which four are of the broader type (about 3.5-4.5 cm. broad). One lamella, unusually narrow, is provided with several holes along one side, and another lamella of normal width has one corner curved in a semicircle, and the other cut obliquely (fig. 401: 1). One lamella, of which, unfortunately, only half is preserved, was, to judge from the position of the holes, of normal length, but only 1.6 cm. broad; it is made of bronze—the only specimen of this material amongst the lamellae (fig. 401: 2).

Besides armour 25 (*Quu* 5) there appear amongst the lamellae finds from common grave 2 two large, separate but more or less clearly coherent groups. One of these was uncovered in squares *N O P â* and adjacent squares, and was called *N â 38-85*. The number of lamellae in this group might perhaps be estimated at two hundred, and no complete armour could thus be formed with them. Around this group, in squares *N-Pv-â*, there are numerous larger and smaller groups consisting altogether of another two

hundred lamellae, and it is probable that at least some of these belong to the same armour. But while in some instances rivets can be observed on the lamellae of the main group, there are none in the others, which indicates probably that lamellae from different armours have been mixed together. Amongst the lamellae in group *N â 38-85* a loose iron hook of the same type as fig. 402: 1-3 and two ring-buckles have also been found. One of the lamellae is of the broader type, (4.5 cm.). The other fairly large lamellar complex, denoted by *Sv 24, 25*, was uncovered in squares *ST t-v*, and was divided into two groups lying approximately half a metre away from each other, and each consisting of about two hundred lamellae. These have formed the greater part at least of a whole suit of armour. Some forty rivet-heads have been noted, of which at least one was attached to the inside. The covering which had been held in position by these, has, as in armour 25, been of leather, as can be seen from traces which are preserved. Nine lamellae of the broader type (3-4 cm.) and five buckles (round and oval) have been found. In one instance traces of thongs have been noted in the central pairs of holes; the thongs had been pulled through in such a way that on the inside they had passed straight up and down between the upper and lower holes, and therefore formed diagonal lines on the outside. In immediate conjunction with the lamellae there was a semicircular shoulder plate of the same type as those belonging to armour 25, though slightly more angular in shape, (fig. 102: 1). Like these, the plate has two holes in the two upper corners and in one of these there is a mount in the form of a clamp with one rivet. From this similarity of detail to armour 25, we may assume that the general appearance of the armour also agreed with it.

Another large group from common grave 2 is worthy of mention; the lamellae were found quite close together in squares *Rvv* and *Svv*, and perhaps originally belonged together. No rivets have been noted on them, which shows that the armour was probably held together only by the thongs, and worn with the lamellae visible. Group *Rvv 17* consists of about a hundred lamellae, of which two are 4.2 cm. broad. Group *Svv 18* is somewhat larger and has four broader (3.3 cm.) lamellae. In several places considerable traces of fabric can be observed on the inside, and distinct traces of the thongs, crossed on the outside and vertical on the inside, can be seen in the pairs of holes in the middle. From this it is apparent that two thongs had been laced through the central holes. The other groups of lamellae are less extensive than these.

Amongst other lamellae finds in common grave 2 the most important is a large plate (*Vss 13*) which was found with the shirt of mail with the same number (fig. 94) and lying close to a skull, together with two groups of about ten lamellae of normal size. It is not

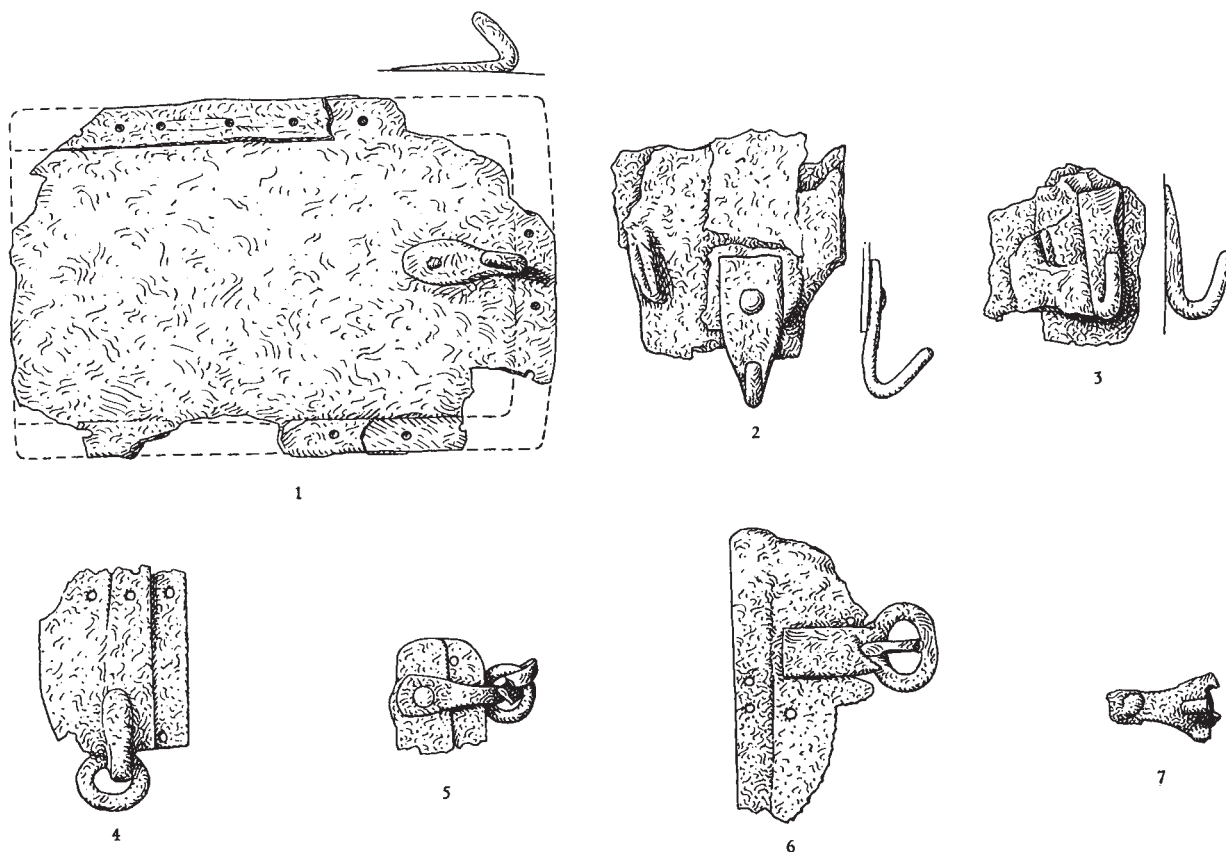


Fig. 402. Armour lamellae with hooks, loops and buckles. Scale 1:2.
 (1) Regn.no. *Vss* 13. (2)-*VI*:64. (3-7)-*Oå* 3.

likely that the position close to the skull is of any importance. The plate (fig. 402: 1) measures 9.5×14.5 cm. with one end straight and the other slightly convex. Along the latter and the two longer sides there are holes with spaces of 1-2 cm. between them; these three edges were bound with a leather piping and through the holes leather thongs had been threaded, attached in such a way that on one side they form a coherent strip from hole to hole. Near the curved edge a small iron hook is riveted. Obviously, this plate is a lamella of unique breadth while the height, 9.5 cm., corresponds to the normal height of the lamellae; its position was at the end of a row of lamellae. As to the reason for its peculiar shape, we are unable to express any opinion, but perhaps on some occasion when repairs were carried out, it had replaced a group of lamellae that had been lost (cf. such cases in rows *R*, *S* and *T* in armour 25).

A hook of the same kind, (fig. 402: 2), was found in square *Rg*, together with ten lamellae, and another, (fig. 402: 3), is riveted to a lamella belonging to group

Oå 3, which consists of about fifty lamellae, perhaps a part of the previously mentioned group *Nå* 38-85. This latter hook is fastened with a bronze rivet in the longitudinal direction of the lamella. Riveted to a lamella belonging to the same group is an iron clamp which grips the bottom edge of the lamella (i.e. the end which is provided with one hole). The clamp holds a ring, (fig. 402: 4). The same device is to be found again in the same group, but here the clamp is at right angles to the longitudinal direction of the lamella (fig. 402: 5). In the latter ring there is another ring or loop. Finally, an iron buckle, (fig. 402: 6), is riveted to another lamella and at right angles to the longitudinal direction, and also a loose buckle with a rivet attached has been found, (fig. 402: 7). The rivets in all these cases are bronze. In this group some unusually narrow lamellae occur, and lamellae of the broader type (about 3 cm.). A further six lamellae of the latter kind (3.5-4.5 cm. broad) have been found in common grave 2, either separately or forming part of small groups.

E. GAUNTLETS.

No. 1. Common grave 2. Regn.no. VI: 2. Uncovered on 24th July, 1928, by P. Nörlund. Figs. 403-407.

The first notable find at the second opening of common grave 2 was this gauntlet, lying in such a superficial position that it could hardly be considered as part of the skeletal layers harbouring finds proper. It was very likely in the soil with which the grave was re-filled. It lay with its inside upwards, with the relative position of the separate parts almost unchanged. The gauntlet, which was for the right hand, is of simple construction; it consists of an arched, smooth back plate (2) with an almost rectangular, but strongly bent plate (15-21) broken into several pieces, over the root of the thumb, and with a triangular or trapezoidal plate (1) on the other side, for protecting the hand at the edge below the little finger. This plate lay on top of the back plate with the convex side upwards, but otherwise in its proper position. With these plates are associated the elongated guard plates for the fingers. The knuckles were also protected by small, round, slightly domed plates. The parts for the thumb, index, and middle finger were lying in their proper positions but only the lower part of the protection for the fourth finger lay in its place. However, in very close vicinity to the gauntlet, three parts of similar finger plates were found, which can certainly be

regarded as parts of this gauntlet. Two of them, a round and an elongated piece, were shown to be parts of the fourth finger, and an elongated bit part of the little finger. The only missing parts of this gauntlet are, therefore, the tip of the fourth finger and the tip and two adjacent plates of the little finger. All plates have rivets on the outside and were, consequently, fastened to a covering. The gauntlet was fastened together with a small, square buckle, which was lying between plates 1 and 2, and had thus, probably, been attached to the large rivet on the corner of plate 1. Two small, narrow, broken iron strips (8 and 9) were visible below the edge of the back plate. As their combined length agrees with the edge of that plate on the wrist, it may be assumed that they belonged together and fitted the metacarpal plate on top of the wrist in the way shown by the illustration of the reconstruction (fig. 405).¹ It is possible that they form the transition to a cuff, if such existed. They may also conceivably have formed the stiffening of a small cuff.

¹ It may also be pointed out that its fracture exactly fits a fracture on the metacarpal plate.



Fig. 403. Gauntlet 1 *in situ*.

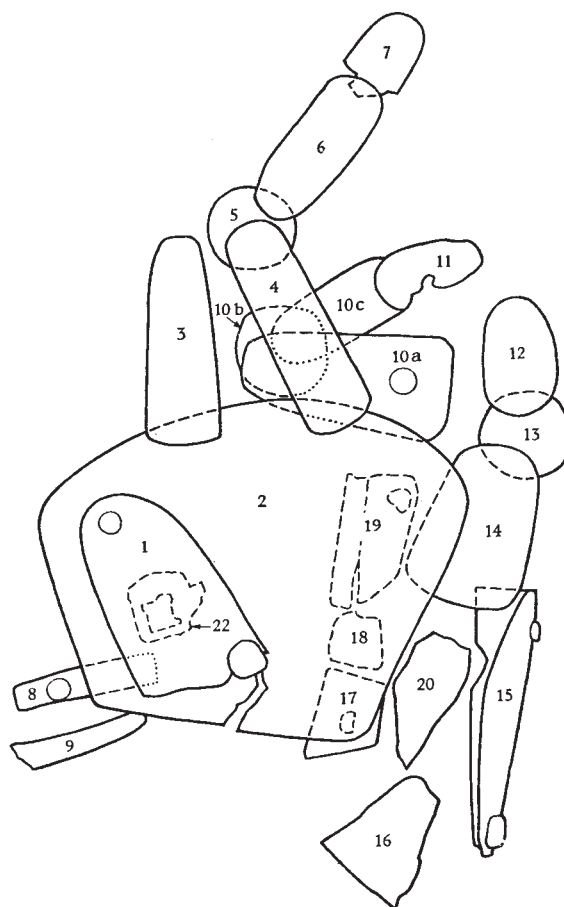


Fig. 404. Gauntlet 1 *in situ*. Scale 1:2.

No. 2. Common grave 2. Regn.no. Oä 2. Uncovered on 1st and 2nd July, 1929, by P. Nörlund. Measured up by A. Karnups. Figs. 408-412.

Gauntlet 2 is one of the most handsome specimens of the finds. It was discovered at the beginning of the excavations in the year 1929 and consists of no fewer than one hundred and six parts whose original position had been so well preserved that the photograph of the gauntlet *in situ*—it lay with the palm upwards—presents an almost perfect picture of its appearance and supplies a clear idea of its construction (fig. 408).

This, too, is a gauntlet for the right hand, and all its iron parts had, as in gauntlet 1, been fastened with rivets to the inside of a covering. The surfaces of the iron reinforcing are, however, closely set with rivets which have clearly been put on merely for ornamentation. The total number of rivets is something like six hundred and fifty, ninety-three of them being on the metacarpal plate, thirty-six on the thumb joint, and two hundred and thirty-two on the cuff. The metacarpal plate (104) which is beautifully worked and

has four embossed flutes, following the metacarpal bones, joins the index, middle, fourth and little fingers, which consist of eleven, thirteen, eleven and eight iron plates respectively, which overlap from the finger-tips like scales. The four rivets of the metacarpal plate at the roots of the fingers are larger than the others, and, furthermore, fastened to the under-side with square washers, which perhaps simultaneously served as fastening for the lining of the gauntlet which must of course have existed. The thumb-root guard (10) has a particular shape, with two pieces of different breadth cut out of the upper edge and is also bent very much to be able to cover the root of the thumb from the side; the thumb issues from this plate, and is composed of six scales which are slightly larger than those of the other fingers and, in contrast to these, overlap from the bottom upwards. The plates for the metacarpus and thumb-root are each prolonged

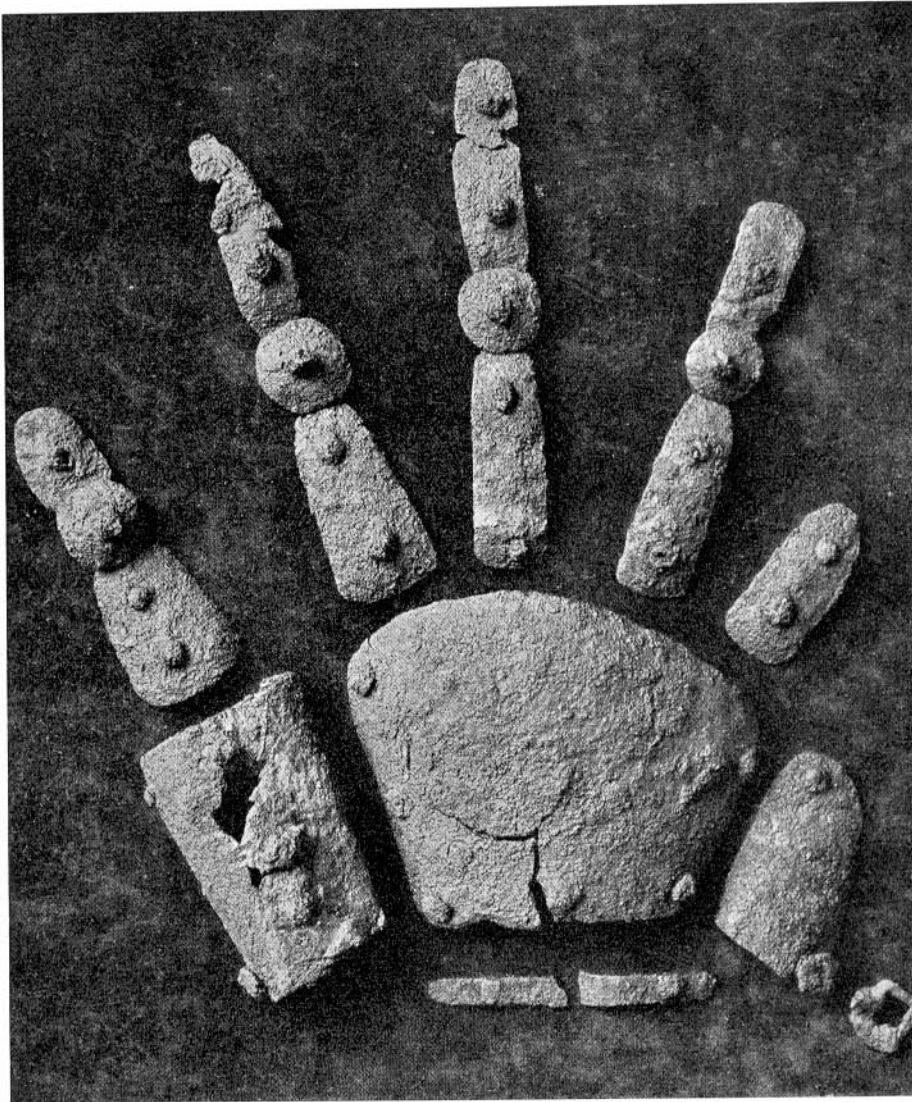


Fig. 405. Gauntlet 1. Reconstruction. Scale 1:2.

by five iron bands (99-103, and 95, 97, 64, 53, 52 respectively) of equal breadth but growing shorter towards the arm. The portions at the sides of this group of plates are filled up with small iron scales placed together in rows. The gauntlet has a cuff consisting of seventeen narrow, straight, parallel iron bands of which the outermost is shorter than the others, probably in order to give greater width to the cuff towards the elbow. The gauntlet was held together by two small, square iron buckles, one of them (105) located just above the point where the cuff was attached to the gauntlet, the other (106) close to the upper edge of the cuff, both on the little-finger side, which is proved by the fact that the points of the

tongues pointed in the opposite direction. In the second buckle there is a triangular iron scale, which had got rusted fast, and which was provided with a rivet in one corner (106 b). Immediately above the former buckle lay a precisely similar scale (65). From the fact that these two iron scales, which do not correspond with the others in shape, are in the immediate vicinity of the buckles, we may conclude that their function was associated with these; either—as has been assumed in the picture of the reconstruction¹—in such a way that the straps with which the gauntlets

¹ The iron scale 106 b which is rusted fast to the buckle 106, is in the reconstruction fig. 410 marked by a bit of cardboard of the same shape and size as the scale.

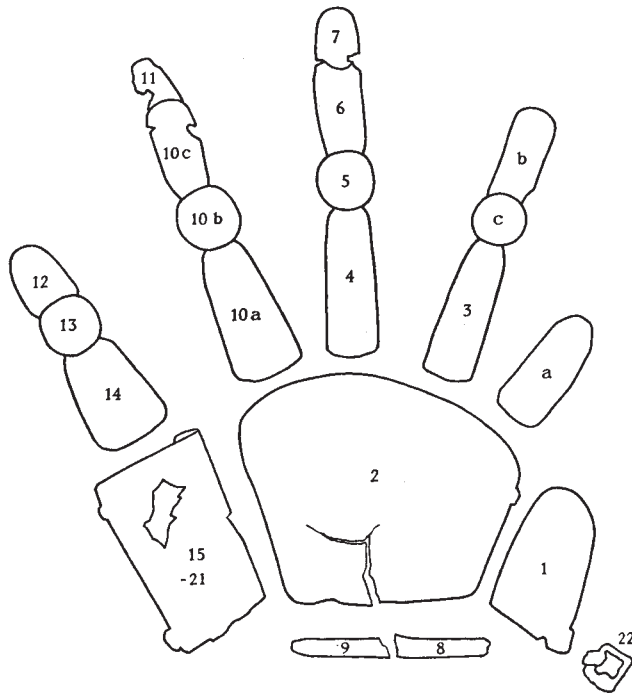


Fig. 406. Gauntlet 1. Number index to fig. 405.

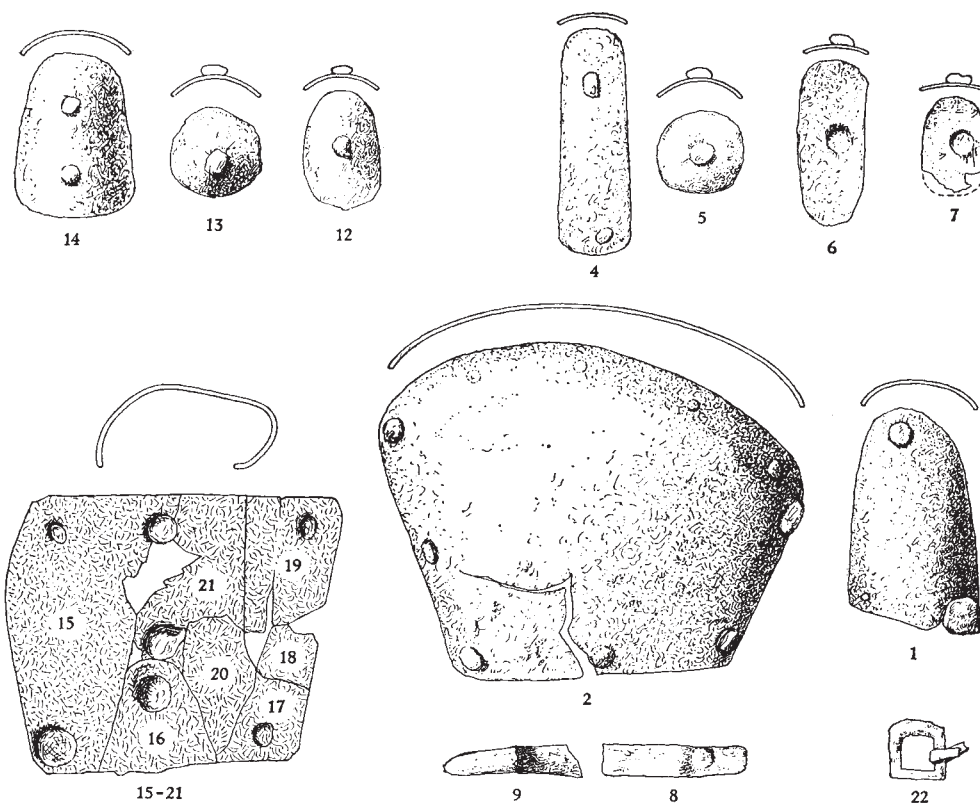


Fig. 407. Gauntlet 1. Scale 1:2.



