HANDBOOK OF THE COLLECTION OF ARMS AND ARMOR

THE METROPOLITAN MUSEUM
OF ART

HANDBOOK
OF
ARMS AND ARMOR
EUROPEAN AND ORIENTAL
INCLUDING
THE WILLIAM H. RIGGS COLLECTION

BY
BASHFORD DEAN, 1867-1928

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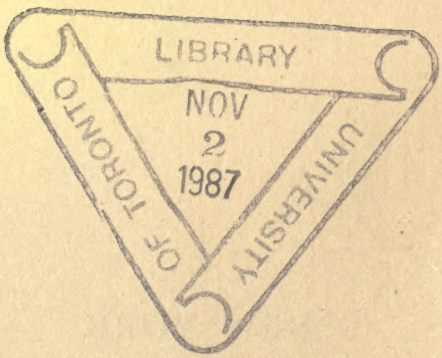

Armures, perle des collections, orgueil des musées, rêve caressé souvent en vain par tant d'amateurs. . . . Rien n'est plus rare qu'une armure ancienne.

PAUL EUDEL, 1907

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OF
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I

INTRODUCTION

THE casual visitor to a modern museum is apt to know little of ancient Arms and Armor, and he may not realize that among connoisseurs these objects rank high in the scale of *objets d'art* —with ceramics, enamels, bronzes, even paintings. For one reason, unless he happens to know the famous collections in a few European capitals, he has probably seen few specimens of armor of good quality. And he does not take into account that the art of the armorer, like the art of the painter or sculptor, can not be well appreciated from poor examples. On the other hand, the every-day visitor to a museum usually associates arms and armor with the elaborately developed panoplies of the sixteenth century—of the time of the Italian wars and of the Field of the Cloth of Gold—and he pictures armor as a ceremonial equipment, etched, gilded, and embossed, worn as often in the court as in the camp, when swords were richly wrought, incrusted with silver and gold, and when halberds, which so often form an attractive portion of the sky-line in pictures of those days,

were fretted, etched, and gilded, their long shafts sheathed in velvet, and rich with silk tassels and gilded studs. These splendid equipments, it is true, represent an important side of the armorer's art. But it is equally true, from an artistic standpoint, that some of the most interesting objects were the earlier and simpler types which were beautiful rather in their lines and surfaces than in their mere enrichment.

It is, then, from an examination of good specimens of armor and arms of various periods that one realizes that they well deserve their place in a museum of art. And in this conclusion we need consider neither their historical value, as a means of picturing more accurately scenes and personages of known periods, nor their sentimental interest—which they possess to a degree rarely found in other objects of art—nor their supposed mystical significance. In the last regard, we recall the myths of god-like armorers and enchanted arms, which belonged to all early times and to all peoples.

Unfortunately for the general public, representative collections of these objects were not to be seen, until late years at least, on this side of the Atlantic. And even abroad few museums exhibited armor adequately. In fact, in the case of European armor, about ninety per cent of the best examples extant are restricted to but seven national European collections, i. e., Vienna, Madrid, Paris, Dresden, Turin, London, and Petrograd—collections which, by the way, are not of public or popular origin, for they de-

scend in large part from the treasures of princely houses.

In the United States few collections of armor and arms have been exhibited. Of European arms, aside from those shown at various times in the present Museum, there has been, as far as the writer is aware, only one really representative collection placed on public view. This was in Chicago in 1893, when the collection of privy-councilor Zschille of Grossenhain was exhibited at the World's Fair.

But what has become of the rest of the early armor and splendid arms? Surely in their day these objects were abundant and one may well query why many of them have not come down to our present time. The reason for this is complex. For one thing, during the past two centuries, when armor disappeared from use, there has been little interest in the armorer's art. Then, too, modern warfare, with its constant improvement in fire-arms, discouraged and actually destroyed it. Armor became burdensome and useless, possibly dangerous; and when it finally lost its dignity, it was soon forgotten. War, too, with its almost yearly changes in equipments during the last centuries, caused every struggling nation to prepare its arms as cheaply as possible; and under this condition even the best work was of little artistic value. Hence, the view became widespread that the work of the armorer represented a low branch of an artist's profession. Even the government of the United States took this point of view, and a few years ago, a casque executed for Francis I by a Negroli and