Fig. 408. Gauntlet 2 *in situ*.

were fastened together had been attached to them, or that the buckles had been directly fastened to them, which is perhaps more likely in view of the circumstance that a scale of the same shape served this purpose in gauntlet 3. The reconstruction leaves no doubt as to its essential functions but is in some details vague. The finger-scale 1 was the part of the gauntlet which was found first. It was displaced so that its precise position in relation to the whole gauntlet cannot be exactly fixed. Nos. 4 and 5 lay near the thumb, but, because of their different size, do not belong to it. The three scales have to be assigned to the middle finger, first, because its lowest scale (23), in contrast to the other fingers, lay some distance away from the metacarpal plate, secondly, because the middle finger is not sufficiently long in relation to the other fingers until these scales have been added.

The reversed position of the plate for the base of the thumb, and the rather scattered position of the thumb-scales, might be explained by the fact that this part of the gauntlet, as the grave settled, came into contact with the adjacent cranium and was pushed out of its position (fig. 408). The portions of the wrist on the side of the little finger are obviously incomplete in the reconstruction. Here must certainly be inserted the parts 73-77, which were lying confused at this side of the gauntlet, but which cannot be fitted in here and therefore are excluded altogether from the reconstruction given in fig. 410. Perhaps 59, a part which cannot be inserted elsewhere, also might be inserted here.¹

¹ It may be noticed that no part with the number 61 exists, this number being overlooked in numbering the finds.

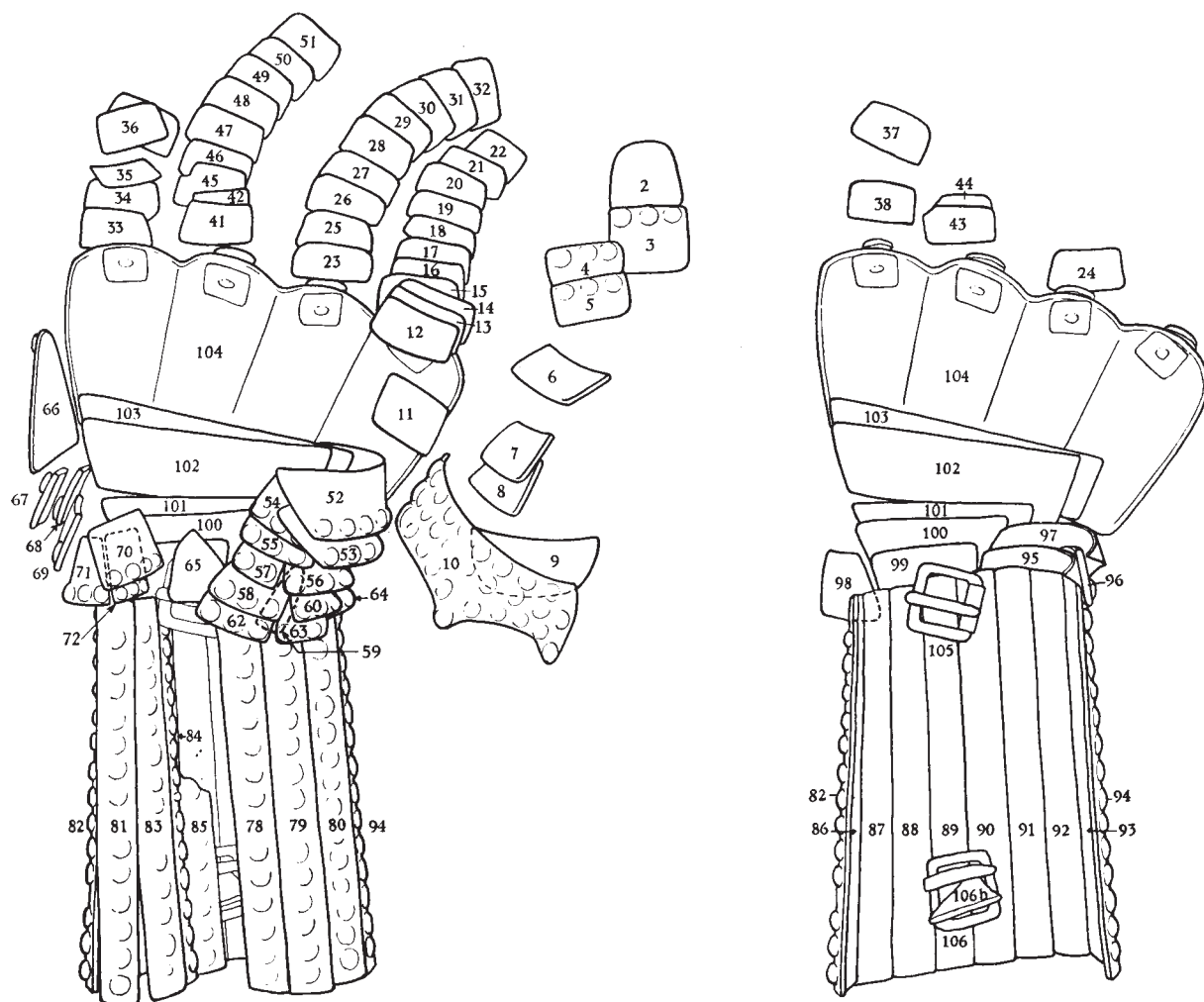


Fig. 409. Gauntlet 2 *in situ*. Scale 1:2.

No. 3. Common grave 2. Regn.no. *Ly I*. Uncovered on 4th July, 1929, by B. Thordeman. Measured up by A. Karnups. Figs. 413-416.

Gauntlet 3 was found in 1929, only a few days after No. 2. The location of the various parts in the soil was not so immediately comprehensible as in the case of gauntlets 1 and 2, and at first it looked very confused. However, a closer investigation enabled a safe reconstruction to be made without any difficulty, even if some of the minor details are doubtful.

The gauntlet, which was for the left hand, lay with the concave side of the metacarpal plate and with the convex side of the thumb plates (10-12) upwards. Some of the other parts were in their proper position in relation to the metacarpal plate, but some of them had been disturbed by the settling of the soil, or the gauntlet had already been damaged before entering the grave pit, i.e. probably in the course of the battle.

The metacarpal plate which, as in gauntlet 2, has four flutes for the knuckles, is prolonged by horizontal iron bands over the wrist, namely four in number (41-44), which grow shorter towards the arm. The plate at the base of the thumb (10) has the same shape as in 2 and is also prolonged by iron bands towards the wrist (13 and 14; 27 and 35), being applied tentatively in pairs, because their lengths, when added together, correspond precisely to that of the thumb-root plate, and because, by adding the two remains of iron bands belonging here (36, 37), the number of the horizontal rows of bands, then becomes four, which corresponds to the rows below the metacarpal plate (41-44). The thumb itself is composed of only two parts (11, 12) corresponding to the two

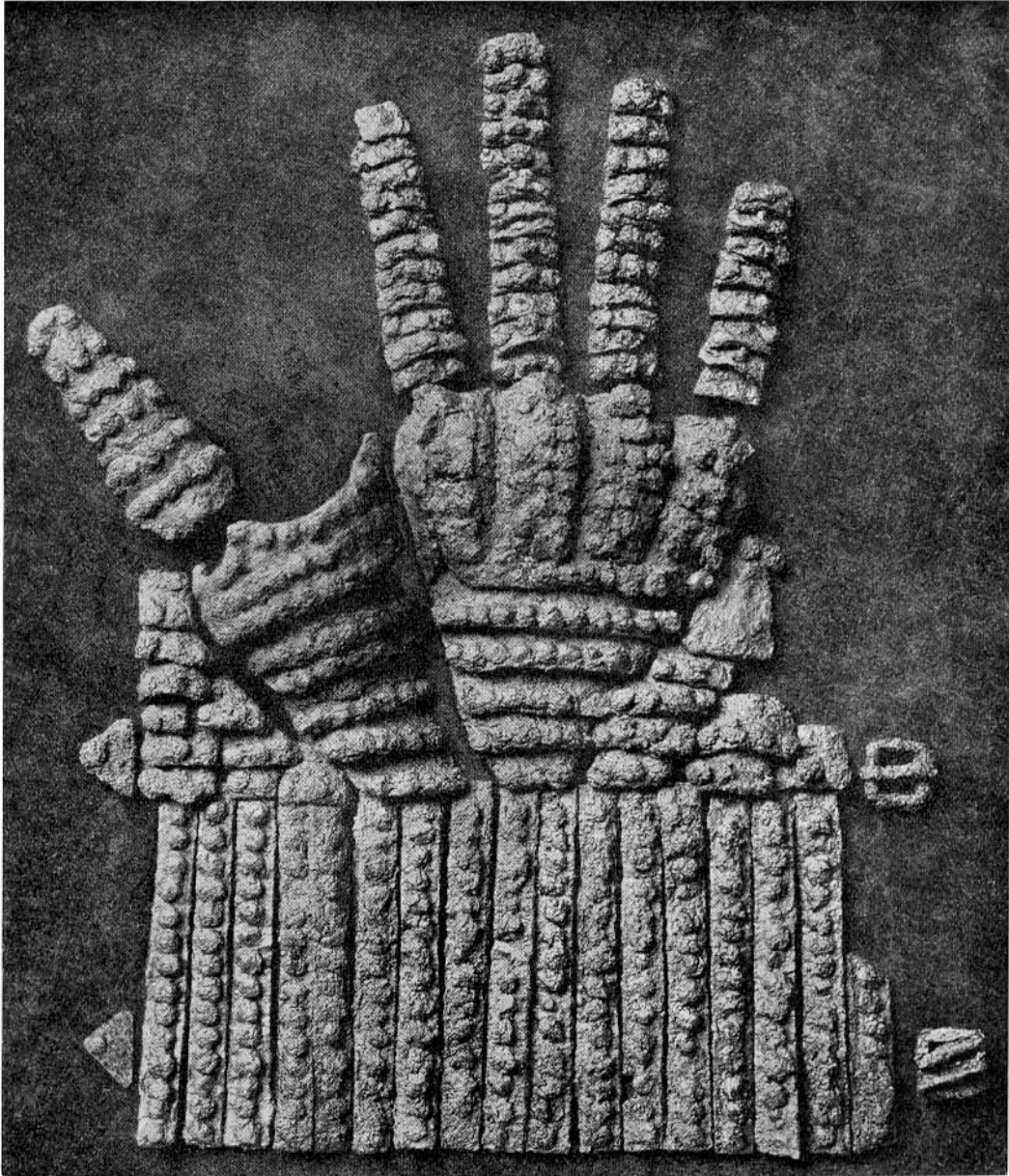


Fig. 410. Gauntlet 2. Reconstruction. Scale 1:2.

bones of this digit. On the other side of the metacarpal plate, below the little finger, the four horizontal iron bands on the wrist continue in four more similar bands (46-49), which at the top, beside the metacarpal plate, terminate in a small, triangular plate (50). The four long digits are composed of scales which are quite like those in gauntlet 2, except that they have square, conically domed plates over the knuckles, and at the finger-tips elongated guard plates, tapering towards the finger-tips. The gauntlet was held to-

gether, by means of a small square bronze buckle (51), which lay on the little-finger side, below the plate 46, and near a triangular iron scale (52) of a similar kind as the two which we found in gauntlet 2, close to its buckles. It appears here that the buckle had been attached directly to the triangular scale.

Apart from the cuff being missing, or if such existed, which in view of the position of the buckle 51 is probable, not being reinforced, the appearance of gauntlet 3 on the whole is strongly reminiscent of

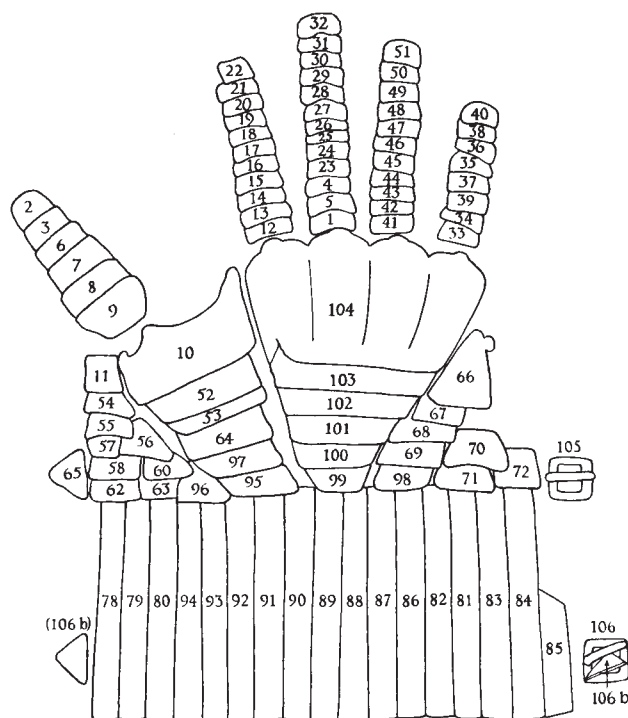


Fig. 411. Gauntlet 2. Number index to fig. 410.

gauntlet 2, even though it does not consist of so many parts (fifty-two as against one hundred and six, or eighty-nine when the cuff is left out of account) and is not so complicated in its composition. But it differs from a structural point of view considerably from the former, the iron reinforcing of which lay completely concealed on the inside of the covering, in that here the most important parts had been fastened to the outside of the covering. This applies to the metacarpal plate 45, the plates for the thumb-root and the thumb (10-12) and, finally, the guards for the knuckles (24, 21, 32,

16) and finger-tips (6, 5, 34, 9). Large and distinct rivets on the concave sides of these parts and the complete absence of such rivets on the convex sides, give perfectly safe evidence of this construction. To this has to be added the very notable singularity of the construction, namely that the thumb-root plate and the two small thumb-guards had been articulated by means of rivets. Besides a fragment of a similar finger, mentioned below (gauntlet 5), this is the only safe evidence among our finds that the riveting had been used for purposes of articulation.

No. 4. Common grave 2. Regn.no. A 5. Uncovered in 1912. Fig. 417.

Regarding these parts of a left gauntlet, there does not exist anything which can inform us of their relative position in the soil. In spite of this, the general reconstruction does not present any problems, thanks to the information obtained from the reconstruction of gauntlets 2 and 3.

On some of the pieces the iron rivets are fastened on the inside, but in the great majority on the outside. Of the former are the following: 1) a metacarpal plate with flutings over the knuckles as in 2 and 3, but besides that with three smaller ridges on each boss; 2) a thumb-root plate as in 2 and 3; and 3) a

knuckle-guard, likewise as in 3. The others have the rivets on the outside, namely: 4) thirteen finger-scales as in 2 and 3; 5) one finger-scale like that of the thumb of gauntlet 2; 6) fifteen narrow bands of various lengths, corresponding to the wrist-guard in gauntlets 2 and 3¹; 7) one triangular scale with four rivets along one side, of which gauntlet 2 also has parallels. Furthermore 8) a band, 6.5 cm. long, closely studded with a row of rivets, no wider than the

¹ Also some of the thirteen finger-scales (mentioned under 4) might be fragments of such bands.

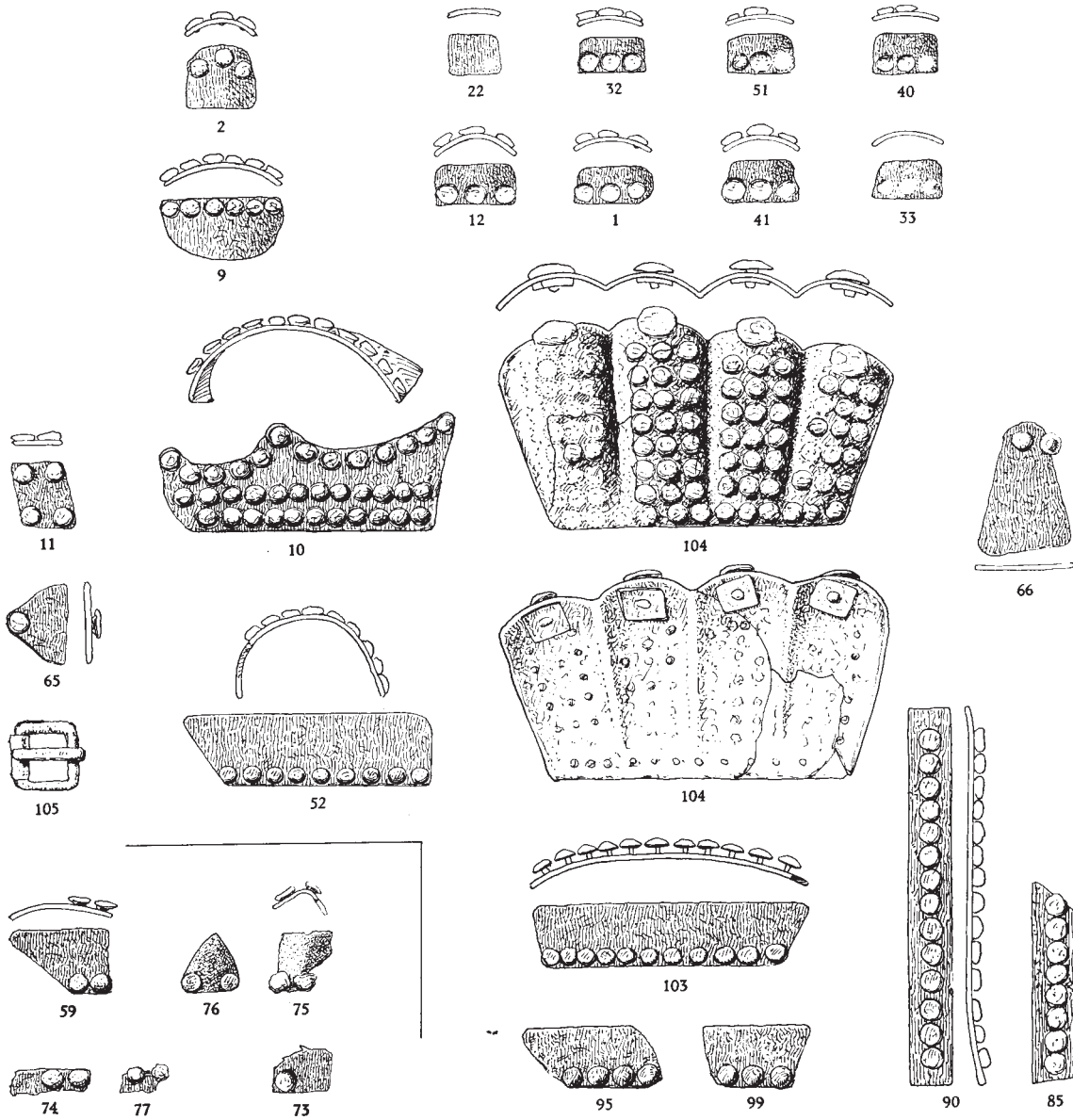


Fig. 412. Gauntlet 2. Scale 1:2.

rivet-heads fastened to it; 9) a plate, 8.4 cm. long and 2 cm. wide, with rows of rivets on both longitudinal sides and four fragments of similar components; finally, 10) a band of the same length but with a tapering form, with most of one edge, and the whole of the other, studded with rivets; these various strips may, as in gauntlet 2, have belonged to a cuff. The last-mentioned piece may have served the purpose of widening the cuff towards the elbow, like the shorter band 85 in 2. Besides these pieces there are fourteen fragments of scales or bands, which it is impossible to define exactly.

Though these parts are not sufficient to reconstruct a whole gauntlet, their general character is clearly recognizable. It is an intermediate shape between 2 and 3, resembling especially the latter. It differs only from it in that the thumb—to conclude from a single piece obtained—like the other fingers had been covered with scales of the same kind as 2. Nothing can be said about the guard of the extreme finger joints. But this is the only essential point in the construction which cannot be elucidated.

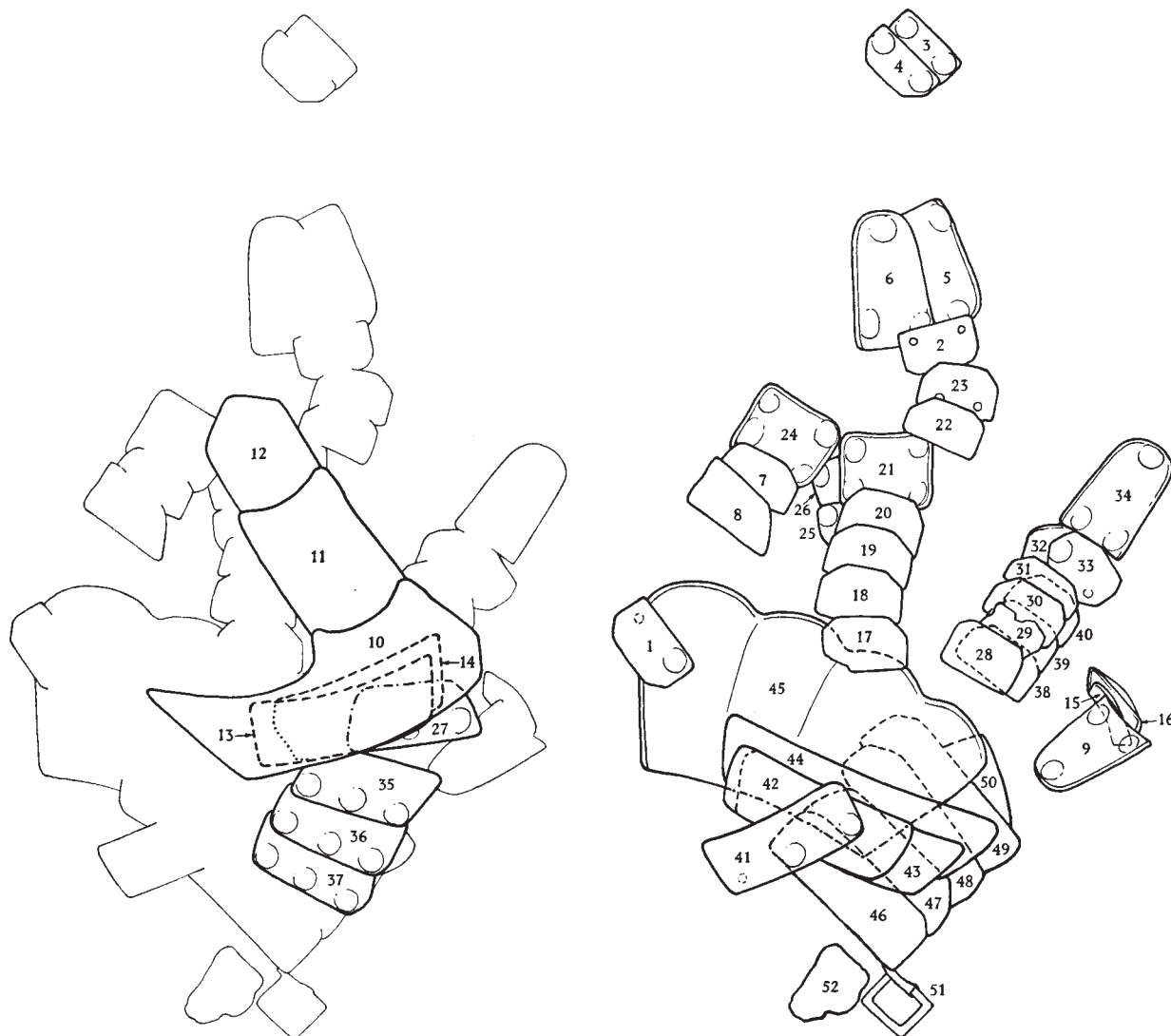


Fig. 413. Gauntlet 3 *in situ*. Scale 1:2.