designed by Cellini would have been held on our frontiers and assessed for duty as "manufactured metal ware"! It came about, accordingly, in a period of disregard for the work of the ancient armorer that the objects of his art were destroyed, and in many ways. One hears of precious harnesses falling into the hands of artisans. Thus in Munich the gate of the botanical garden was made early in the last century of forged iron obtained from a collection of ancient armor (said to be largely Gothic!) from the garrets of the royal palace of Munich. Casques and bucklers enriched with gold were broken up to recover a trifling amount of precious metal. One of the best head-pieces in our collection was purchased from a stable boy; another was found in a Rhenish grocery shop in use as a meal-measure. About the time of the French Revolution, a number of ancient armories were dispersed and priceless armor was sold by weight—to be converted into horseshoes or pike-heads. In this connection, one should also take into account the fact that armor is not easily kept in order, and, if neglected, it rusts and speedily loses much of its attractiveness. Furthermore, it was at all times a costly matter to keep an armory in repair; and there is probably no kind of collection which requires greater attention, more skilful care, or larger outlays. When this attention was not given, the objects showed neglect so obviously that they were apt to find their way out of sight. Thus it happened in the course of centuries that important armor was removed from a position of prominence in

PLATE I

EGYPTIAN PREDYNASTIC FLINT SWORD
BABYLONIAN SWORD, XIV CENTURY B. C.

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castle and manor, and found its way into lumber-rooms where, as in the instance of the admirable harness of Sir James Scudamore now shown in our collection, it suffered great neglect. As a matter of fact, under such conditions, when one looks into an ancient chest at the dismembered and disintegrating bits of armor, it takes not a little imagination to picture the former magnificence of the entire suit; its beauty of outline, its delicately engraved ornaments, its crisply fluted and russeted surface, its mountings in silk velvet and gold galloon, its close-fitting symmetry, which made it appear molded to the living body of its wearer.

On the other hand, in earlier times, armor and arms were among the most prized possessions of noble and commoner. They were objects, indeed, no less useful than beautiful. It was not unnatural, therefore, that the man who made them was looked upon everywhere as an artist who belonged to an ancient and honorable guild. He had access at all times to courts and camps and his work was munificently rewarded. A great swordsmith, Serafino di Brescia, was accepted by such an art lover as Francis I as equal in rank with Titian. The Negroli were ennobled, fortune and fame came to the Colman family through the Austrian emperors, and the imperial Maximilian is pictured in his workshop with his hand upon the shoulder of the master-armorer Seusenhofer. In those days, no painter was too distinguished to act as a designer for military panoplies. Raphael and Michelangelo made studies for the

equipments of the papal court; Dürer prepared designs for the armor and arms of Maximilian; Leonardo was singularly fertile in similar work; Cellini not only designed but executed shields and hilts of rapiers and poignards. Among the artists who are known to have taken a part in the armorer's "trade" were Titian, Gian Bologna, Giulio Romano, Holbein, Peter Vischer, and Donatello.

But the real armorer was evidently he who both designed his objects and executed them as well. And in this he followed an art whose technical difficulties were extreme. His work was to stand the test of service, therefore it was modeled in steel; and of this refractory material he formed objects of the hardest texture, whose thickness was great only at the points where actually needed, whose total weight was reduced to a minimum—yet with all this they should be beautiful. Nor did this mean that armor should attract chiefly from its decoration or enrichment. The artist's greatest work, whether casque, gauntlet, or sword-hilt, was like a Greek vase, beautiful in the effect of its shadows, in its movement and contour. During the greatest period of the European armorers, say between 1450 and 1530, even a detached piece—a shoulder, backplate, gauntlet, or greave—had in some degree the merit of a fragment of classical sculpture. Not merely are its lines expressed beautifully, but one feels that it has within it something living. What this implies from the technical standpoint is realized more clearly when one watches a workman copying an ancient

PLATE II

BRONZE ARMOR, ITALIC
VII (?) CENTURY B.C.

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piece and sees how fully he is taxing both his hand and his judgment. Thus when modeling an object he may at one point heat the metal to excess, and thereby spoil his piece; his few extra hammer strokes may weaken the work at a critical point; or he cannot develop a desired contour if at the beginning the "pushing" or spreading of the metal be not begun at a definite distance from the margin of the plate.