No. 5. Common grave 2. Regn.nos. *V: I* (nos. 1-5, square *Or*), *Nr I* (nos. 6, 7, square *Nr*), *V: 3* (nos. 8, 9, square *Or*). Uncovered on 24th July, 1928. Figs. 418, 419.

These parts of a gauntlet, like gauntlet 1, were found on the surface of common grave 2, in soil that had been dug over; for this reason the conditions of the find do not supply any criteria for reconstruction. They were found in three different groups, but since they were found very close to each other, the assumption seems justified that they had originally belonged together, and this is also probable in view of the agreement in character. The gauntlet consists of the following parts, of which all¹ are provided with rivets on

¹ On 4 no rivets can be discerned. Such were certainly analogous to gauntlet 3: 11-12.

the concave side: 1) the metacarpal plate of the left hand, unlike most other plates of this kind, not bowl-shaped but only bent across the hand; on the edge which adjoins the fingers are four semicircular pieces cut out, which correspond to the four long digits; 2) one plate similar to the preceding, though smaller, with only two semicircular indents on one edge; this is in all probability the guard plate for the thumb-root in spite of its much greater size in relation to the other plates of this kind; 3) fragment of plate, smaller than the preceding ones, with a ridge similar to that on plate 1, and at the same distance from one edge;



Fig. 414. Gauntlet 3. Reconstruction. Scale 1:2.

it is, therefore, probable that it formed a continuation of plate 1 on the side of the little finger; 4) a finger plate in two parts, both rusted fast and probably also riveted together like the thumb of gauntlet 3 (11-12); 5) a finger-guard consisting of a plate curved longitudinally with semicircular indents at both short ends; 6) a finger-tip guard consisting of a plate curved longitudinally with semicircular indent like 5 at one end, and acutely pointed at the other; 7) a round, domed knuckle-guard; 8) the cuff composed of two plates which together form a sleeve, 8.5 cm. long, tapering slightly towards the hand (the circumference is here 21.7 cm. as against 27.5 cm. at the free edge). Both

parts, which are detached from each other, were originally united by a simple hinge consisting of iron tongues which were bent alternately around an iron rod; they could be fastened together with two straps or bands which had been fastened to the inside by still existing rivets and could be pulled to the outside through two elongated slits near the opening edges. It is impossible to ascertain whether these bands were tied or buckled together. One half of the cuff (b) is somewhat damaged and very much knocked out of shape. On the other half (a) a fragment of a plate is riveted near the edge which is turned towards the hand, possibly, but not very likely, a portion of plate

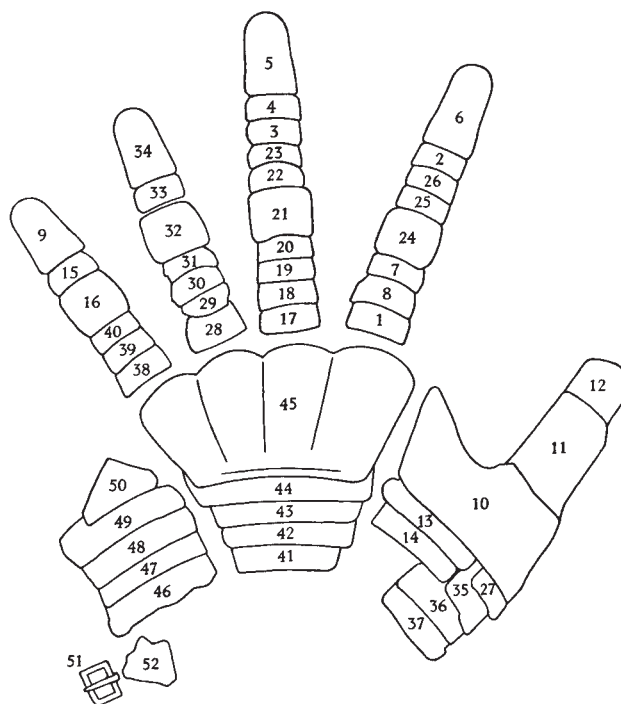


Fig. 415. Gauntlet 3. Number index to fig. 414.

3; 9) plate, approximately square but with rounded corners and two sides slightly curved; six rivets on the concave side. It is probable, on account of the similarity of these rivets with the rivets on other parts of this gauntlet, that this plate belongs here though it has no counterpart in other gauntlets and its location and function are problematical.

Although these parts cannot be assembled into a whole gauntlet it can yet clearly be seen that we have here a new type, which differs from the preceding ones very materially, both in shape and the use of the plates. All the iron parts seem to have been placed on the outside of the covering which united them. The long digits were protected by plates like nos. 4-6,

while the thumb was probably of a similar nature to that of gauntlet 3. One piece of the cuff, no. 8 *a*, very likely directly joined the metacarpal plate 1, though its length and curve do not correspond to the lower edge; otherwise the opening would lie between the metacarpal plate and the guard for the base of the thumb, which is hardly feasible. But we must also consider the possibility that the cuff belonged to another, though very kindred, gauntlet. Amongst the finds several examples of similar, but not associated, parts of armour have been found lying in the soil close to one another (e.g. gauntlets 2 and 14, armours 14 and 15).

No. 6. Common grave 2. Regn.no. A 36. Uncovered in 1912. Fig. 420.

1, 2) A pair of metacarpal plates for the right and the left hand, severely damaged, thoroughly agreeing with the metacarpal plate of gauntlet 1; traces of rivets on the convex side. 3) Three finger-tip guards, each one with a rivet on the convex side, of the same type

as gauntlet 1. 4) Several fragments of iron plates curved longitudinally with rivets on the convex side, one of them tapering towards one end. Probably parts of the cuff of a gauntlet.

No. 7. Common grave 1. Regn.no. B XVI. Uncovered in 1905. Fig. 421.

One metacarpal plate for the right hand, like no. 2 of gauntlet 6, but slightly larger and not bowl-shaped but only bent across the hand, like no. 1 of gauntlet 5.

Between each knuckle, a small dent. Rivets on the convex and the concave side.

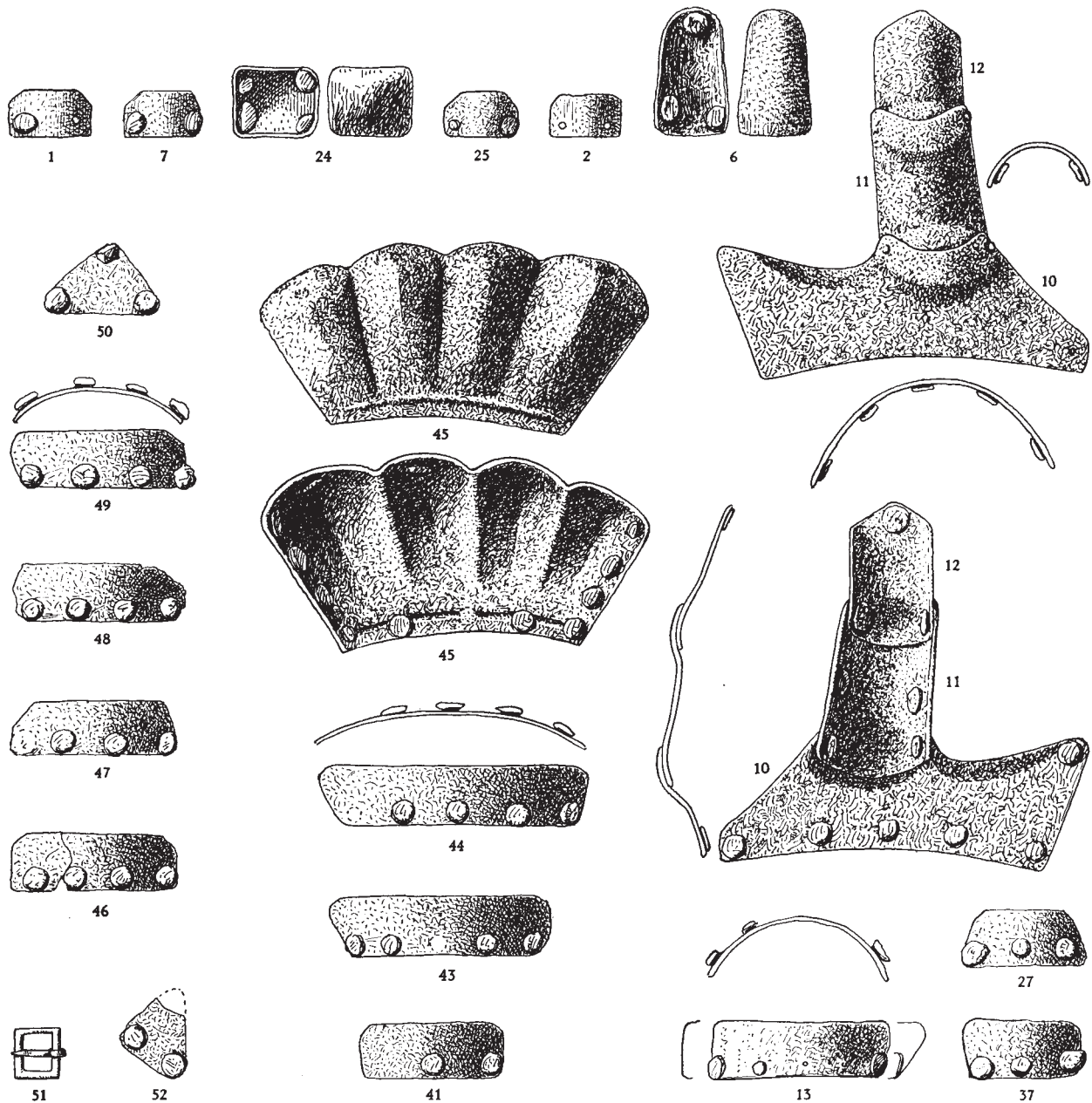


Fig. 416. Gauntlet 3. Scale 1:2.

No. 8. Common grave 1. Regn.no. *B XVII*. Uncovered in 1905. Fig. 422.

Parts of a left gauntlet, of which altogether ten small plates have been found, having the rivet-heads throughout on the outside. This gauntlet is closely akin to gauntlet 1. Nine of the plates found are explained by comparing them with the latter: 1) two elongated finger plates, each one with two rivets; 2) five shorter ones, each with one rivet; 3) one round knuckle plate,

likewise with only one rivet; and 4) a fairly large, trapezoidal plate with two rivets at the broad end and one at the narrow end. The latter plate covered the hand on the little-finger side, and on comparing it with the similar plate of gauntlet 1, no. 1, it is seen that it fits the left hand; 5) one strongly bent plate with three rivets and with an elongated irregular

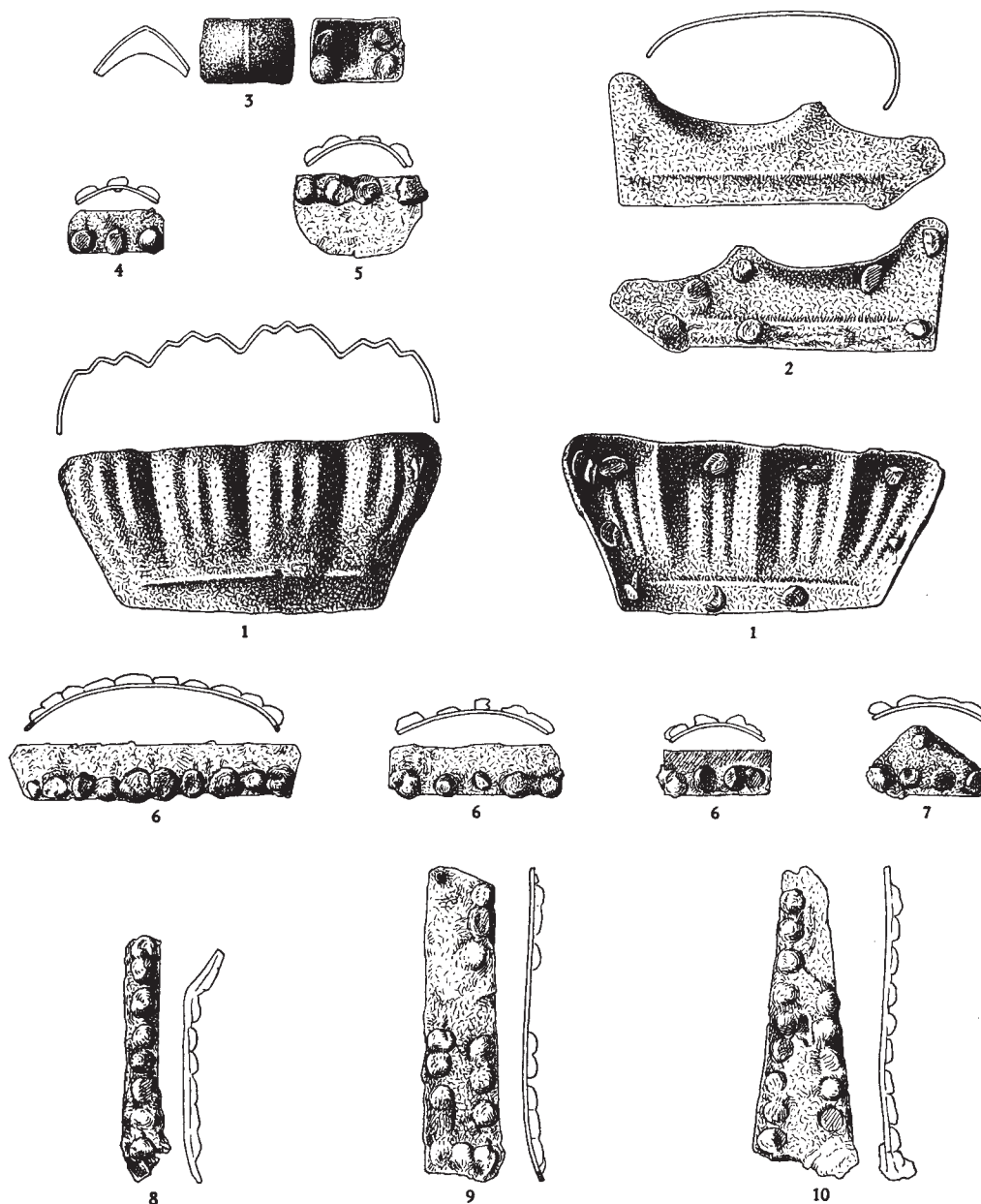


Fig. 417. Gauntlet 4. Scale 1:2.

shape, differing from the pattern of gauntlet 1; unfortunately, it is damaged, but corresponds somewhat to the plates which in 2-4 covered the root of the thumb.

To this have probably to be added 6) five iron strips

without rivets, tapering towards one end. One of them is oblique at the wider end. They are perhaps stiffenings for a cuff and were in that case probably sewn between the leather cover and the lining.

No. 9. Common grave 2. Regn.no. C 4. Uncovered in 1924. Fig. 423.

These fragments of a gauntlet came to light when common grave 2 was traversed by a trench for a water

main in the year 1924. We therefore know nothing of their precise position and whether they had originally

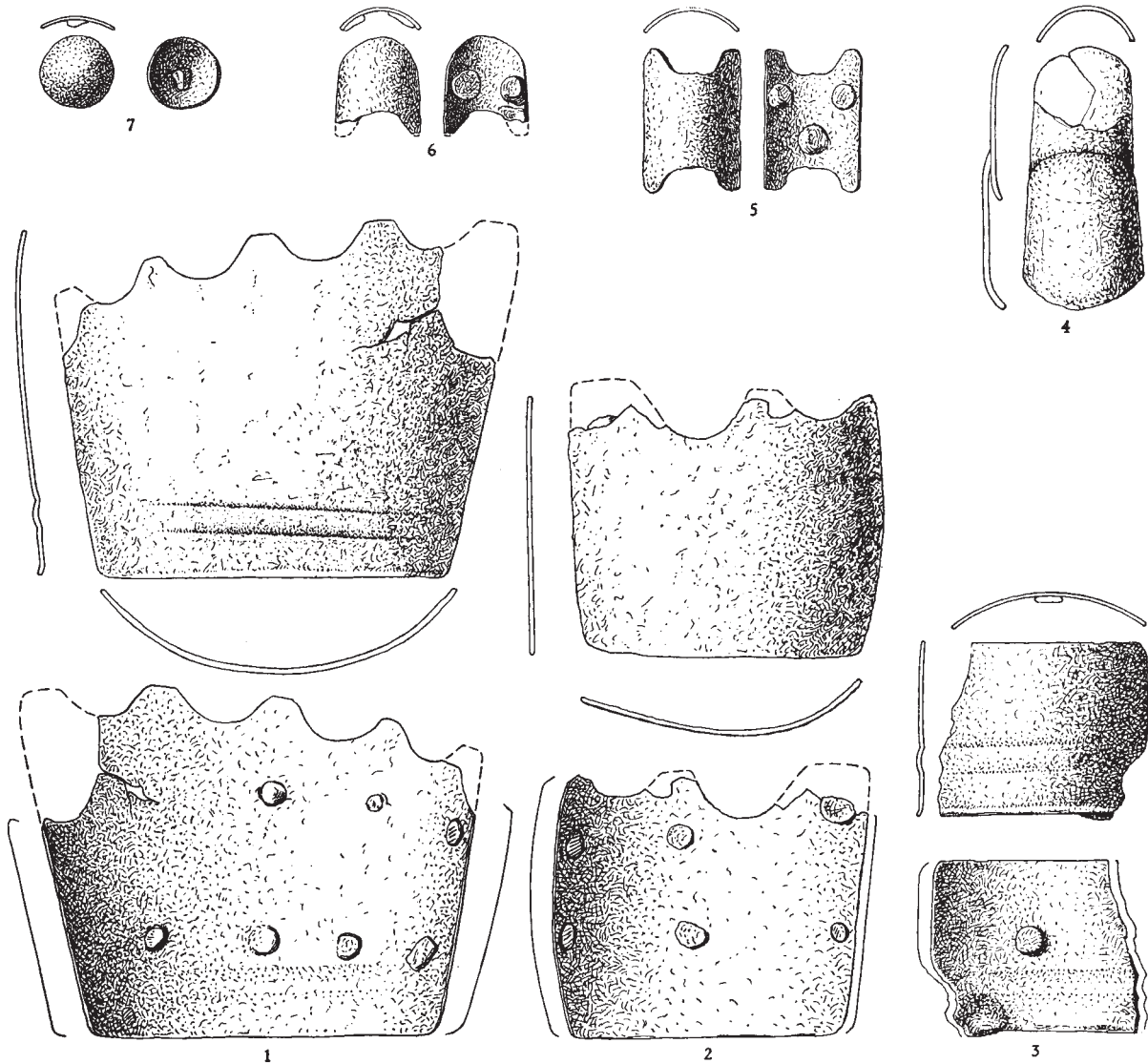


Fig. 418. Gauntlet 5. Scale 1:2.

belonged together. There are the following parts: 1) a finger-tip guard with three rivets on the concave side, agreeing with the corresponding parts of gauntlet 3; 2) five band-shaped small parts of a gauntlet and a few fragments of such with rivets on the convex side, of the same kind as occur on gauntlets 2-4;

3) a minor fragment of a metacarpal plate like that belonging to gauntlet 7, but with rivets on the concave side; 4) some fragments of iron strips, closely studded with rivets, perhaps for a cuff of the same kind as gauntlet 4, nos. 8-10.

No. 10. Common grave 2. Regn.no. *Qx 12*. Uncovered on 11th July, 1930. Figs. 424, 425.

On the bottom of common grave 2 was found a

funnel-shaped object of iron, constituting the cuff of a gauntlet. The object had been crushed into several fragments which on uncovering were thought to be

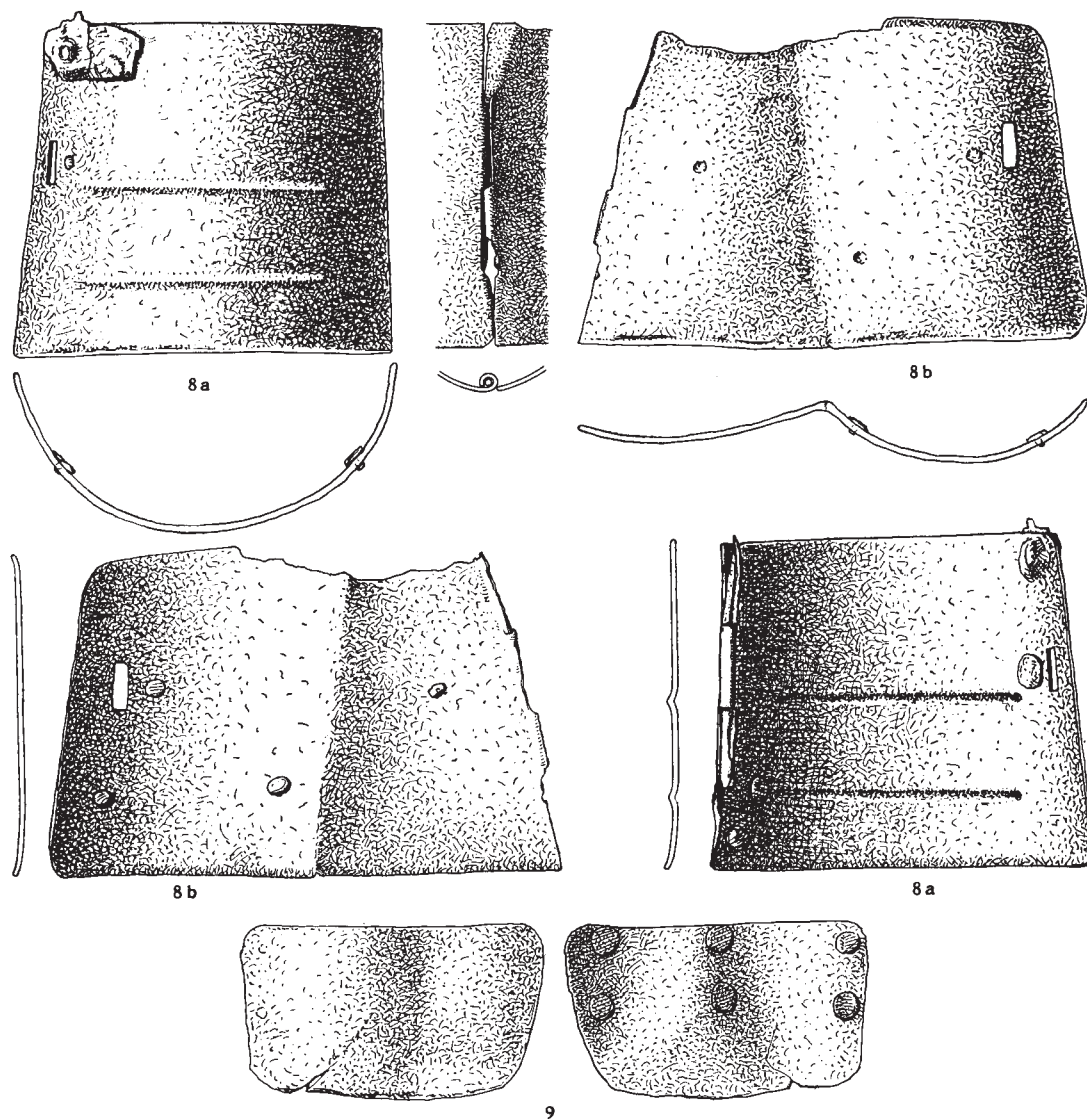


Fig. 419. Gauntlet 5. Scale 1:2.

parts of a single piece of iron¹, but after cleaning and being joined together it could be proved that it consisted of two separate and mutually symmetrical parts. At one end these pieces are cut off almost at right angles; at the other, however, at an acute angle to the wider edge of the cuff. There are rivets on the inside along the two longitudinal edges (particularly distinct on one piece), showing that the cuff had been attached to the outside of the soft glove. On the outside, also,

of one plate is a rivet, but it is possible that this is only the bulge which occurs on clinching the rivet on the side of the plate opposite its head. That both pieces had belonged to the same gauntlet is apparent from their position in the soil. The diameter of the opening towards the hand is about 7.5 cm., and of the wider opening up the arm 13–14 cm.

¹ Cf. *Acta Archaeologica* 1931, p. 73, fig. 18.

No. 11. Common grave 2. Regn.no. V: 13. Uncovered in 1928. Fig. 426 (11).

Finger-guard made of an elongated plate, curved longitudinally, with short ends cut off straight and rivets on the concave side.

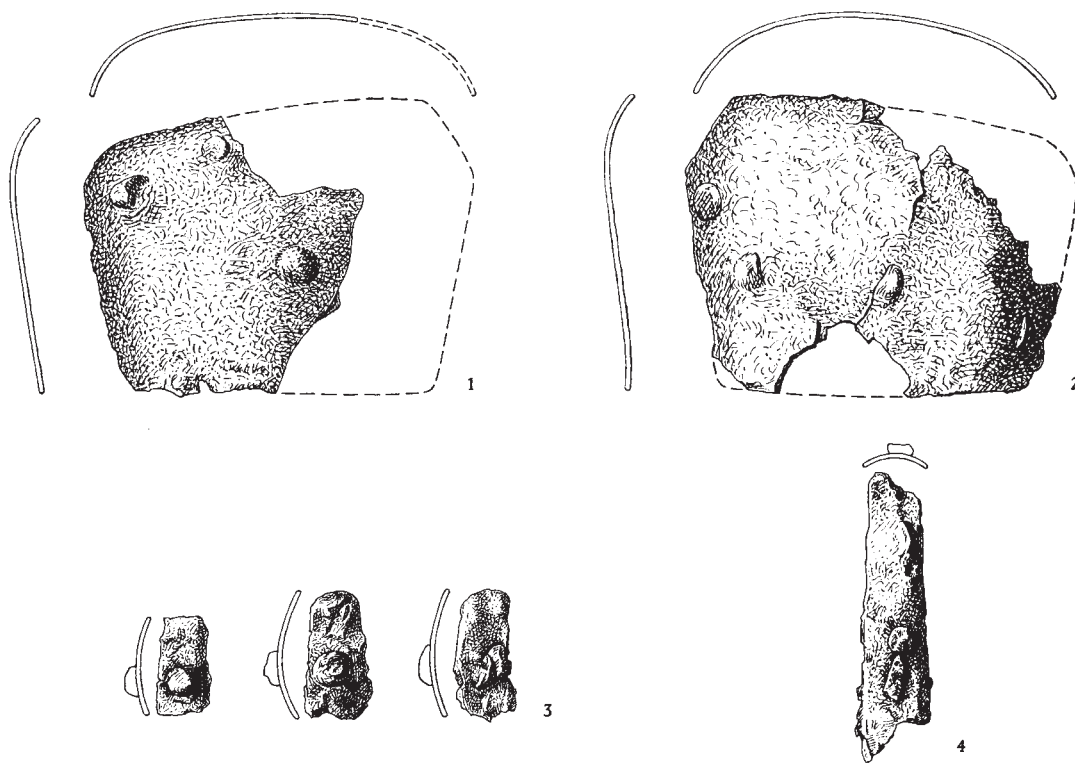


Fig. 420. Gauntlet 6. Scale 1:2.

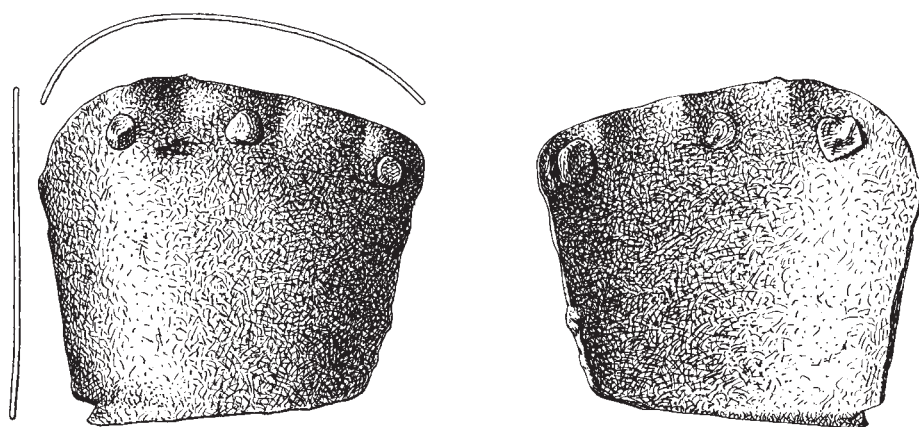


Fig. 421. Gauntlet 7. Scale 1:2.

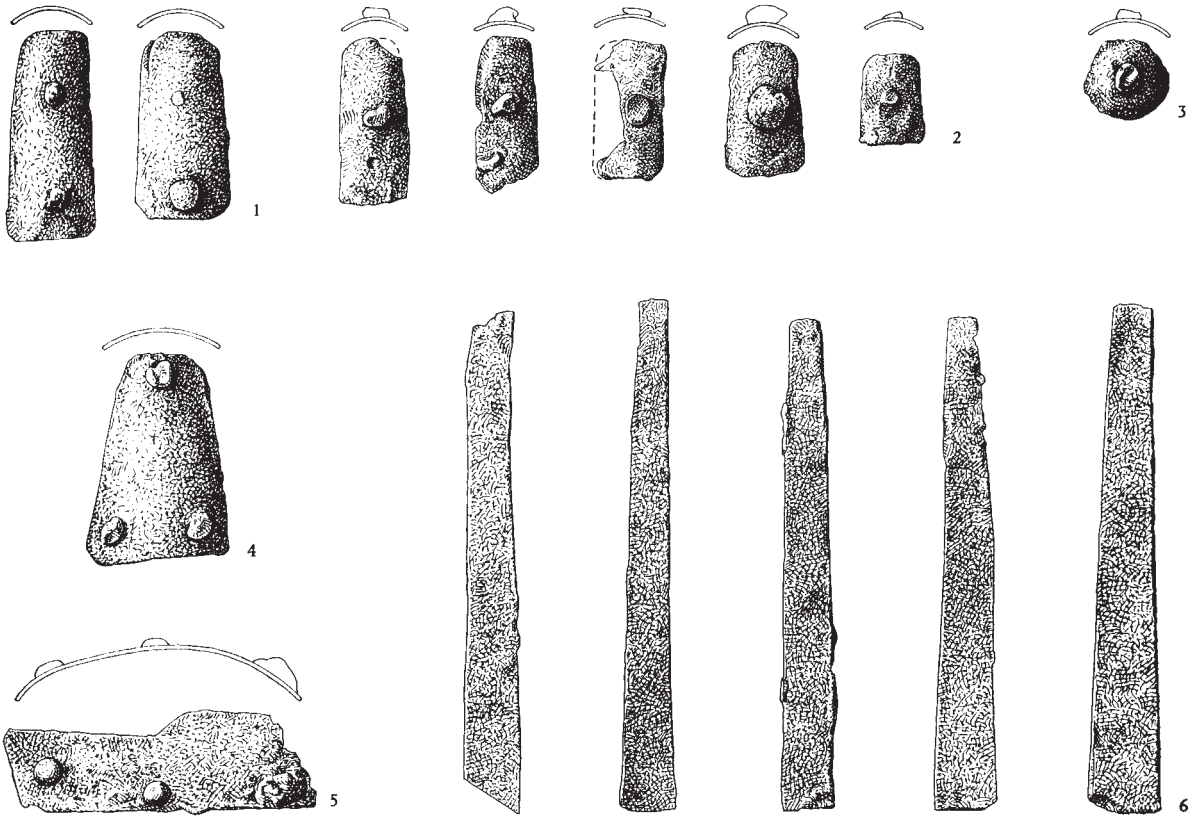


Fig. 422. Gauntlet 8. Scale 1:2.

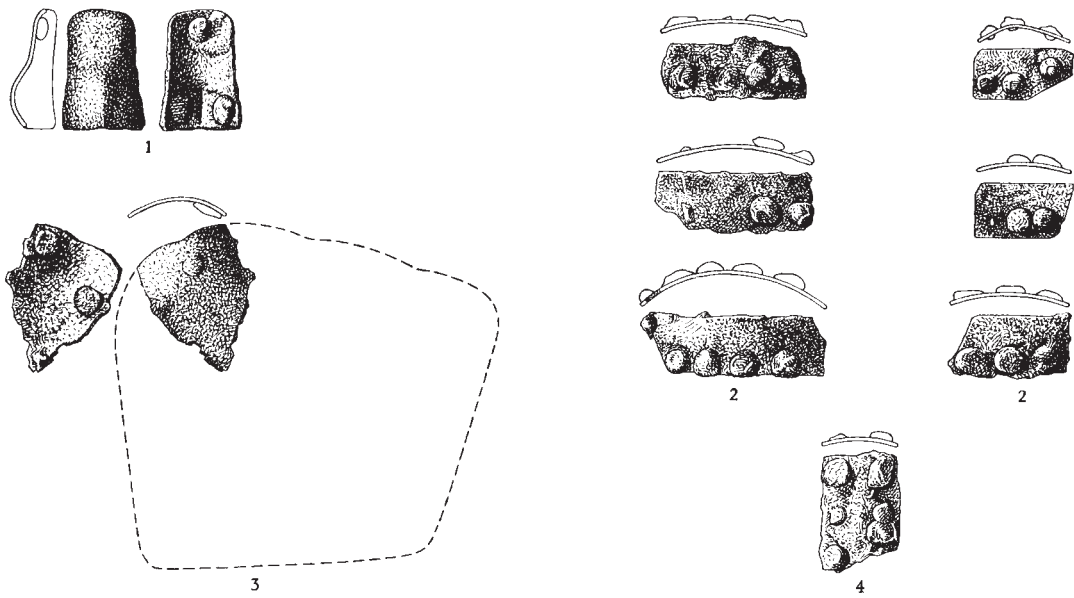


Fig. 423. Gauntlet 9. Scale 1:2.



Fig. 424. Gauntlet 10 *in situ*.

No. 12. Common grave 2. Regn.no. *VII: 11* (square *Stt*). Uncovered in 1928. Fig. 426 (12).

Finger-tip guard and three small square scales (about 1.5×2 cm.), all faintly arched, with a rivet each on the convex side.

No. 13. Common grave 2. Regn.no. *Mu 1*. Uncovered in 1929. Fig. 426 (13).

Finger-guard of the same appearance and dimensions as gauntlet 5, no. 5, but with deeper, semi-circular indents. As the position of the find is not far away from the places where the various parts of gauntlet 5 were found, it is possible that no. 13 also belonged to it.

No. 14. Common grave 1. Regn.no. *B XI*. Uncovered in 1905. Fig. 426 (14).

Finger-guard with two rivets on the convex side, of almost the same type as those in gauntlet 8. Belonged perhaps to the same gauntlet.

No. 15. Common grave 2. Regn.no. *Qa 4*. Uncovered in 1929. Fig. 426 (15).

Two plates almost alike, oblong in shape with two rivets on the convex side. One somewhat fragmentary. Of the same type as the larger finger-guards in gauntlets 1 and 8, but still larger than these.

No. 16. Common grave 1. Regn.no. *B X*. Uncovered in 1905. Fig. 426 (16).

1) Plate with approximately square shape, strongly bent, with rivets on the convex side. Reminds one of the protection for the base of the thumb (*15-21*) in gauntlet 1, but smaller in size; 2) three small finger-guards, each one with a rivet, of the same type as in gauntlet 8, though of coarser make.

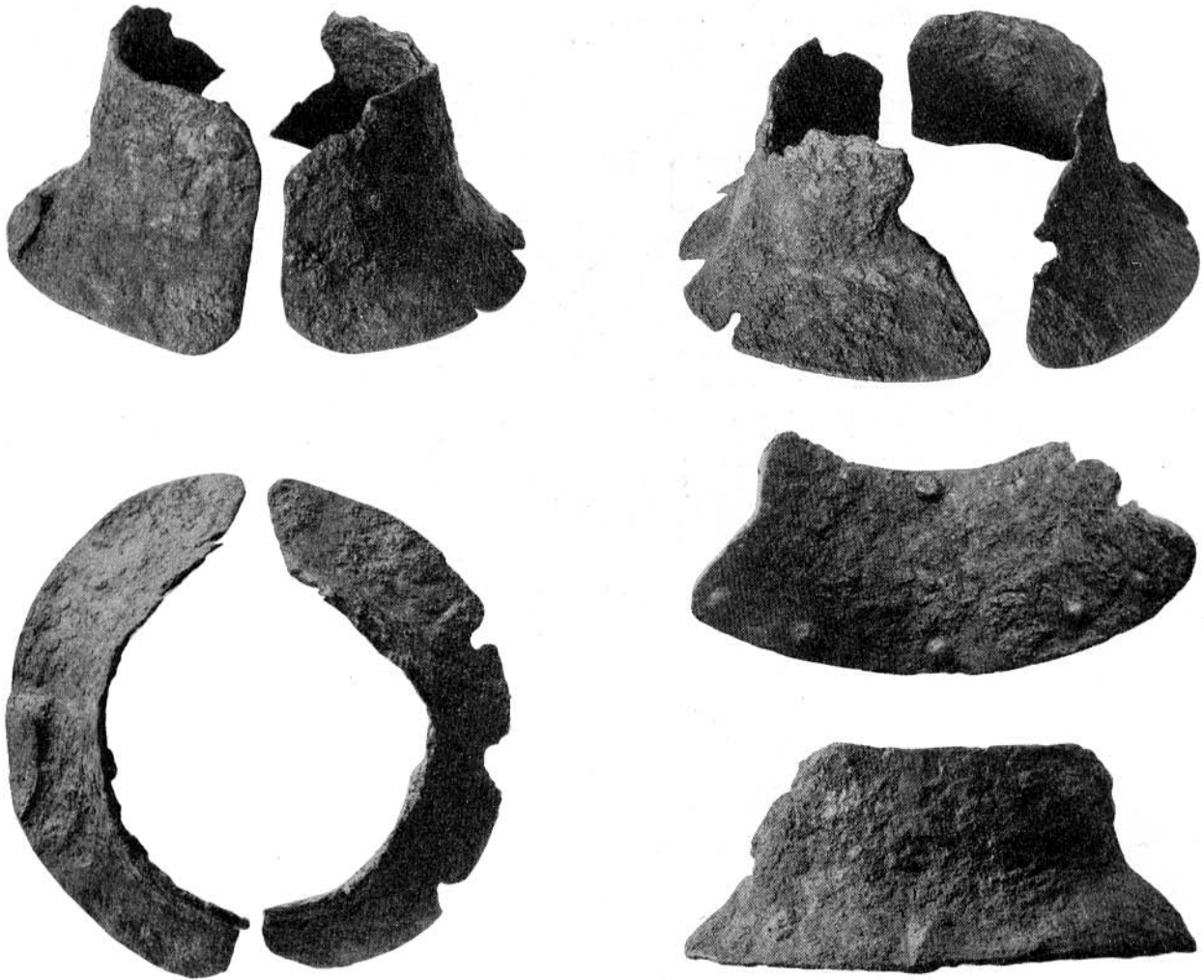


Fig. 425. Gauntlet 10. Scale 1:2.

No. 17. Common grave 1. Regn.no. *B V*. Uncovered in 1905.

Parts of gauntlets rusted together into smaller and larger shapeless lumps, amongst which can be distinguished numerous finger-scales of the same type as those in gauntlet 2, probably all with rivets on the convex side, and a guard for the base of the thumb like that in gauntlet 4, probably with rivets on the con-

cave side. Furthermore, there were plates for a cuff, closely studded with two rows of rivets like gauntlets 2, 4, 9 and 18. This gauntlet had probably been of the same type as gauntlet 4, though it is uncertain if it had knuckle-guards.

No. 18. Common grave 2. Regn.no. *Oä I*. Uncovered in 1929. Fig. 426 (18).

Iron bands closely studded with rivets, clearly belonging to a cuff like gauntlet 2, and, peculiarly enough, found very close to the latter. One of them

is narrower and has one row of rivets, while the others are broader and have two rows of rivets. The length is about 11.5 cm.

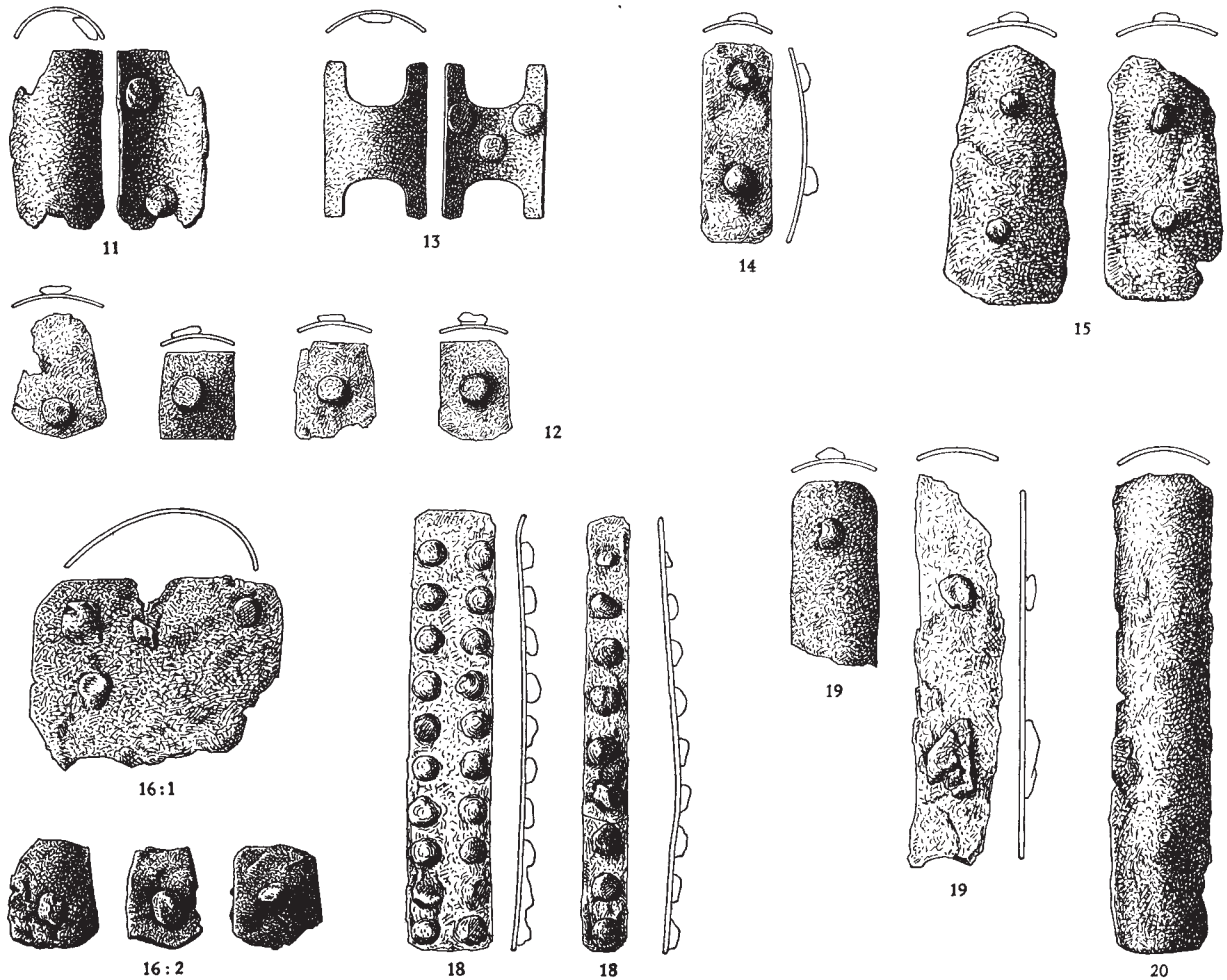


Fig. 426. Gauntlets 11—20. Scale 1:2.