In a word, in former centuries the work of the armorer was a living art and its technical interest was well understood even by laymen. Today, on the other hand, it is an art well nigh extinct, and there are not many, even among amateurs, who appreciate how subtle and difficult it was. Its processes were varied and a knowledge of them was often guarded jealously, as the heritage of artist families or of ancient guilds. Its implements were things apart, with scores of curiously shaped hammers and anvils, and with a formidable battery of eccentric pincers, files, saws, and vises—objects which their owners sometimes elaborately ornamented, incised, and sculptured. In fact, the ancient anvil,[1] the pride of some sixteenth-century armorer, which is exhibited in the present gallery (H 9, near Case 48), will to some visitors be of greater interest than the armor itself.

There are in fact few copyists today who would attempt a real armorer's task. And modern work has ever in it a hardness of line. Persuade an artist to copy, for example, the comb of a morion. This

[1] This, together with a sculptured vise, was lately borrowed by the Museum from the collection of Ambrose Monell of Tuxedo.

is the crest or ridge encircling the top of a somewhat hat-shaped head-piece, which the old armorer would develop out of a simple piece of metal to a height of six inches, and at the same time leave the maximum strength at the top of the crest where it was needed. If a modern copyist attempted such a task, his result would be lacking in finished symmetry or in the graduation in the thickness of the metal in the exposed parts. The only artist who might become a dangerous *faussaire* is the one who would be willing to copy the same object scores of times.

II

THE PRESENT COLLECTION AND ITS ARRANGEMENT

THE earliest arms and armor in the Museum collection are to be seen in the Bronze Room (D 12), in several of the Egyptian rooms (D 3, E1, 3), and in the room devoted to Cretan reproductions (H 4). All later specimens, which together represent over nine-tenths of the collection, have now been brought together from all sources and installed in four galleries in Addition H. European specimens appear in the main gallery (H 9), and in the large north room (H 8); Japanese armor is displayed in a room (H 6) east of the main gallery, and the remaining Oriental arms in a room adjacent to this (H 5).[1] In these galleries an arrangement has been followed which aims to furnish an outline of the armorer's art in various countries and more or less in a chronological sequence. For this reason, the visitor is recommended to consult the diagram of the gal-

[1] The corner gallery (H 7) is not as yet arranged for exhibition. It will contain a part of the William H. Riggs Armor and Art Donation, including contemporary portraits of knights in armor, Renaissance furniture, stained glass, early tournament books, and similar documents relating to arms.

leries, Plate LXV, and follow approximately the path which is there outlined. He should accordingly examine first of all the European objects. Entering the main gallery near the staircase of the elevator, he finds in front of him and at the right the earlier objects—Frankish arms, a few head-pieces and fragments of armor antedating A. D. 1400, and a series of cases of chain-mail and "Gothic" suits of armor, saddles, casques, and various arms earlier than 1500. The visitor should now turn to the left into the middle of the main hall and passing the equestrian figures, which are arranged somewhat in order of time, go back to his first position. Turning to the west, he next examines the arms of the "Maximilian period," when during the early decades of the sixteenth century elaborately fluted armor was developed. He then continues along the west side of the main gallery, viewing the panoplies of the mid-years of the sixteenth century. In this direction he will be led into the large north room containing the richly decorated harnesses and arms of the middle and second half of the same century, these including a number of historical and princely objects. From this room he returns to the northeast corner of the main gallery, where the latest European armor is displayed. Here are the heavy, sometimes grotesque suits and half-suits which are typical of the seventeenth century, when crude workmanship suggests that gunpowder was in frequent use and that little was spent in equipments which might cheaply be destroyed.

PLATE III

ETRUSCAN CHARIOT

VI CENTURY B.C.

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After completing his review of European Armor and Arms the visitor enters the Japanese Hall. At his left are arms of the stone, bronze, and early iron ages. Immediately in front are partial suits of armor, dating from 1200 to 1500 A. D., which are of no little interest to the student, for they belong to the period which the Japanese look upon as the "golden age" of their national art. These objects are apparently the only ones of their kind that have found their way out of Japan. In the middle of the room are series of harnesses of the sixteenth, seventeenth, but mainly eighteenth century, together with associated arms. Among them are numerous examples of the workmanship of the Miochin family of armorers. Here, too, is the horse-equipment of a prince of Inaba. On either side of this are corselets, helmets, and detached pieces of armor. On the walls are pole-arms, surcoats, bows, quivers, and banners, including (in a frame) the war banner of Prince Daté Masamuné of Sendai (died 1636). At the south end of this gallery are cases of swords and sword-guards, fire-arms, and helmets. The latest objects in the Japanese military equipment here shown date to about the time of the overthrow of the Shogunate in 1868.