No. 19. Common grave 1. Regn.nos. *B V, B XV*. Uncovered in 1905. Fig. 426 (19).

Under this number are brought together some fragments of plates, curved longitudinally, found in common grave 1, probably belonging to a gauntlet-cuff of the same type as corresponding parts of gauntlet

6. Rivets on the convex side. The longest fragment measures 13.2 cm. One fragment ends in a semicircle. It is uncertain whether they belong together.

No. 20. Common grave 2. Regn.nos. *A 15, A 34*, uncovered in 1912; *Nz 15, Nz 21, Tyy 8, VI: 35* (square *Uq*), uncovered in 1930. Fig. 426 (20).

Under this number have been brought together several fragments of plates, curved longitudinally, of the same type as no. 19, picked up in different spots in common grave 2. Of these, only two are preserved

in their whole length, 12.6 and 13.2 cm. respectively. The breadth, too, varies from 2–2.5 cm, for which reason it is probable that they are parts of at least two gauntlets, one of which is perhaps gauntlet 6.

NOTES, BIBLIOGRAPHY, INDEXES

NOTES.

CHAPTER I.

¹ Formerly the name Slottsbetningen (= grazing ground of the castle, viz. the Castle of Wisborg, which was incorporated in the southern part of the city wall, and has now vanished) was also used. The inscription on the cross is, without expanding the abbreviations:

ANNO : DNI : M : CCC : LXI : FRIA : III : POST :
JACOBI ANTE : PORTAS . WISBY . I . MAIB' . DA-
NOR' . CECIDERUT . GUT : ENSES H . SEP'TI .
OR' P E¹⁵. The inscription was painted in colour on July 9—10th, 1938, by H. Faith-Ell under the guidance of the author. The height of the cross from the ground is 2.75 metres, its present breadth 1.2 metres. Originally, the arms terminated in the same manner as the top; the original breadth can be estimated as 1.6 m. The part of the upright in the ground has the form of a broad mass, as is indicated by figs. 1 and 2. This was verified in the 1928 excavations, when the base was exposed.

The classification of Gotland's older tombstones recently carried out on the initiative of J. W. Hamner and controlled by the State Antiquary, has also cast some light upon the historical position of the monument. The inquiry chiefly concerns the town of Wisby, and the part relating to the Cathedral (J. W. Hamner, *Visby domkyrkas gravstenar*, Stockholm 1933) is now available in print, while the section devoted to the ruined churches is ready for publication. The latter part has been investigated by Harald Widéen B. A., who has also studied the whole material of the tombstones. Though these have only partly been collected for publication, Widéen has, at my request, kindly rendered the following account of the results of his researches, which have direct bearing on the subject here concerned:

The medieval tombstones of the city of Wisby belong chiefly to the 14th and 15th centuries, and the shape of the stones is of classic simplicity. They are seldom decorated with figures, being only framed by a decorative inscription round the edge in majuscles (Latin inscriptions) or minuscles (Latin or Low German inscriptions) and provided with the owner's mark or a civilian coat of arms. This fine, traditional type is also encount-

ered in the neighbouring churches and in other localities, but is in principle clearly opposed to those tombstones of the rural districts, which are decorated with interlacing pattern and with runic inscriptions. The stones, as a rule, are dated and can also be brought together into certain groups, distinguished by common features. The types of the letters themselves and their arrangement vary constantly and form in themselves to some extent a chronological criterion. The nature of the lime-stone often helps to show their relation. In the 14th and early in the 15th century the following groups are noted in Wisby:

- 1) About 1315—1330. Large blocks, large, broad majuscles; corner ornaments rare.
- 2) About 1320—1330. Smaller blocks; smaller majuscles, closely placed.
- 3) About 1330—1380. Different types; pointed and rather deeply incised majuscles; corner ornaments; often circular inscriptions.
 - a) About 1340—1350. Raised majuscles; often beautiful examples; among them the largest tombstone in Gotland.
 - b) About 1365—1385. Smaller, rounded and deeply incised majuscles.
- 4) About 1390—1410. Majuscles again broader and shallower; after about 1410, no majuscles.

According to this broad classification the cross falls into group 3 b. The circular cross was the accepted form for a monument—such crosses occur in large numbers in Gotland (cf. note 42)—and circular inscriptions occurred on tombstones in Wisby from the year 1321, probably even before that time; but the lettering on the tombstones never reads *outwards* as on the memorial cross. The punctuation marks follow the tradition of older Wisby stones, and the engraved crucifix may very well be compared with a decorative cross on an undated tombstone of group 3 with a circular inscription, found in St. Hansgatan and set up in the ruins of St. Peter's Church. But the cross has its nearest paleographic counterpart in a stone with a circular inscription in the Västkinde Churchyard (*Sv. Kyrkor, Gotl.* I, fig. 248) which was made in 1377, of course in Wisby, and in the tombstone over Tideman Wrede, found in Solberga Convent, also circular and dated 1382 (fig. 355).

The inquiry shows that the cross came from a school of stone masons active in Wisby, and that the year of its origin is somewhere about 1375 and rather after than before this year. It is also reasonable to assume, that some years had elapsed between the catastrophe of 1361 and the erection of the memorial cross.

² E.g. the novel "The Virgin's Tower" (*Jungfrutornet, Sjöroman*, Stockholm 1848) by Emilie (Flygare-)Carlén; the popular historical painting "Waldemar Atterdag collects the ransoming of Wisby" by C. G. Hellquist (1882) in the National Museum in Stockholm; and the Opera "Waldemar's Treasure" by A. Hallén (first performance in Stockholm 1899, in Stuttgart 1913); the libretto by A. Klinckowström (*Waldemarsskatten, Romantisk opera*, Stockholm 1898).

³ Almgren-Nerman, *Die Ältere Eisenzeit Gotlands*, pp. 1, 138. Stenberger, *Gotland och den äldsta järnålderns gravskick*.

⁴ Nerman, *Die Völkerwanderungszeit Gotlands*, pp. 124, 126. The figures relate to an estimate drawn up in the year 1929.

⁵ According to the statistics in Bolin, *Fynden av romerska mynt* (1926).

⁶ Arne, *Deux nouvelles découvertes de solidi en Gotland* (1931), p. 16.

⁷ According to an estimate which does not, however, lay claim to reliability, 20,000 Anglo Saxon, 35,000 German and 36,000 Muhammadan coins from this period have been found in Sweden. These figures are probably rather too low than too high. See Rasmusson, *Foreign Coins in Swedish Coin Finds*, p. 327. Professor Sture Bolin will shortly publish a work on the coin finds from the Viking Period.

⁸ Lindqvist, *Gotlands bildstenar*. Professor Lindqvist is preparing an exhaustive work on the subject.

⁹ Gotland's importance for prehistoric commerce can be gauged without having to go to extremes like some authors (Patzelt, *Die fränkische Kultur und der Islam*, p. 237), who are trying to maintain that the Baltic during the period from the 5th to the 10th century had been of greater importance than the Mediterranean to the trade between the Orient and Western Europe. It is certain that the paralysing of shipping in the Mediterranean by Islamic expansion was one of the reasons for the flourishing of the Nordic, and especially the Gotlandic, commerce during the Viking Period.

¹⁰ Nerman, *The Grobin Finds*, pp. 162 ff.

¹¹ A. Schück, *Det svenska stadsväsendets uppkomst*, pp. 123 ff.

¹² Lindqvist, *Forntida riksbyggare*, pp. 77 ff.

¹³ Arbman, *Schweden und das karolingische Reich*, p. 16.

¹⁴ *Op. cit.*, p. 93.

¹⁵ See below p. 47 and fig. 32: 8.

¹⁶ Lithberg, *Forn-Visby*, p. 11. An excellent account of prehistoric and medieval Wisby is available now by E. Lundberg, I. Andersson and J. Nihlén, *Visbybilder*

från forntid och hansavälde. Unfortunately I have been unable to make use of this work which was not published until the manuscript of this book was finished and translated.

¹⁷ Lundberg, *Visby, kyrkoruinerna och domkyrkan*, p. 16.

¹⁸ A. Schück, *Gotlands Stellung innerhalb des schweidischen Reiches*, p. 251.

¹⁹ According to an interesting theory advanced by S. Ambrosiani (*Vem har bebott Kruttornet i Visby?*) the German emperor at this period would seem to have appointed an agent, "advocatus", to look after the interests of the German merchants in Wisby. The "Kruttornet" (old Powder Magazine) was erected as a residence for this official according to the same author.

²⁰ Tunberg, *Visby-Lübeck*, p. 21.

²¹ Björkander, *Till Visby stads äldsta historia*, pp. 67, 133 ff.

²² Schück, *Det svenska stadsväsendets uppkomst*, pp. 215 f.

²³ See below, chapter IX, pp. 329 ff.

²⁴ For church architecture in Wisby, see Roosval, *Den gotländska ciceronen*, and Lundberg, *op. cit.*

²⁵ Kjellberg, *Visby medeltida bebyggelse*, p. xxvii.

²⁶ Eckhoff-Janse, *Visby stadsmur*, pp. 277 ff.

²⁷ See below pp. 27 ff., figs. 25—29.

²⁸ *Op. cit.*, p. 214.

²⁹ Björkander, *op. cit.*

³⁰ Right up to the middle of the 13th century Gotlandic peasants act as purveyors to the King of England but are then superseded by merchants bearing German names. Björkander, *op. cit.*, p. 22.

³¹ For the attack on Gotland and Waldemar Atterdag's policy in this connection see I. Andersson, *Valdemar Atterdags tåg mot Gotland 1361*, upon which the following account is mainly based.

³² In regard to the saying about Waldemar Atterdag and Gotland, see besides Andersson, *op. cit.*, C. Säve, *Sägner om konung Valdemar på Gotland*, Wennersten, *Valdemarstågets sägner*, J. Nihlén, *Sagornas Ö*, pp. 34 ff., and Thordeman, *I Valdemar Atterdags fotspår på Gotland*.

³³ Unghanse is a proper name, young Hans (Hans is the Scandinavian diminutive of Johannes), and at the same time, the name of the manor.

³⁴ The motive for the legend about Unghanse's daughter walled-in in the Virgin's Tower is mentioned for the first time in the year 1842 (Lithberg, *Kring Visby Mariakyrka*, p. 11); the motive has sometimes been applied to the story of Nils Goldsmith's daughter (C. Säve, *Sägner om konung Valdemar*, p. 211) and to a nun in Solberga Convent (Janse, *Visby stadsmur*, n. 241). The prominent specialist in literary research, R. Steffen (*Ur Jacob Dubbes krönika*, p. 83), has advanced the theory that the motive was invented by the authoress, Emilie Flygare-Carlén, who employed it as a kind of theme in her novel *Jungfrutornet*, published in 1848

(German edition: *Der Jungferthurm, Seeroman*, Stuttgart 1858). But this is improbable for chronological reasons. As Steffen has shown, she obtained the idea for her novel while visiting Gotland, in 1847, on which occasion P. A. Säve, who had rendered the above variants of the legend, was her companion in Wisby. It is therefore more probable that she heard the story from him. It is also rather unlikely that such a conscientious scientist as Säve should have attributed to genuine folk-lore a literary motive which he himself in such a case must have had direct from the authoress; for he writes in connection with her visit: "The fruit of it was her novel entitled 'Jungfrutornet', which, during our walks, we heard her tell in a sketchy manner before it was written" (Steffen, *op. cit.*, p. 82). O. Janse (*op. cit.*, p. 299) has pointed out the very plausible explanation of the motive of the legend that the tower in question had received its name from the circumstance that in it had been stored the medieval instrument of torture called "Die eiserne Jungfrau". There is, by the way, a parallel to this concerning the city wall of Nuremberg. Supposing the name to be derived in this way, it can be assumed that the legends of the daughters of Unghanse and Nils Goldsmith were only associated with the tower and with the motive of the walling-in of a girl, more recently. Through Emilie Flygare-Carlén's novel the legend has received the great popularity it now enjoys.

³⁵ Ek, *Den svenska folkvisan*, pp. 154 ff; *Folkvisehjältens förvandlingar*, p. 124; *Visan om gångarpilten*, p. 62; *Visan om Inga liten vallpiga*, p. 162.

³⁶ Fabricius, *Gotland och Danmark 1361—1645*, p. 22.

³⁷ According to a tradition recorded by C. Säve (*Sägner om konung Valdemar*, p. 206) the landing is said to have taken place near Klintehamn, a harbour located between Kronvall and Västergarn.

³⁸ Hammargren, *Gotland*, p. 39.

³⁹ The exception is Kvinnegårda, in the parish of Havdhem, which, during the march to the south, is reputed to have been spared because the women had served Waldemar's soldiers with food (recorded by P. A. Säve; cf. p. 43). It is clear that the peculiar name of the place (= Women's Farm) prompted the invention of a legend to explain the name. Of course, several other Gotlandic local names are also mentioned in legends outside these three localities, but no events or episodes are localized to these, which must be considered as decisive.

⁴⁰ Recorded by C. G. G. Hilfeling 1799 (cf. note 45).

⁴¹ Recorded by P. A. Säve (cf. p. 43).

⁴² Bannbers, *Minneskors på Gotland*, p. 235.

⁴³ Some medieval letters are carved on the cross, but they have defied all attempts at deciphering.

⁴⁴ MS. in the archives of the R. Academy of History and Antiquities, Stockholm.

⁴⁵ MS. in the R. Library, Stockholm (cat. no. *Fm 57:6*).

⁴⁶ According to the inscription on the memorial cross. The diary of the Wisby Franciscans has different versions of the 24th and 26th July (App. 7).

⁴⁷ Oman, *A history of the art of war*, II, pp. 175, 189.

⁴⁸ An interesting attempt of this kind has been made by the prominent Finnish-Swedish author and historian Eirik Hornborg, in *Valdemarslaget och dess minnen*; cf. also the same author, *Gengångare från det förflutna*.

⁴⁹ Eckhoff-Janse, *op. cit.*, pp. 126 f., 295.

⁵⁰ For the legends about the carbuncles, see Lithberg, *Kring Visby Mariakyrka*, pp. 11 ff.

⁵¹ Fabricius, *op. cit.*, p. 27.

⁵² Söderberg, *Fide Kyrka och striderna 1361*. Wåhlin, *Quelques horloges anciennes françaises*.

⁵³ Hildebrand, *Svenska myntfynd*, 3; Thordeman, *Myntfynden i Korsbetningens massgravar*, pp. 67 ff.; below p. 147.

⁵⁴ For these see af Ugglas, *Gotländska silverskatter från Valdemarstågets tid*, and *Personhistoria och medeltida silversmide*; and Nörlund, *Gotland paa Valdemarstogets tid*, on which the following account is mainly based.

⁵⁵ af Ugglas, *Det stora bältespännet i Dune-skatten*.

⁵⁶ According to J. Roosval all ecclesiastical building operations ceased in the rural districts after this period (*Die Kirchen Gotlands*, p. 200; *Den Gotländske ciceronen*, p. 51): "The ecclesiastical architecture of the rural districts seems to have stopped altogether after the conquest of the island by the Danes in 1361". E. Lundberg deems it probable that two of the older architects, the anonymous "Källunge master" and "Egypticus", continued their work on the island up to about 1390 with some extensive and artistically remarkable rebuilding and extensions. Nevertheless their work displays insular isolation without fresh impulses and a stiffening of the ornamental manner of expression. Even in Lundberg's view, the year 1361 forms the beginning of the end (*Byggnadskonsten i Sverige under medeltiden 1000—1400*): "It has been said that the end of Gotlandic architecture is 1361, the year of King Waldemar's conquest. — — — But the flourishing architecture did not die all at once. It was another few decades before the strength had petered out, and it is clear that the hopes entertained of a turn of fate did not fail immediately. Even after the conquest fine architectural works were created in Gotland. But it is evident that all attempts faded away after a while. And no new generation of master-builders and architects appeared. The great Gotlandic architecture is laid in its grave with the old masters." Dr. Lundberg has been kind enough to allow me to see the proof-sheets of his book, which will be published simultaneously with this work.

⁵⁷ For Nordic history after the invasion of Gotland, see Tunberg, *Äldre medeltiden* (Hildebrand-Stavenow, *Sveriges historia*), pp. 260 ff.

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⁵⁸ N. J. Ekdahl, *Anteckningar öfver de forntidsmärk-värdigheter jag råkat på min gotländska resa*, MS. in the archives of the R. Academy of History and Antiquities, Stockholm.

⁵⁹ According to Octavia Carlén, *Gotland och dess fornminnen*, p. 171, it is reported that the building was erected in 1813, and this year has subsequently been repeated in the literature. But the proper date is seen from the documents concerning the building in the War Archives, Stockholm (City and Fortress Plans, Sweden, Wisby, No. 32, a, b) with drawings. The drawings were made by Axel von Arbin, a lieutenant of artillery, and were passed by the Director of Artillery on the 26th February, 1811. According to a general order of the 20th May, 1811, Lieut. Col. L. D. Ljungberg, of the fortification dept., was commissioned to have the work carried out at the "earliest possible date", and on September 3rd he reports that the building was finished and asked for an inspection to be made, and this was done on the 7th of the same month.

⁶⁰ See C. J. Bergman, *Gotland och Wisby*, p. 45, concerning the locality during the 19th century.

⁶¹ The draughtsman C. G. G. Hilfeling saw in 1797 some little distance north of the memorial cross a tombstone in memory of a man named Swartz, born in 1687, who died of the plague in 1711 (note to table XVI in the drafts volume, Cat. No. *Fm* 57: 3 in the Royal Library, Stockholm). The tombstone has now unfortunately disappeared.

⁶² The Finds in the National Museum of Antiquities; Nos. 3910 and 4239. See N. Lithberg, *Forn-Visby*, p. 11 and B. Nerman, *Die Völkerwanderungszeit Gotlands*, No. 138. Odd prehistoric finds from the locality are registered under Cat. Nos. 1304: 63 and 64 (1832), 6468 and 14443: 3—5. It may also be mentioned here that some medieval arrow-heads of the same type as those from the common graves, have been found in the locality, but the circumstances of the finds are unknown (Nat. Mus. of Antiquities, Cat. No. 17256, Wisby Museum, Cat. No. C 2165).

⁶³ See also C. G. Brunius, *Gotlands konsthistoria*, 1, p. 281.

⁶⁴ H. Hildebrand, *Wisby och dess minnesmärken*, p. 16. In *Sveriges Medeltid*, III, Hildebrand, p. 970, agreed with Bergman's opinion stated below as to the position of the convent.

⁶⁵ More detailed about this question below p. 331.

⁶⁶ C. J. Bergman, *Solberga nunneklosters läge*, pp. 111 ff.

⁶⁷ O. V. Wennersten, *Från utgräfningarna vid Valdemarskorset, Idun*, 1905, and *Minnen från Valdemarsstriden, Gotlands Allehanda*, 1905, No. 298 B. — An attempt at an historical analysis of armour found during the 1905 excavation has been published by Captain C. Hermansen (*Visbyfundene, Spectator* 1918, pp. 536 ff.; cf. also by the same author: *A propos Visby-fundene,*

Berlingske Tidende, June 14th, 1929). Captain Hermansen has been kind enough to give me particulars of his observations made in 1907—1908 on the older finds.

⁶⁸ A good preliminary estimate; the actual number has been found to be probably 268 individuals (see below p. 152).

⁶⁹ E. G. Folcker, "*Hic sepulti*", *ett Visby-minne, Ord och Bild*, 1906, pp. 410 ff. (Originally in the *Svenska Dagbladet* of the 28th August, 1905). See also an interesting description by the author Hugo Gyllander, *När riddarlifvet stiger upp ur sin graf, Nya Dagligt Allehanda* of the 13th September, 1905.

⁷⁰ Draft in Academy's archives.

⁷¹ See on this Oscar Almgren, *Bernhard Salin*, pp. 38 ff.

⁷² Bill brought forward by the Bishop of Wisby K. H. G. von Schéele on the 25th January, 1906, No. 116.

⁷³ Example of some reconstructions suggested by me, but wrong in detail, which could be put right, thanks to later observations of similar finds *in situ*, are to be found in *Fornvännen* 1926, p. 43, figs. 19, 20 and *ZHWK*, N. F. 3, pp. 201 ff., figs. 1, 4—6.

⁷⁴ The single graves lying in the area may very likely be looked upon as belonging to the convent cemetery, and as containing either the nuns of the convent or private individuals that have found their last resting place there. Even some of the later graves may be of the same kind, since the convent was deserted at the earliest in the year 1367, and a burial, at any rate, took place in the convent church in 1382 (cf. below p. 334), but the bulk of these are located more or less on top of the collapsed foundation of the church and must therefore be of very late date. One may assume that they were used for the burial of people who died of plague in the 17th and 18th century, when many of the Wisby church ruins served as burial places. At any rate, during the plague in 1711 burial at the place occurred (cf. before n. 61).

⁷⁵ About the convent church, see below chapter IX, pp. 337 ff.

⁷⁶ When a beginning was made with the investigation of grave 2, the intention was to make use of the latter part of the alphabet for its area, since the beginning of the same had been employed for grave 3. At the time when the letter denomination was fixed the dimensions of grave 2 were, however, not known, and when it was found that it extended so far to the east that the same minuscules that had been used for common grave 3, would recur, it was resolved, in order to avoid confusion, in lieu of the series of letters terminating with *o*, to use doubled letters as from *p*. Thus by way of example the square *Lo* = the square *Lpp*, *Ln* = *Lqq* and so on (see fig. 54).

⁷⁷ For the number of individuals, see below pp. 150 ff.

⁷⁸ On the plan for the 1912 excavations the grave is

marked as an oval with a maximum extent N.—S., where, on both sides, it stretches outside the area discovered in 1928—1930. If this marking is accepted as mainly correct, the plan of the pit would have been approximately oval, with its greatest breadth about 7 metres in the middle (cf. figs. 39, 60: e).

⁷⁹ See below, p. 159.

⁸⁰ See below, p. 160.

⁸¹ See below, p. 163.

⁸² See below, p. 99.

⁸³ See below, p. 193.

⁸⁴ (Thordeman), *Korsbetningsfynden*, Catalogue 1928.

⁸⁵ (Nörlund), *Valdemar Atterdag og Visby*, Catalogue 1929.

⁸⁶ (Nörlund), *Valdemar-slaget ved Visby 1361*, Catalogue 1936; Nörlund, *Gotland paa Valdemarstogets tid* (*Tilskueren* 1936).

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⁸⁷ Cf. also several scenes in the Bayeux Tapestry, where fallen warriors are about to be undressed.

⁸⁸ Cf. *Handbuch des Aberglaubens*, IV, art. "Hufeisen".

⁸⁹ I have, without laying claim to completeness, noted down the following evidence of loose coifs without basinet: 1) Original pieces: two in the Tower of London (Nos. 28, 29); one in the National Museum at Budapest (No. 2/1892); one depicted in Violet-le-Duc, *Dict. Rais. du Mobilier Française*, 5, p. 247, fig. 4 (then in coll. de Comte de Nieuwekerke). 2) Contemporary effigies: St. Maurice in the Cathedral at Magdeburg from the middle of the 13th century (fig. 288 below); sculpture in the Cathedral at Freiburg i. Br. from about 1330 (Schmitt, *Gotische Skulpturen des Freiburger Münsters* pl. 107), four English tombstones from the period c. 1275—1325, Stothard, *Monumental Effigies* (pl. 36, p. 63, pl. 37, p. 65, pl. 38, p. 65, pl. 48, p. 82); paintings from Björsäter Church, in Sweden, from the third quarter of the 14th century (figs. 300, 301 below); a sculpture in Linköping Cathedral, Sweden (Romdahl, *Linköpings Domkyrka*, figs. 107, 111).

⁹⁰ On a gorgeous tombstone on which the painting is preserved from a church in Aragon (fig. 208), probably of Don Ramon de Peralta († 1348), which in 1935 I had an opportunity of studying in the shop of the well-known art dealer, Lionel Harris, in London, two circles of gilt rings are marked on the coif, one just below the upper edge of the opening for the face and one a little below its bottom edge, over the chin. The knight also wore round the crown of the head a band ornamented with precious stones and rosettes. The gauntlets, too, had two transverse rows of gilt rings.

⁹¹ This coif has been presented to the Danish National Museum at Copenhagen by the Swedish Government.

⁹² This has therefore not, as usual, been subjected to boiling in distilled water, a process which could

here be dispensed with because practically no metallic iron was left. Nor has any change taken place in its condition during the decade which has since elapsed.

⁹³ Gessler, *Die ritterliche Bewaffnung von 1386*, p. 197, figs. 2, 3. This shirt is no less than 82 cm. long and thus, much longer than ours, even though the latter may lengthen a certain amount by being hung.

⁹⁴ Patterns of bronze rings plaited in, often occur in shirts, particularly in oriental ones. If the traditional dating to the 10th century of St. Wenceslaus' shirt in the Cathedral at Prague were reliable, its collar would present probably the oldest example of such ornamentation, in this case with gold rings (Podlaha-Sittler, *Der Domschatz in Prag*, pp. 9 ff.). However, this shirt belongs according to Laking (*European Arms and Armour* II, pp. 168 f.) to the 13th century and the collar is as late as the beginning of the 16th century. Perhaps connected with this method of ornamentation is the riveting of the iron rings with copper rivets, which occur in one of the mail shirts found at Thorsbjerg, in Holstein, and which according to Rose (*Panzerhemden*, p. 54) is a pronounced Oriental feature.

⁹⁵ Buttin, *Le guet de Genève*, pp. 47 f.

⁹⁶ Schrohe, *Mainzer Denkmäler*, pls. III, V.

⁹⁷ Concerning the technique, see Rose, *Römisch-germanische Panzerhemden*, pp. 47 ff. As to the technique, I have received valuable aid from Mr. Gillis Olson, head of the laboratory of the National Museum of Antiquities, Stockholm.

⁹⁸ It may here be mentioned that ailettes, the upright shoulder-guards, which were popular in France, Flanders and England during the end of the 13th and first half of the 14th century, never gained any ground in Sweden (though they did so in Norway). See Thordeman, *Lagman Birgers gravsten*, p. 35.

⁹⁹ Gessler, *Die ritterliche Bewaffnung*, p. 193.

¹⁰⁰ Buttin, *op. cit.*, p. 49 f.

¹⁰¹ Thordeman, *Alsö Hus*, p. 8. For the period for the destruction of the palace see Thordeman, *Lagman Birgers gravsten*, p. 33, note 2.

¹⁰² In the National Museum at Copenhagen. The excavations were conducted by Dr. C. A. Jensen.

¹⁰³ Schnittger-Rydh, *Aranaes*, p. 57, pl. IX: 1.

¹⁰⁴ On the museum label, the armour is named Charles IV's armour, and is reputed to have been given to the Cathedral after the Battle of Mons en Puelle, August 18th, 1304, while de Mely, *Le Tresor de Chartres*, pp. 78 ff., calls it Charles V's and declares it to have been left to the Cathedral in 1360. That the first date is incorrect, is apparent from the appearance of the armour, and chiefly by the gauntlets, which belong to the hour-glass type. Cf. Beard, *Treasure trove*, p. 328.

¹⁰⁵ Contemporary effigial material does not give sufficient guidance for judging this, and the corpses buried in or near the church have usually been deposited in special shrouds. When the grave of Tideman Wrede in Solberga Convent Church (p. 335, fig. 355)

was opened in 1905, two round buckles were found near his femurs. In Dr. Poul Nörlund's investigations into the medieval graves at Herjolfsnes, in Greenland, where the dead had obviously been buried in their everyday dress, which has been preserved in a singular manner, in one case two round bronze buckles have been found in a similar position. Nörlund, *Buried Norsemen*, p. 192, fig. 133.

¹⁰⁶ Both buckles found alone and those which belong to armour, gauntlets and spurs have been included in the table on p. 118 and on the plan fig. 119. It should be remembered that in common grave 2 the unlocalized finds and the finds from the areas V—X have to be distributed over the central part of the grave. For the function and appearance of the buckles belonging to the armour and the gauntlets, see descriptions below pp. 345 ff. and the illustrations in the plates; for spur buckles, see p. 123 and figs. 129, 130.

¹⁰⁷ It is probable that it is such transverse metal bars which are represented on the strap for the spurs on the effigy from Lesnes Abbey in the Victoria and Albert Museum (fig. 114, right picture). The strap end-mount there is, however, scutiform.

¹⁰⁸ Concerning the typology of the Nordic spur, see Olsson, *Den äldre medeltida stjärntrissesporen*, where this find is also dealt with.

¹⁰⁹ Mr. Bengt Ljunggren, of Wisby, has been kind enough to carry out measurements for me of the hoofs of Gotlandic horses, and of the shoes most commonly used for these. Some ten hoofs measured, vary between 90 and 115 mm. in width and 90 and 100 mm. in length. The shoes most commonly used, measure 100 mm. in breadth and 120 mm. in length, while the next most frequent size, measures 110 and 130 mm. respectively.

¹¹⁰ See B. Thordeman, *Alsno Hus*, fig. 27:6; B. Schnittger-H. Rydh, *Aranaes*, pl. XIII: 2, 11; G. Engwall, *Hästskor*, pp. 88 ff. Regarding older horse-shoes in Denmark, see P. Grunth, *Beslagkunstens äldre historie*.

¹¹¹ I am greatly indebted to Prof. Johs. Jespersen of The Royal Veterinary College at Copenhagen for supplying me with information on these questions.

¹¹² One arrow-head, (*Lss 4*, fig. 134:13), perhaps had no socket but a tang. It is so much oxydized that this cannot be determined with certainty.

¹¹³ af Ugglas, *Gotländska silverskatter*, pls. XIII, XIV, XXII, XXIII (112), XXIV (113).

¹¹⁴ For medieval pottery finds in Wisby, see Nihlén, *Från det förhistoriska och medeltida Wisby*, pp. 116 ff.; a good survey of medieval Swedish pottery is given in af Ugglas, *Lödöse*, pp. 548 ff. (with further references).

¹¹⁵ Dr. Gösta Berg at the Nordic Museum in Stockholm, who has examined the object, has been kind enough to inform me that there cannot here be any question of an actual flail, since this has quite a different construction. In the National Museum at Prague I have seen flail-like weapons from the 15th century.

¹¹⁶ I have dealt more in detail with these finds and

exhaustively from a purely numismatic point of view in the article *Myntfynden i Korsbetningens massgravar*.

¹¹⁷ Division of groups refers to Thordeman, *Sveriges Medeltidsmynt*.

¹¹⁸ Each statement of weight is the weight of one coin. If several have been weighed, which is stated in brackets, the average weight for all the coins weighed, is stated. Only whole and as little worn coins as possible have been weighed. If no weight is stated for a certain type this means that no complete coin of this type was available.

¹¹⁹ Refers to P. Hauberg, *Danmarks myntvæsen og mønter i tidsrummet 1241—1377*.

¹²⁰ Refers to F. A. Vossberg, *Geschichte der Preussischen Münzen und Siegel* (fig. no.).

¹²¹ Hauberg, *Gullands Myntvæsen*.

¹²² Hildebrand, *Sveriges medeltid*, I, p. 827.

¹²³ Thordeman, *Sveriges medeltidsmynt*, p. 32.

¹²⁴ See above p. 14.

¹²⁵ Sture Bolin in *Numismatisches Literaturblatt* 1932, p. 2641.

¹²⁶ See above, p. 28.

CHAPTER V.

¹²⁷ Two plates are also riveted to each other in armour 26 (*k: 1* and *2*, *l: 1* and *2*, fig. 392). These rivetings however, appear quite incidental and are certainly a later addition; their purpose is difficult to explain. The rivetings on armour 25 are also alterations; there, several lamellae are sometimes united to one another, but in most cases the rivets penetrate by chance more than one lamella.

¹²⁸ Mützel, *Vom Lendenschurz zur Modetracht*.

¹²⁹ See below pp. 286, 325, figs. 288, 289, 316, 317. Cf. also for this question figs. 347, 348.

¹³⁰ When talking here about earlier and later types of armour amongst the Wisby material, it should perhaps be stressed that this does not mean the dating of the individual armour, concerning which I am unable to express an opinion (except in respect of No. 25). They can all, of course, theoretically be considered to be contemporary and yet representing earlier or later stages of development in the general evolution, a phenomenon of which numerous parallels can be advanced in ethnographic material. My investigation is here, theoretically, an attempt to sketch a development on the basis of study of surviving forms; nevertheless actual differences in age must also exist.

¹³¹ Boenheim, *Waffenkunde*, p. 104.

¹³² See below, fig. 232: 2—6.

¹³³ Mural painting in Skibby Church, Själland, representing the Slaughter of the Innocents (fig. 263), uncovered in the eighteen sixties but again covered over. A copy of the picture, which date from the middle of the 14th century, is in the National Museum in Copenhagen, but unfortunately it cannot have the same docu-

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mentary value as the original. The representation is quite summary, too: A warrior, seen from the front, wears a mail shirt reaching over his knees, but a girdle, consisting of four rows of lamellae, runs round his waist, and may very possibly indicate a lamellar construction. Also from western Sweden (fig. 262) and from the eastern Baltic area (figs. 264—266) there exist some pictorial representations of lamellar armour, showing that this construction was not entirely uncommon in these countries.

¹³¹ Gotland: Ardre Church, stained-glass window, the guardian of the Easter Sepulchre, first half of the 14th century. Sweden: Södra Råda Church, Värmland, wall painting 1323 (fig. 299); Björsäter Church, Ostrogothia, wall painting, third quarter of the 14th century (figs. 300, 301); finds from Alsnö Hus, Uppland (fig. 340: 1), Falkenbergshus, Halland (fig. 340: 3) and Aranäs, Vestrogothia (fig. 340: 5). Denmark: Lögum Convent Church, South Jutland, painting on a reliquary, beginning of the 14th century (fig. 297); Skibby Church, Själland, mural painting, the Slaughter of the Innocents, middle of the 14th century (fig. 263, figure to the right); Lund Cathedral, choir stalls, figure of Gideon, about 1370; Döllefjelde Church, Lolland (National Museum, Copenhagen), stained-glass painting, end of 14th century; finds from Hammershus, Bornholm (fig. 340: 2), Boringholm, Jutland (fig. 340: 4) and Lindholmen, Scania (fig. 205).

¹³⁵ The only treasure trove known to me from this period was found in the year 1938 at Norrbys, Follingbo parish (National Museum of Antiquities), and was possibly deposited in the middle of the 13th century.

¹³⁶ The castle was, however, held by Swedish forces at least until 1361 (cf. p. 14). The excavations on the spot were conducted by Dr. Harald Olsson.

¹³⁷ Hoff-Olsson, *Et praktarnesk*, pp. 215 ff.

¹³⁸ According to Hoff, *op. cit.*, the lower part of this escutcheon contains two labels, but J. G. Mann has pointed out to me that this is in fact a representation of the heraldic tincture known as vair. Otherwise, no examples of coats of arms with a label are known in Danish heraldry but some very late examples exist in Sweden; see G. Scheffer, *Tornérkragen i svensk heraldik*.

¹³⁹ Cf. e.g. the interesting account in J. H. Stevenson, *Heraldry in Scotland II*, pp. 279 ff.

¹⁴⁰ To those examples which are quoted by Olsson, *op. cit.*, p. 228 (fig. 5) may be added the celebrated Limoges effigy of William de Valence, Earl of Pembroke († 1296) in Westminster Abbey (Stothard, pp. 76 ff., pls. 44, 45, Prior and Gardner, fig. 7). Of the original eighteen escutcheons on this figure only three are preserved, all with William's own coat of arms. On the gauntlets, which belong to Charles V's armour in the Museum at Chartres (see above p. 116), there is a scutiform elevation, about 3 cm. long, with a square hole in the middle. The owner's coat of arms in bronze or silver has probably been attached to this.

¹⁴¹ These may also have been derived from the lining of the gauntlet.

¹⁴² Demay, *Le costume d'après les sceaux*, p. 114, fig. 63. Somewhat earlier perhaps is a representation of the Betrayal of Christ in the enamel altar-piece at Klosterneuburg, near Vienna, completed in 1181 by Nicolas of Verdun (Drexler, *Der Verduner Altar*, pl. 23).

¹⁴³ Among the most distinct representations of such gauntlets, in which the leather covering of the palm of the hand can be seen (fig. 98), are the reliefs at the Mainzer Kaufhaus, erected in 1314 (now in the Städt. Altertumsammlung there). See Schrohe, *Reichsgeschichtliches auf Mainzer Denkmälern* pls. III—V.

¹⁴⁴ Buttin, *Le guet de Genève*, p. 58: *une paire de wans de hauberge de France* (1322). Cf. effigy of Berchtold von Waldner, † 1343, in Sultz, Alsace, now disappeared (Laking, *A Record of European Armour and Arms*, 2, fig. 555), and that of Kuno v. Falkenstein, † 1343, in Kirchzarten near Freiburg i. B. (*Städel Jahrbuch II*, pl. 41).

¹⁴⁵ *Glossaire archéologique*, I, p. 762.

¹⁴⁶ *Le guet de Genève*, p. 61 f.

¹⁴⁷ Boenheim, *Waffenkunde*, p. 79, fig. 75; cf. Buttin, *op. cit.*, p. 64. Suffling, *English Church Brasses*, pp. 32, 387. Sir Richard is wearing mail armour without plates.

¹⁴⁸ Published by H. Martin (1908), pl. XL. Cf. The Louterell Psalter (about 1340), E. Millar, *English Illum. Mss. of the 14th and 15th Cent.*, pl. 58.

¹⁴⁹ Paul Post in *ZHWK* 1933, p. 165.

¹⁵⁰ Kulturhistoriska Museet at Lund, Cat. No. 18792.

¹⁵¹ See below p. 306, figs. 318—323.

¹⁵² Laking, *op. cit.*, 2, fig. 559.

¹⁵³ v. Hefner-Wolf, *Die Burg Tannenberg*, pl. X: E and F. "Die Finger bestanden", writes v. Hefner, "aus kleinen Schienen oder Schuppen, welche auf lederne Streifen aufgenietet waren; es fanden sich von denselben noch einige Stücke vor."

¹⁵⁴ Laking, *op. cit.*, 2, fig. 569.

¹⁵⁵ Thordeman, *Alsnö Hus*, p. 58, fig. 27.

¹⁵⁶ Some similar fingers of gauntlets exist from Gotska Sandön, a small island 30 km. N. of Gotland (National Museum of Antiquities in Stockholm) and a fragment from Polenzig, near Frankfurt a. d. O., published by M. M. Lienau. See *Mannus*, 1930, pp. 231 f., where it is certainly dated too late (about 1500).

¹⁵⁷ Trapp-Mann, *The Armoury of the Castle of Churburg*, p. 20, pl. XIII. These gauntlets belong to the armour dealt with below p. 322 (figs. 345, 346).

¹⁵⁸ Laking, *op. cit.*, 2, fig. 565. Legato Resson No. 12.

¹⁵⁹ Laking, *op. cit.*, 2, fig. 566. Cat. Nos. 6—7.

¹⁶⁰ In the Thisted Museum. Toft, *Fund af en panserhandske fra 14. Aarh.* I am indebted for information about this gauntlet to Mr. A. Hoff, Keeper of the Armoury in Copenhagen.

¹⁶¹ Besides these I know of hour-glass gauntlets from Lund, in Sweden (Kulturhistoriska Museet, Lund), Schauenburg, in Germany, Germanisches Museum, Nuremberg, Musée de Chartres (see above p. 116), Museo Stibbert, Florence, and in the Museo di San Angelo, Rome. A similar gauntlet in the collections at the Castle of Kreuzenstein, near Vienna (mentioned by Laking, *op. cit.*, 2, p. 209) is probably a forgery. See about this, Post's review of Nörlund's and my work on the Wisby gauntlets in *ZHWK* 1932, p. 47. Post's statement that Nörlund and I could not agree as to the dating of the Kreuzenstein gauntlet, is due to a misunderstanding. When we wrote the treatise neither of us had seen it. The photographs published by Post were taken by me when I visited Kreuzenstein with Nörlund in 1931, when we were able to prove that it was a forgery.

¹⁶² Cat. No. 773. Laking, *op. cit.*, 2, fig. 562.

¹⁶³ Beenken, *Bildhauer des 14. Jahrhunderts*, p. 173, fig. 98. See below p. 306, figs. 314, 315.

¹⁶⁴ A similar gauntlet is also worn by a fragmentary figure of a soldier from an Easter Sepulchre in the Historical Museum at Basle, belonging to the same school as the other monuments from the upper Rhine dealt with here.

¹⁶⁵ Engel, *Laufende Knechte*. The Strasbourg monument is dated to 1340 or 1349.

¹⁶⁶ *R. Com. on historical monuments. London 1. Westminster Abbey* (1924), pls. 74, 188.

¹⁶⁷ Buttin, *Le tombeau d'Ulrich de Werdt*, p. 73. See below, p. 298.

¹⁶⁸ Stothard, *The monumental effigies*, pl. 62. See below p. 300, fig. 308.

¹⁶⁹ Habicht, *Die niedersächsischen mittelalterlichen Chorstühle*, pl. X. See below p. 306.

¹⁷⁰ *Le guet de Genève*, p. 63 f.

¹⁷¹ Weigert, *Die Stilstufen der deutschen Plastik*, pl. 86 c.

¹⁷² Schmitt, *Gothische Skulpturen des Freiburger Münsters*, pp. 227, 228.

¹⁷³ The earliest dated monuments with fully developed hour-glass gauntlets I have noted, are Gottfried von Arnsberg's († 1368) effigy in Cologne Cathedral; Konrad von Seinsheim's († 1369) effigy at Schweinfurth; Rudolf von Sachsenhausen's († 1370) effigy in Frankfurt Cathedral, and the figures of knights on the choir-stalls at Bamberg (about 1370).

¹⁷⁴ Post, *Die französisch-niederländische Männertracht*, pp. 27, 88.

CHAPTER VII.

¹⁷⁵ I have already published the following studies on lamellar armour: *En gotländsk medeltidsrustning; The splint armour in Europe; Die asiatischen Rüstungen der letzten Sven Hedin Expedition; and A Persian splint armour*. In these papers I have used the term "splint

armour" for the type of construction, but since both Ellis H. Minns and James G. Mann (cf *Evolution of plate armour in Germany* p. 76 n. 3) have pointed out that this term is far from satisfactory for various reasons, I have changed it to "lamellar armour", which approaches the German "*Lamellenharnisch*" and the term "laminae armour", (also not a very happy one) previously introduced by Laufer (*Chinese clay figures, passim*). I am greatly indebted to the two former investigators for their kindness in subjecting the terminology in this work to a thorough examination.

¹⁷⁶ British Museum and Victoria and Albert Museum, Indian Section, London, Royal Scottish Museum, Edinburgh, Museum für Völkerkunde, Hamburg, State Ethnographical Museum, Stockholm, and the Ethnographical Museum and Russian Museum, Leningrad. See *British Museum, Handbook to the ethnographical collections* pl. III; von Le Coq, *Bilderatlas* fig. 76.

Since writing the above Dr. A. Westholm has been good enough to draw my attention to a paper by H. G. Beasley entitled *Notes on laminated armour (Ethnologia Cranmorensis 1938)* which deals with an interesting armour belt from Western Tibet (Cranmore Museum No. 419) consisting of lamellae without holes, riveted to three leather straps which are concealed beneath the lamellae, i.e. in principle the same construction as in the armour from Valsgårde (see n. 268). Clearly, this is a late degeneration of form, which is, however, interesting because it shows that the lamellar construction may develop into other forms of construction. Beasley's conception of the history of the development of lamellar armour agrees with the one deduced here.

¹⁷⁷ One in the Museum für Völkerkunde, Dresden, one in the Museum für Völkerkunde, Hamburg; Hagen, *Asiatische Panzer* p. 65. I am deeply indebted to Dr. M. Heydrich, of Dresden, for his kindness in supplying me with detailed information about the construction of the Wassu armour preserved there.

¹⁷⁸ Such armour is to be found in the Lateran Museum in Rome and in the Field Museum, Chicago (Stone, *Glossary* p. 59, fig. 76).

¹⁷⁹ In the Ethnographical Museum, Leningrad, and Chosen Government General Museum, Seoul. Harada-Komai, *Chinese Antiquities* I pl. 34, 1, 2.

¹⁸⁰ Bergman, *Ancient laminae armour* fig. 1. Cf. Bergman, *Archäologische Funde* p. 292.

¹⁸¹ Stein, *Ancient Khotan*, Oxford 1907, and *Serindia*, Oxford 1921.

¹⁸² Other examples in Grünwedel, *Altbuddhistische Kultstätten* figs. 287, 512, 628.

¹⁸³ Other examples in Harada-Komai, *op. cit.*, pl. 36: 2 and Grünwedel, *op. cit.*, fig. 513, both horsemen.

¹⁸⁴ On fig. 513 in Grünwedel the projection is tripartite (fig. 244: 9). Can this mean thong-lacing?

¹⁸⁵ Harada-Komai, *op. cit.*, pl. 34: 3.

¹⁸⁶ Stein, *Serindia* pl. CXXXV. I saw two similar equestrian figures at the Iranian Exhibition at the

Hermitage in Leningrad in 1935; I was, however, unable to get any precise information of their provenance.

¹⁸⁷ Stein, *Ancient Khotan*, I, p. 252, figs. 30, 31, 2, pl. II (8th century).

¹⁸⁸ Stein, *Serindia*, pl. LXXXV (Ch. XXVI. a. 002).

¹⁸⁹ von Le Coq, *Buddhistische Spätantike*, I, pl. 28. Fouchet, *L'art du Gandhara*, fig. 202.

¹⁹⁰ Stein, *Ancient Khotan*, I, p. xvi (addenda).

¹⁹¹ Bergman, *Ancient laminae armour*, figs. 2-6.

¹⁹² Beazley, *John de Plano Carpini*, p. 124.

¹⁹³ The manuscript belongs to the Royal Asiatic Society, London, to whom I am greatly indebted for permission to reproduce the illustration, which has been previously published by Gray, *Persian Painting*, pl. 3. Another illustration of Mongols wearing armour from the same manuscript in Martin, *The Miniature Painting II* pl. 30.

¹⁹⁴ Cf. below p. 291, fig. 296.

¹⁹⁵ Appelgren-Kivalo, *Alt-Altäische Kunstdenkmäler*, fig. 93.

¹⁹⁶ In the Ethnographical Museum, Leningrad, and the American Museum of Natural History, Washington. Bogoras, *The Chukchee*, pp. 161 ff.; Pälsi, *Arktiska kuwia*, fig. 59; Stone, *Glossary*, p. 52, fig. 70; Hough, *Primitive American Armour*, fig. 3.

¹⁹⁷ In the American Museum of Natural History, Washington. Hough, *op. cit.*, pl. 2: 2; Laufer, *Chinese Clay Figures*, pl. XXIX. Other copper and iron lamellae have been found on S. Lawrence Island (Hough, *op. cit.*, p. 633) and an armour of copper from Eastern Siberia is in the British Museum (Cat. No. 1904: 10-28: 1).

¹⁹⁸ Such are in the Field Museum, Chicago (Laufer, *op. cit.*, p. 264), American Museum of Natural History, Washington (Hough, *op. cit.*, pl. 2, 3), State Ethnographical Museum, Stockholm, (Nordenskiöld, *Vegas färd*, pp. 109, 111), National Museum, Helsingfors and Viborg Museum (Helander, *Luinen sotisopa*) as well as Ethnographical Museum and Russian Museum, Leningrad.

¹⁹⁹ Torii, *Études archéologiques*, pp. 71 ff., fig. 64.

²⁰⁰ Occurred only in the province of Sze-chuen bordering on Tibet (see above p. 248) and should be regarded as offshoots from the Tibetan centre.

²⁰¹ Stone, *op. cit.*, pp. 55-58. Thordeman, *Die asiatischen Rüstungen*, figs. 1, 2: 2. Laufer, *op. cit.*, pl. XXXIV.

²⁰² The lamellar armour from the finds mentioned before on page 249 from the Chinese border fortresses in the Etsin gol district cannot be accepted at once as Chinese. It may have been copied from their enemies by the Chinese frontier troops, but it may also have been booty or worn by foreign soldiers in Chinese service. "As is evident," says Bergman (*Ancient laminae armour*, p. 108), "from the manuscripts found by Stein, at least part of the garrisons consisted of non-Chinese, and he even found indigenous officers mentioned in

some documents from his Tun huang Limes, and it is not impossible that they were Eastern Iranians."

²⁰³ Laufer, *op. cit.*, fig. 55.

²⁰⁴ Sirén, *Sculpture*, pl. 619. Boerschmann, *Chinesische Architektur*, pl. 217-19.

²⁰⁵ Laufer, *op. cit.*, pl. XXXIII.

²⁰⁶ Sirén, *Sculpture*, pl. 426 A. Kümmel, *Die Kunst Chinas, Japans und Koreas*, p. 53, fig. 36. Plaster cast in the British Museum.

²⁰⁷ Sirén, *En kinesisk målning*, figs. 1, 2, p. 375. Thordeman, *The Asiatic splint armour*, fig. 26.

²⁰⁸ For an expression of opinion concerning the dating of this sculptural group I am indebted to Professor Osvald Sirén. Harada-Komai, pls. XXIX: 1, 2, XXX: 1, 2. Such figures are to be found in the Eastern Asiatic Collections, in Stockholm, The Metropolitan Museum, New York, the Museum at Toronto, and other places.

²⁰⁹ Boots, *Korean weapons*, p. 31. In the same work pl. 37 shows a Korean suit of armour consisting of lamellae of typical shape but inserted in mail in groups.— Since writing the above, another Korean lamellae find has been brought to my knowledge. It is found by excavation of grave 109 at Kōdanri, near Keishū, dated to the latter part of "the period of the three kingdoms" (57 B. D.—668 A. D.). See *Government-General of Chōsen, Report of the Service of Antiquities*, Shōwa 9th year [1935] (all in Japanese). I am indebted to Professor B. Karlgren for informing me of the content of this Japanese pamphlet.

²¹⁰ Dean, *Loan collection*. Stone, *Glossary*, pp. 61 ff., figs. 78-81.

²¹¹ Perhaps the rod armour spread along the Pacific coast of North America and the Aleutians is an offshoot of this construction? (Hough, *op. cit.*, pp. 636 ff.; Stone, *op. cit.*, pp. 66 f.) It is worth noting here that in China and Japan, forms of rod armour were also developed (example in the Museum für Völkerkunde in Hamburg and Vienna; cf. Stone, *op. cit.*, fig. 767). The shields of rod armour construction from the remarkable grave find at Pazirik in the Altai District should also be mentioned (Griaznow, *The Pazirik Burial*, p. 41) and a similar shield from Dura-Europos (*The Excavations at Dura-Europos* 1928-29, pl. XXVI).

²¹² Laufer, *op. cit.*, p. 232. Cf. also Kümmel, *op. cit.*, p. 53 concerning T'ai Tsung's monument (above fig. 253): "Kostüm und Pferdezüaumung bestätigen die längst bekannte Tatsache, dass die von Hause aus sehr wenig reiterlichen Chinesen ihre kavalleristische Ausrüstung im wesentlichen den Zentralasiatischen Reitervölkern entlehnt haben."

²¹³ de Groot, *Die Hunnen der vorchristlichen Zeit I*, p. 3. Cf. Andersson, *Hunting Magic in the Animal Style*, p. 274.

²¹⁴ Laufer, *op. cit.*, p. 262. Torii, *op. cit.*, pp. 72 f.

²¹⁵ This was the several opinion previously held which was put forward by Ratzel (*Über die Stäbchenpanzer*),

who was the first to deal with these problems, also independently by Hough (*op. cit.*) and by Bogoras (*op. cit.*) and Krickeberg (*Einige Neuerwerbungen*). It is Laufer's merit to have proved the incorrectness of this conception.

²¹⁶ Laufer (*op. cit.*, p. 270) is "inclined towards the opinion that the type of bone plate armour is not exclusively due to an impact of foreign influence. In some form unknown to us it may have pre-existed before any metal plate armour had reached the Far East", an idea that undoubtedly has much to recommend it (cf. below note 258). But he adds—which, in this connection, is the chief point—that he is "quite willing to admit that at some later period the regular, rectangular shapes of the ivory plates, and the peculiar method of lashing them together, may be the outcome of an adaptation to some imported model."

²¹⁷ Laufer, *op. cit.*, p. 272.

²¹⁸ The construction consisted of large plates, riveted or laced together by thongs and can be studied on terracotta figures, so-called *haniwas*, which are found in the graves. See Hoopes, *Recent acquisitions* and *Annual report of the Imp. Household Museums* 1934, pls. III, XIII. An original armour of this type, the first one known, has been dug up at Yawata mura, Gumma prefecture, see *Annual report* 1933, pl. VII.

²¹⁹ Thordeman, *A Persian splint armour*. Cf. Sarre-Herzfeld, *Iranische Felsreliefs*, pls. XXXVI–XXXIX. Herzfeld, *Am Tor von Asien*, pp. 86 ff., pls. XLII–XLIII. Sarre, *Die Kunst des alten Persien*, pp. 42 ff., pls. 84, 85.

²²⁰ *Bull. of the Metropolitan Museum of Art*, New York, Dec. 1934, sect. II, fig. 11. I am greatly indebted to Mr. Stephen V. Grancsay, Keeper of arms and armour of the Metropolitan Museum in New York, and Mr. Walter Hauser, member of the museum's Persian expedition, for placing at my disposal pictures and detailed information of this find.

²²¹ Arendt, *Der Nomadenhelm*, p. 29, figs. 5, 6. Оръли-Тревер, Сасанидский металл, pl. 21.

²²² It is feasible, but hardly credible that this picture represents armour of the Eastern-European-Western-Asiatic type in which lamellae are used with mail. I have not included an investigation of how this construction is related to lamellar construction.

²²³ Гюзальян-Дьяконов, Иранские миниатюры, pl. II, 3, 7.

²²⁴ Brown, *Arms and Armor*.

²²⁵ Rostovtzeff, *Graffiti* 1930–31, pp. 216 ff., pl. XXII: 2.

²²⁶ Rostovtzeff, *Graffiti* 1928–29, p. 147, pl. XLII: 1.

²²⁷ For this question, see below pp. 282 ff.

²²⁸ Rostovtzeff, *op. cit.*, p. 195 f.

²²⁹ Heikel, *Antiquités de la Sibirie occidentale*, pp. 90, 92, 94. The find is preserved in the National Museum, Helsingfors.

²³⁰ Поповъ, О бронѣ хранящейся въ музеѣ архивной комиссиі.

²³¹ Arendt, *Ein alttürkischer Waffenfund*, cf. Отчетъ имп. комиссиі, 1891, p. 59 f.

²³² Cf. lamella-plate from Wisby fig. 401: 1 and the Turkestan lamella find figs. 242, 243. Probably such leather pipings are represented on fig. 249.

²³³ Cat. No. 71/58, State Historical Museum, Moscow.

²³⁴ E.g. portrait miniature of Prince Theodor the Black of Susdal, as S. Theodor, in the Gospel of Theodor from Vladimir (end of 13th century). Arendt, *Zur Geschichte des Lamellenharnischs*, p. 149, fig. 3.

²³⁵ See *Coll. B. Khanenko* 2, pl. XXIX; *CR*, 1877 (Nymphaeum, kurg. 24, gr. 19); Гобринскій, Курганы, 3, pl. VIII: 15–21; Gardner, *Ornaments*, pp. 62 ff., pl. XLVI: 1, 3; Stephani, *Erklärung*, 1874, pp. 184 ff., 1876, pp. 113 ff., pl. II; Posta, *Archaeologische Studien*, II fig. 242. Such lamellae also occur within Podolian area: Sulimirski, *Scytowie na zachodnim Podolu*, pp. 21, 82, 96, 111, pl. XI: 10. Whether the Scythian armour lamellae are associated with the type which is investigated here (cf. below note 258) cannot be decided with certainty until a thorough investigation has been made. Such association does not appear to exist, to judge from an extremely remarkable drawing of a Scythian armour mounted *in situ* on a big earthen-vessel. A photograph of this has been kindly placed at my disposal by W. Arendt, who found the information amongst N. E. v. Brandenburg's papers in the Artillery Museum's archives in Leningrad. The find, which dates back to the 4th–3rd century B.C. was discovered in 1901 in a kurgan near Galutschino at the village of Pastorskaja, in the Province of Kiew. Rostowtzeff, *Skythien und der Bosphorus*, 1 p. 423. The drawing is now published by G. Arwidsson, *Armour of the Vendel Period*, fig. 18.

²³⁶ Csallány, *A Kunszentmártoni avarkori ötvössir*, pp. 38 f., 53, pl. VI: 1, 1 a, 1 b.

²³⁷ If the perforation has been correctly observed by Csallány and the reconstruction given by him with the rows of lamellae overlapping from the top downwards, is correct, the armour constituted an intermediate type between lamellar construction and scale armour. Intermediate types, though of a different kind, will be considered below (p. 271), and are in themselves not improbable, but no actual armour scales of this type are known. Especially the rounded notch on one long side, so characteristic of many lamellar constructions, makes it more probable that the armour from Kunszentmárton belongs to the lamellar type. On the other hand, however, it is admitted that the form and size of its lamellae are smaller than usual and more closely resemble those of scale armour.

²³⁸ Mengarelli, *La Necropoli barbarica di Castel Trovino*, graves 79 and 119, fig. 180. The lamellae in grave 79 are not mentioned by Mengarelli but are exhibited in Museo Nazionale in Rome. Cf. Lindqvist, *Vendel-kulturens ålder och ursprung*, pp. 164 ff.

²³⁹ Since writing the above, Dr. Greta Arwidsson has been kind enough to let me know of another European

find of lamellar armour from the same period as the preceding one, which shows that the type of armour spread still farther into Central Europe. The find comes from grave 580 in the well-known burial field at Schretzheim, near Dillingen, and has been brought to light during excavations made in 1937. It is dated to about the year 600. The find has not yet been published.

²¹⁰ In the Bargello, Florence. Illustrated and dealt with in several places, among others v. Ubisch-Wulff, *Ein langobardischer Helm*, fig. 1; Gröbbels, *Der Reihengräberfund von Gammertingen*; Lindqvist, *De koniska hjälmarna*, fig. 125; Lindqvist, *Vendeltidens finds*, fig. 15; Alföldi, *Eine spätromische Helmform*, fig. 13.

²¹¹ In the National Museum of Antiquities, Stockholm, regn. no. 596. For information about the character of the place of the find, I am indebted to Dr. Holger Arbman, who, in 1934, carried out further excavations, in the course of which more lamellae finds were brought to light.

²¹² Jönköpings Museum, Cat. no. 886.

²¹³ Nörlund, *Gyldne Altre*, p. 31, fig. 21.

²¹⁴ See below p. 306.

²¹⁵ Vossberg, *Siegel des Mittelalters von Polen, Lithauen, Schlesien, Pommern und Preussen*, pls. 16, 17, 24; Gumowski, *Pieczczę księztwa litewskich*, pl. IV, fig. 30.

²¹⁶ Cf. especially the Sassanian silver bowl fig. 257: Arendt, *Der Nomadenhelm*, figs. 5, 6, where also the survival of the type in Eastern Europe up to the present time is dealt with.

²¹⁷ Laufer, *Chinese clay figures*, pp. 217 ff., 237 ff.

²¹⁸ For the Iranian origin of mail see also *The Excavations of Dura-Europos 1929-30*, pp. 79 ff. A close relation in the technique of armour in Central Asia and Iran is indicated by the shields from Dura-Europos and Pazirik (see above note 211).

²¹⁹ *The Swedish Cyprus Expedition 2*, p. 13, pls. V, CL.

²²⁰ *Op. cit.*, 2, pp. 538 f., 596 ff., pl. CLXXII.

²²¹ Since writing the above A. Westholm has published another interesting find of armour from Cyprus (*Cypro-archaic splint armour*, *Acta Archaeologica* IX, 1938), found near Idalion and dated to the beginning of the 5th century B.C., i.e. somewhat later than the two already dealt with. Through a shrewd analysis of the fragments of the armour which were firmly rusted together, Westholm elucidates the construction. The scales are rather small and provided with six holes, while the projection has disappeared. A development in the direction of later scale armour is here indubitable. Westholm subjects the older finds to fresh investigation and finds it probable that the scales of the Idalion armour should be turned with the rounded side upwards, as has been done in figs. 270, 271 above. He also illustrates them with contemporary reproductions and literary statements.

²²² Humann-Puchstein, *Reisen in Kleinasien*, pl. 46, pp. 164 ff., 372 ff.

²²³ Gadd, *The Assyrian Sculptures*. The figures within

brackets refer to the numbers in this catalogue (see p. 77).

²²⁴ Botta-Flandin, *Monuments de Ninive*, 1, pls. 49, 50, 62, 77.

²²⁵ Lansing and Hayes, *The Egyptian Expedition 1933-1934*, p. 8, figs. 12, 13. The rectangular lamellae of bronze and iron, about 2 × 4.5 cm., in the Ashmolean Museum at Oxford, which came from Memphis, are probably connected with these. They also have a longitudinal ridge, but the system of perforation cannot be clearly distinguished. They belong to the XXVIth Dynasty.

²²⁶ Since writing this, some more important finds of armour have been brought to my knowledge, which substantially confirm the above assumption that the Egyptian armour scales are connected with the Near Eastern primitive forms of lamellar construction. In the course of the Harvard University Excavations at Nuzi, in the Tigris area, (R.F.S. Starr, *Nuzi, Report on the Excavations at Yorgan Tepe 1927-1931*, pl. 126), a large number of connected armour lamellae of bronze

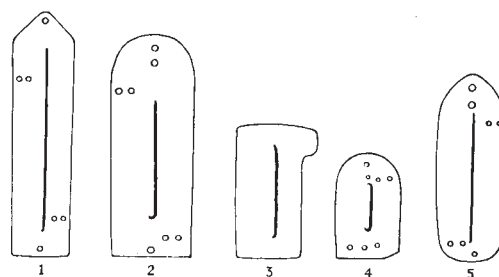


Fig. 427. Types of lamellae. Scale 1:2. (1-4) from Nuzi, (5) from Thebes.

were brought to light, which by their shape, their medial ridge and their asymmetrical location of the holes in the upper and lower end of the lamellae, show that they belonged to the same type as the finds from Idalion and Lisht (fig. 427: 1-4). In this connection some scales (pl. 126, D, J) with semicircular projections in one corner are of particular interest, (fig. 427: 3), reminding one of some of the illustrations of armour from Central Asia and China, which we have dealt with above (figs. 244: 5, 9, 245). The finds date to the period around 1475 B.C. I am greatly indebted to Mr. Starr for detailed information about these finds, supplementing that which he has given in the text of his work published in the course of the current year, of which he permitted me to peruse galley-proofs of that part in which the armour is discussed.

Dr. A. Westholm has also drawn my attention to two other similar finds, one from the well-known French excavations at Ras Shamra, in Syria, from the same period as the preceding ones (Cl. Schaeffer, *Les fouilles de Ras Shamra-Ugarit, Syria*, XVIII, 1937, fig. 9), and

one (fig. 427: 5) from Amenhotep III's palace at Thebes, excavated by the Metropolitan Museum of New York, where the finds are stored.

²⁵⁷ Reichel, *Homerische Waffen*, pp. 63 ff.

²⁵⁸ As in the Scythian (see above note 235) there also occurred a kind of lamellar construction of boars' tusks in the Mycenaean civilization, but apparently, only used for construction of helmets etc. (Karo, *Die Schachtgräber von Mykenai*, pp. 112, 151, pls. LXIX-LXXI, and Wace, *Chamber tombs*, pp. 212 ff. with references, pls. XXIX, XXX, XXXVII). Armour constructed with lamellae also occur in pictures of Etruscan warriors (e.g. the well-known Statue of Mars in the Vatican, and the figures on the lid of a "cista" in the Museo di Papa Giulio, Rome).

²⁵⁹ See above note 216.

²⁶⁰ References in Thordeman, *The Asiatic splint armour* pp. 133 f., notes 21, 22.

²⁶¹ *The Excavations at Dura-Europos 1928-29*, p. 73, 1929-30, p. 79, 1932-33, pp. 440 ff.

²⁶² Flinders Petrie, *Tools and Weapons*, p. 38, pl. XLII f.; Bonnet, *Die Waffen der Völker des alten Orients*, pp. 209 ff.; Wolf, *Die Bewaffnung des altägyptischen Heeres*, pp. 96 ff.; Schröder, *Helme und Panzer aus Krokodilhaut*, pp. 73 ff.

²⁶³ Rostovtzeff, *Skythien und der Bosphorus*, p. 298, and in several other places.

²⁶⁴ See Arne, *La Suède et l'Orient*.

²⁶⁵ Nerman, *Ein Spangenhelm, gefunden auf Gotland*. The reconstruction of the helmet, which is given in fig. 282, differs somewhat in shape from that published by Nerman, and which is not satisfactory in this respect.

²⁶⁶ Arendt, *Der Nomadenhelm*.

²⁶⁷ Ebert, *Die frümittelalterlichen Spangenhelme*, p. 71.

²⁶⁸ Since writing the above, Dr. Greta Arwidsson has published a Swedish armour find from the 7th century, which is of unique interest (G. Arwidsson, *Armour of the Vendel Period, Acta Archaeologica* 1939). The find is derived from a remarkably rich and significant ship burial at Valsgårde, near Old Uppsala, the cultural centre of ancient Sweden. The armour consists of several vertical iron strips round the waist and arms, riveted to horizontal leather thongs inside. The upper edges of the strips are attached to a kind of mail cape which rests upon the shoulders. The armour has its opening in the middle of the front, where it is held together by three buckles. To the armour belongs a gorgeous helmet of the type customary at that time, provided with a suspended mail guard. Miss Arwidsson has compared this unique type of armour with some armour finds from the south of Russia, and perhaps this is another clue to both the time and route of importation of lamellar armour into the Baltic regions.

²⁶⁹ Arendt, *op. cit.*, p. 29, n. 19.

CHAPTER VIII.

²⁷⁰ Some examples: Boenheim pp. 124 ff. Zimmermann, *Vorkarolingische Miniaturen* pl. 150. Gessler, *Der Kalotten-helm von Chamoson* pp. 125 f., figs. 4-6. Hefner-Alteneck 1, 2, *passim*. Thordeman *Lagman Birgers gravsten* p. 29. Laking 1 figs. 48, 50. *Revue de l'art chrétien* 1913, p. 372. Hewitt 2 fig. 8. *Die Mannessesche Handschrift* fol. 229 v. James, *The Romance of Alexander* fol. 51 v, 59 r.

²⁷¹ Boenheim fig. 174. Срезневский, Сказания, *passim*.

²⁷² Buttin, *Ulrich de Werdt* p. 68.

²⁷³ Boenheim p. 134.

²⁷⁴ Buttin, *op. cit.*

²⁷⁵ Thordeman, *Zur Entstehung des Spangenharnischs* pp. 56 ff.

²⁷⁶ Baum, *Gotische Bildwerke Schwabens* figs. 88, 89, p. 156. Hefner-Alteneck 2 pls. 122, 123.

²⁷⁷ Post, *Sitzungsbericht, ZHWK*, N.F. 2, p. 197, figs. 1, 2. Thordeman, *Det gotländska folkuppbådet* p. 185, fig. 22.

²⁷⁸ Though no effigies of armour from the earlier Middle Ages indicate the existence of inner armour plates, nevertheless one cannot ignore the possibility that iron plates had been sewn in or in some other way fastened to the garment worn under the shirt of mail, and that such armouring may have played a part in the origin and development of the western coat of plates. If so, probably no relation between the Asiatic and the European construction exists. Literary hints about armour plating during the older Middle Ages have been collected by Alwin Schultz, *Das höfische Leben zur Zeit der Minnesinger*, I, p. 244, n. 6, II, pp. 32 ff., 37 ff.

²⁷⁹ Buttin, *op. cit.*, p. 69.

²⁸⁰ Gessler, *Die Spangenharnische von Küsnach*, p. 98.

²⁸¹ Arendt, *Zur Geschichte des Lamelharnischs*, fig. 2 and p. 149. Professor Arendt has been kind enough to place at my disposal tracings of these scenes made on the spot, for which I am greatly indebted to him.

²⁸² Hesselting, *L'octateuque grec de Smyrne*, p. 91, fig. 314.

²⁸³ *Il menologio di Basilio II*, pls. 3, 215.

²⁸⁴ Laufer, *Chinese clay figures, passim*. Boots, *Korean weapons*, pp. 28 ff. Stone, *Glossary*, pp. 55 ff. Thordeman, *Die asiatischen Rüstungen*, pp. 215 ff.

²⁸⁵ Laufer, *op. cit.*, p. 284.

²⁸⁶ Laufer, *op. cit.*, p. 285, n. 1.

²⁸⁷ Harada-Komai, *op. cit.*, pls. L, LI. I am indebted to Prof. B. Karlgren for the interpretation of the Japanese text which concerns the figures referred to here, and for informations about Takesaki Suyenaga.

²⁸⁸ This manifesto is given in Matthew Paris' *Chronica Major*: "... Homines parve ac brevis stature sunt quantum ad longitudinem, sed solidi, lati et propaginitati, rigidi ac fortes et animosi, ad nutum sui ducis ad quelibet ambigua proruentes; vultus amplos, aspectus tor-

vos, clamores horribiles habent, cordibus consonantes; cruda gestant coria bovina, asinina vel equina, insutis laminis ferreis pro armis muniuntur quibus hactenus usi sunt. Sed, quod non sine suspiriis dicere possumus, iamiam de victorum spoliis christianorum armis decencioribus elegantius muniuntur, ut propriis armis, irato Deo, turpius et anxius trucidemur. Insuper equis melioribus instaurantur, epulis laucioribus reficiuntur, vestibus pulchrioribus adornantur. Ipsi autem Tartari, sagittarii incomparabiles, utres ferunt artificialiter factos, quibus flumina transmeant indempnes rapacissima et paludes . . ." (Quoted from *Monumenta Germaniae Historica, Scriptorum*, T. XVIII, Hannover 1888, s. 211.) Cf. Thordeman, *Zur Entstehung des Spangenharnischs*, p. 59, n. 6.

²⁸⁹ Arendt, *Zur Geschichte des Lamellenharnischs*, p. 150.

²⁹⁰ Smidt, *Cistercienser-kirken i Lögum*, p. 63, fig. 69. Beckett, *Danmarks kunst* II, p. 136. The dating to about 1300, which differs from Beckett, but which, judging by the armour seems more probable, was pointed out by Dr. Hans Wentzel, of Stuttgart.

²⁹¹ Gihl, *Sigtuna och Norrsunda*, fig. p. 65.

²⁹² Lindblom, *La peinture gothique*, p. 102, fig. 32. Olsson, *Ett praktharnesk*, fig. 6 E.

²⁹³ Lindblom, *op. cit.*, pp. 85, 175 f., pl. 41.

²⁹⁴ van Marle, *Iconographie*, I, fig. 292.

²⁹⁵ British Museum, Royal MS, Cat. No. 6 E IX. Laking II fig. 414.

²⁹⁶ In "The Resurrection of Christ" by Orcagna, National Gallery, London, and Luca di Tommé's frescoes in the Palazzo Communale, Siena.

²⁹⁷ Demmin p. 399. Post, *Die französisch-niederländische Männertracht*, p. 10. Buttin, *op. cit.*, p. 70.

²⁹⁸ Buttin, *op. cit.*, p. 64.

²⁹⁹ ffolkes, *Armour & Weapons*, fig. 6.

³⁰⁰ That the chains (probably in exceptional cases) could be attached directly to the mail is seen quite clearly from an incised slab commemorating Guillaume Wene-maer, † 1325, in the Musée Archéologique at Ghent (Fris, *Histoire de Gand*, pl. 13) where the mail is visible through the holes for the chains in the surcoat. It is very probable that in these cases an iron plate was attached on the inside of the hauberk to serve as a fastening for the chains.

³⁰¹ van Duyse, *L'homme du Beffroi*: "Par l'entrebaillement de la cotte d'armes, on peut constater que l'homme a les reins protégés par une barconnière serrante, façonnée en juponnet, faite de cinq ou six lames rivées." Fris, *Histoire de Gand*, pl. 15. The original of fig. 304 has kindly been placed at my disposal by Le Service Touristique de la ville de Gand.

³⁰² Buttin, *op. cit.* It is strange that this remarkably meticulous investigator has not noticed these rivet-heads which confirm his assumption advanced on other grounds, that the plastron was reinforced. The rivet-heads can, however, be seen on closer examination of the original monument.

³⁰³ Schmidt, *Gotische Skulpturen des Strassburger Münsters* II pls. 199–203, p. XXIV. The monument was erected between 1328 and 1353. As to the discussion on dating, see Hamann, *Marburg*, pp. 282 f. and Post in *ZHWK*, NF 6, 1939, p. 206.

³⁰⁴ Engel, *Laufende Knechte*, p. 45.

³⁰⁵ Hamann, *Die Elisabeth-Kirche zu Marburg* II, pp. 175 ff., figs. 257–61.

³⁰⁶ Stothard pl. 66 (detail 5).

³⁰⁷ Stothard pl. 75.

³⁰⁸ Prihoda, *Der Reichensteiner Spangenharnisch*.

³⁰⁹ Stothard p. 97, pl. 60.

³¹⁰ Other examples noted by me: two casts of monumental effigies in the Musée d'Armes at Brussels (a gentleman of Eldern, † 1354, one anonymous); the choir stalls at Magdeburg; the Campanile at Florence (van Marle, *Iconographie* I, fig. 277); a figure from the Betrayal of Christ on the reredos in the Aegidien Church at Hannoversch-Münden (Provinzialmuseum, Hanover) from towards the end of the 14th century. Cf. also Hefner-Alteneck, 3, *passim*, and below p. 304 (The Romance of Alexander).

³¹¹ As more particularly mentioned below on p. 305 similar scale armour without a surcoat is to be found in the Alexander Manuscript from about 1340. I have not been able to elucidate fully whether it is this armour or a coat of plates which is worn by an equestrian figure from about 1350–1380 on the subdean's stall in Lincoln Cathedral (Kelly, *Pre-Gothic cuirasses*, fig. 5, p. 40 and *ZHWK*, 1933, p. 167).

³¹² Baum, *Gotische Bildwerke Schwabens*, fig. 114. Hefner-Alteneck, 3, 160.

³¹³ Hewitt, 2, pl. IX. In this instance it is possibly a question of ornamental scales on the lower edge of the plastron of the same kind as those which decorate the basinet on the same and kindred monuments.

³¹⁴ Stothard, pls. 61, 62. Prior and Gardner, fig. 763. Probably the same construction is to be found also on a contemporary monument at Warkworth (*op. cit.*, fig. 764).

³¹⁵ Post, *Ausdeutung der Limburger Chronik* p. 178 f.

³¹⁶ Cf. Post, *Die französisch-niederl. Männertracht* p. 11.

³¹⁷ Kelly, *Weitere Notizen*, p. 167, fig. 2.

³¹⁸ Kelly (*Pre-Gothic cuirasses*, p. 42) has assumed that the breastplate was of iron.

³¹⁹ Kelly, *Zur Entstehung des Spangenharnischs* p. 105.

³²⁰ Prior and Gardner fig. 685.

³²¹ *Historical monuments*, London IV, p. 141, pls. 183, 185, 186 (No. 8).

³²² James, *The Romance of Alexander*.

³²³ Schmidt, *Gotische Skulpturen des Freiburger Münsters* pls. 213–14, p. 55. Beenken, *Bildhauer des 14. Jahrh.* pp. 173 ff., fig. 98. Hamann, *Marburg* pp. 282 f. Hamann's dating of the Freiburg monument ("vielleicht schon bald nach 1300") I find out of the question. Cf. Post in *ZHWK* NF 6, 1939, p. 208.

³²⁴ Thordeman, *Zur Entstehung des Spangenharnischs*, p. 58, fig. 4, 4 a, 4 b. Thordeman, *Det gotländska folk-*

uppbådet, p. 188, figs. 23 f. Habicht, *Die niedersächsischen mittelalterlichen Chorgestühle*, pl. 10.

³²⁵ Stothard, pl. 68.

³²⁶ Magnus-Petersen, *Kalkmalerier*, p. 94.

³²⁷ Wrangel, *Korstolarna i Lunds domkyrka*, pls. 66, 67. A similar armour with horizontal lames which are obviously riveted to a covering, but, oddly enough, without any breast plates, is worn by a warrior figure symbolizing the planet Mars, on a capital from the 14th century in the Doge's Palace at Venice (J. G. Mann has been kind enough to point this out).

³²⁸ Gessler, *Die Spangenharnische von Küssnach*, *Anzeiger f. schw. Altertumskunde* and *ZHWK*, 10. Cf. also Gessler, *Der Topfhelm von Küssnach*.

³²⁹ During the excavations of Castle Schönenwerd, in Switzerland, destroyed in 1344, some minor parts of two similar armours have been discovered. Gessler, *Ein neuer Spangenharnischfund*.

³³⁰ Gessler, *Die Spangenharnische von Küssnach* fig. 1. Hefner-Alteneck 3, 175.

³³¹ Gessler, *op. cit.*, fig. 2. Hefner-Alteneck, 3, 180. Baum, *Gotische Bildwerke Schwabens* fig. 117. According to Baum p. 164, the stone commemorates Wilhelm v. Bopfingen, † 1284, and was erected about 1350.

³³² *Kunst- und Altertumsdenkmäler im Kgr. Württemberg*, 3, *Jagstkreis* 1, Esslingen a.N. 1907, pp. 238, 747. Kelly, *Zur Entstehung des Spangenharnischs*, pp. 106 f.

³³³ Habicht, *Chorgestühle*, pl. XI, fig. 24.

³³⁴ Cast in the German Museum at Nuremberg. *Die Kunstdenkmäler im Freistaat Hessen, Kr. Giessen* 2, *Kloster Arnshausen*, Darmstadt 1919, pp. 96 ff., fig. 80; Mann, *Evolution of plate armour* pl. XIV: 3; *ZHWK*, N.F. 3, p. 67 (with wrong number of year).

³³⁵ To judge by the rivets, the shape was almost that of a heart placed upside-down, but the Munich armour (fig. 337) shows that a row of rivets does not always mark the demarcation of a plate. I think it probable that the bottom edge of the breast plate on St. George in Prague would have been rounded.

³³⁶ Zaloziecky, *Das Georgenstandbild in Prager Schlosshof*. Reproduction in *Laking*, 2, fig. 533.

³³⁷ Fleischhauer in *ZHWK*, N.F., 4, p. 250; 5, p. 110.

³³⁸ As regards the influence on the fashions of dress, brought about by the tight waist, see Post, *Waffe und Kostüm*, p. 20.

³³⁹ *Kunstd. Bayern*, 3, U.F. 12, *Würzburg*, fig. 82. Hefner-Alteneck 3, 184.

³⁴⁰ Mann, *op. cit.*, pl. XVI: 3.

³⁴¹ *Kunstd. Bayern* 3, U.F. 17, Taf. IV. Hefner-Alteneck 3, 190. Hewitt 2, fig. 10. Post, *Waffe und Kostüm*, fig. 5.

³⁴² Mann, *op. cit.*, p. 77.

³⁴³ Cast in German Museum at Nuremberg. Baum, *op. cit.*, fig. 118.

³⁴⁴ Mann, *op. cit.*, pl. XVI: 1.

³⁴⁵ Kelly, *Pregothic cuirasses*, p. 37, fig. 1. Mann, *op. cit.*, pl. XVI: 2. In a lecture before the Archaeol-

ogical Congress at Bergen in 1927, I expressed the opinion that this armour which the National Museum at Munich had attributed to the beginning of the 16th century, was about 100 years earlier; see Thordeman, *Rustningarna från Korsbetningslaget 1361*, p. 110. Kelly and Mann have independently dated the piece to the early fifteenth or the end of the 14th century. A breastplate closely akin to this, but divided by a vertical opening into two halves, from Chalcis, is in the Metropolitan Museum, New York; the ornamentation especially is similar. See Dean, *Early Gothic armour* and Grancsay, *The Bashford Dean Collection*, p. 52, pl. IX. Cf. note 365 below.

³⁴⁶ Hefner-Wolf, *Die Burg Tannenberg* pl. X: G, H, I. Cf. Müller-Hickler, *Über die Funde aus der Burg Tannenberg*. The reconstruction of these reinforcing plates, which Müller-Hickler demonstrated to the author at the museum in Darmstadt in 1927, can certainly be considered incorrect. It should be noted that the plates have been bent so that they would fit together in the desired position.

³⁴⁷ Thordeman, *Alsnö Hus* (the finds of armour are not dealt with there). Cf. Thordeman, *Lagman Birgers gravsten*, p. 33, n. 2.

³⁴⁸ Prihoda, *Ein mährischer Spangenharnisch*.

³⁴⁹ In the National Museum at Copenhagen.

³⁵⁰ Gessler, *Die ritterliche Bewaffnung von 1386*.

³⁵¹ Kelly, *Pre-Gothic cuirasses* p. 41, fig. 9.

³⁵² Hefner-Alteneck 3, 204. Cf. Gessler, *Die Kriegsausrüstung eines Baslers von 1370*, p. 123.

³⁵³ Hefner-Alteneck 3, 210.

³⁵⁴ Stothard pls. 94, 95. Cf. Kelly, *Weitere Notizen* p. 167.

³⁵⁵ Gessler, *op. cit.*, pp. 124 f., fig. p. 121. The sculpture was found built into the wall of a house at Eisengasse 18, Basle. The interesting statements made by Gessler about "Pancer" and "Flachpanzer" mentioned in a testament from the year 1370, need not refer exclusively to white armour. Therefore, Gessler's dating of the stone to "about 1370" should for safety's sake, be altered to "the eighties of the 14th century".

³⁵⁶ Buttin, *Guet de Genève*, pp. 42 ff.

³⁵⁷ Hefner-Alteneck 3, 191; Hewitt 1 pls. XV, XVI; Boenheim fig. 151; Thordeman, *Det gotländska folkuppådet* p. 191, fig. 25.

³⁵⁸ *Kunst- und Altertumsdenkmäler im Kgr. Württemberg*, 3, *Jagstkreis*, 1, p. 633.

³⁵⁹ Kelly-Schwabe, *Short history*, I, pl. XXVII.

³⁶⁰ Trapp-Mann, *The Armoury of the Castle of Churburg*, pp. 19 ff. The front of an armour in one piece without covering, which is in the Museo Stibbert in Florence, and which is dated to about 1370 by Buttin (*Le Musée Stibbert à Florence*, p. 16) is certainly a forgery. Buttin had not seen this piece himself.

³⁶¹ Schnittger-Rydh, *Aranaes*, p. 57, pl. IX: 2. Hildebrand-Gustafson, *Falkenbergshus*. In the National Museum of Antiquities at Stockholm.

³⁶² In the National Museum at Copenhagen.

³⁶³ A similar construction seems to exist in the carving of a knight on the choir stalls in Lincoln Cathedral. See Kelly, *op. cit.*, p. 167, fig. 1.

³⁶⁴ Buttin, *Ulrich de Werdt* pp. 47, 57, 70.

³⁶⁵ There are similar brigandines, or parts of them, most of which are difficult to date accurately, in the Zeughaus, Berlin (figs. 349, 350), the Kunsthistorisches Museum in Vienna, the Real Armeria, Madrid, the F. H. Cripps Collection, (Kelly, *Pre-Gothic cuirasses* fig. 11), and the Pauilhac Collection, in Paris, (Lazaro, *Un museo español en Paris*). The history of the evolution of the brigandine has not been written, but it is probable that in Italy this type differed from the real coat of plates. It can be traced in Italian art as early as the 14th and 15th centuries, to which period no actual brigandines can safely be dated. Armours resembling brigandines occur in the middle of the 14th century in paintings by Orcagna (Resurrection of Christ, National Gallery, London) and Bernardo Daddi (San Michele in Crespina) and are fully developed during the latter half of the century (Jacopo di Cione: The Crucifixion, National Gallery, London, The Altichiero frescoes in S. Antonio, Padua). The appearance of the brigandine in the decades round about the year 1400 can be studied especially well in the frescoes by Spinello Aretino in the Campo Santo at Pisa and in the Palazzo Comunale at Siena. Parts of brigandines were discovered in the year 1840 in the Castle of Chalcis, on Euboea, which was captured by the Turks in 1470. The fragments, which belong at the latest to this period, are in the Ethnological Museum at Athens; parts of the find have been acquired by the Metropolitan Museum, in New York, and have been reconstructed there. ffolkes, *Italian armour from Chalcis*; cf. note 345.

³⁶⁶ Cf. Grancsay, *Mutual influence of costume and armour*. Stothard, pls. 134, 135. Hefner-Alteneck 4, 229, 255.

³⁶⁷ Concerning the earlier evolution of white armour see Mann, *Evolution of plate armour*, and *The sanctuary of the Madonna delle Grazie*.

³⁶⁸ I know of no survey of Italian 14th century armour. Apart from the representations dealt with above reference may be made to the numerous monuments in the church of S. Domenico Maggiore, in Naples, and the Scaliger tombs at S. Maria Antica (Cangrande I's equestrian statue in the Museo Civico) at Verona. Monuments of importance are also to be found in the Cathedral at Naples, SS. Giovanni e Paolo and the Frari in Venice, S. Remigio at Fosdinovo, and in the Museo Bardini at Florence, the Louvre in Paris, and the Victoria and Albert Museum in London.

³⁶⁹ Mann, *Notes on the armour worn in Spain*, p. 286:

"... the changes were slower, and, as in Italy, the exigencies of climate delayed the introduction of full plate or white armour".

³⁷⁰ Mann, *Evolution of plate armour in Germany*, p. 71: "The neat uniformity which characterizes all English representations of armed men for the next sixty years [1350-1410], and which makes our brasses and effigies exact replicas of each other, is in marked contrast to Germany, where one seldom finds two exactly alike." P. 73: "The English country gentleman had little occasion to don his armour or need to renew it, unless he served at court or in the wars in France and on the Border."

CHAPTER IX.

³⁷¹ More detailed accounts of the history of the convent are to be found in Ortvéd, *Cistercieordenen og dens klostre i Norden*, II, pp. 471 ff., and Lindström, *Gotlands medeltid*, II, pp. 243 ff.

³⁷² Liljegren, *Diplomatarium Suecanum*, I, Holmia 1829, No. 336 (with incorrect date): "... cum rogatu vestro ancillas Christi Moniales in Wisby vobis transmissimus ..."

³⁷³ The abbess of the convent was called prioress for a long time, which also indicates that it was not very large. The first time the title abbess was used, is in a Papal letter from the 2nd December, 1456.

³⁷⁴ Hildebrand, *Wisby och dess minnesmärken*, p. 16.

³⁷⁵ Styffe, *Skandinavien under unionstiden*, p. 430, footnote 3.

³⁷⁶ Bergman, *Solberga nunneklosters läge*.

³⁷⁷ Gustafsson, *Gotländska samlingar*, manuscript in the Uppsala University Library (Cat. No. S 170 e).

³⁷⁸ A preliminary account of the results of the excavations is given in Thordeman, *En återfunnen Visby kyrka*.

³⁷⁹ The circular inscription reads as follows: HIC JACET TYDEMAN WREDE O ANO DNI MCCCLXXXII. In the centre is the owner's mark. This stone has since been removed to a more appropriate place in the ruins of St. Nicholas' Church.

³⁸⁰ The finds in the National Museum of Antiquities and in the Wisby Museum.

³⁸¹ For this remarkable building see Curman, *Vreta klosters kyrka*, Lundberg, *Vreta kloster*, and Curman-Lundberg, *Vreta klosters kyrka (Sveriges kyrkor, Östergötland, II)*.

³⁸² Roosval, *Die Kirchen Gotlands*, p. 137. Brounoff, *Un nouveau type d'église dans la Russie*, pp. 5 ff. Lundberg, *Visby, kyrkoruinerna och domkyrkan*, pp. 58 ff.

³⁸³ See above p. 47 and note 61.

³⁸⁴ See App. 10 to chapter 1, p. 40 above.

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Abbreviation: *ZHWK* = Zeitschrift für Historische Waffen- und Kostümkunde.

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Abbreviations: ATA = Antiquarian-Topographical Archive (*Antikvariskt-Topografiska Arkivet*), Stockholm.

NMA = National Museum of Antiquities (*Statens Historiska Museum*), Stockholm.

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