The ceiling of this hall is worthy of careful examination. It is decorated with the *mon* (crests) of the principal families of old Japan. Their names are given in a diagram as Plate LX.

Passing into the next room to the south (H 5) the visitor may examine other Oriental arms. Here are

Turkish, Persian, and Indian head-pieces, which date from the fifteenth to the seventeenth century, and are of excellent workmanship.[1] Of these the earlier ones are of unusual diameter to enable them to be worn over large turbans. In a number of instances they are elaborately embossed and decorated with incised patterns and overlays of precious metals. Good examples of Oriental mail may also be examined. Among the swords here shown are several whose ancient "Damascus" blades are composed of many fine layers of steel. One sword is of particular interest. Its blade is European, but its hilt was made by a Moorish artist and elaborately decorated with enamels; it belonged for centuries in the family of the Marquis de los dos Aquas of Valencia, and, with the leather despatch (or Koran) case accompanying it, was treasured as a relic of the "unlucky" Boabdil, the last king of Granada. (Plate LXI.) Whether this tradition be true or not, this Hispano-Arab sword is a great rarity—only nine specimens of its type are described. In neighboring cases and panoplies are shields, breastplates, and gauntlets of Persian and North Indian origin. They are usually made of Damascus steel and elaborately decorated. There are also Malayan krisses, Persian daggers and swords, and enriched Oriental guns, many of these lent by George C. Stone. Especially noteworthy is Mr.

[1] A few Oriental arms are shown in the Moore Gallery (E 12). These include an excellent Persian casque and corselet, and a Cingalese gun, the last a very rare object. Mr. George C. Stone tells the writer that he knows but three other examples, one in the South Kensington Museum and two in Russian collections.

PLATE IV

GREEK WARRIORS. FROM ANDOCIDES VASE
END OF VI CENTURY B.C.

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Stone's series of fist-daggers (*katâh*) and a gauntlet sword from the Walhouse Collection and the state armory of the Maharaja Sivaji, the last king of Tanjore.

In following the directions given in the preceding paragraphs, the visitor will find before him all arms and armor now on exhibition. Should he wish additional data for the study of armor, he is recommended to visit the halls where the plaster casts are shown (A 30, 31, 32, 33, 38). Here he will find reproductions of well-known monumental effigies and portrait statues dating from the fifteenth and sixteenth centuries. Among these we may note Gattamelata, 1453; Otho of Henneberg, 1487; Colleoni, 1493; Guidarello Guidarelli, 1501; Hermann VIII of Henneberg, 1508; several of Peter Vischer's kingly statues in the Innsbruck church, 1513; Gaston de Foix, 1515; Francis I, about 1520; Engelbert of Nassau, about 1525; Joachim of Brandenburg, 1530; Charles IX, 1571. There are also a few important original statues in stone and wood (Addition F) which will repay examination. And in the Morgan Collection (H 11–15, 19) there are numbers of admirable contemporary representations in armor, in ivory, wood, stone, enamels, and paintings. We may mention finally that galvanoplastic reproductions of a number of well-known arms and embossed pieces of armor may be examined in the basement hall of Addition H, including notable specimens from the Petrograd Collection.

THE ORIGIN OF THE MUSEUM COLLECTION OF ARMOR

Rutherfurd Stuyvesant, Vice-President (1904–5) and Trustee from 1870 to the time of his death in 1909, was greatly interested in the study of armor, and during his long association with the Museum, he spared no effort to show to the art-loving people of New York good examples of the work of the artist-armorers. His own extensive collection was several times placed at the service of the Museum, and his gifts were important. His purchases at the Spitzer sale (1895), where he secured some of the capital pieces, were at once sent to the Museum, where they have ever since been exhibited.[1] He it was who, supported by J. Pierpont Morgan, negotiated the purchase in 1904, of the collection of the Duke de Dino: this had been formed by a wealthy French amateur under the advice of the well-known expert, Baron de Cosson.

Previous to this, Mr. Stuyvesant expertised and recommended for acceptance by the Museum the small but valuable collection which forms the nucleus of the present exhibition. This included arms and detached pieces of armor, together with several suits and half-suits which had been secured by John S. Ellis, of Westchester, between 1865 and 1890. They were presented to the Museum in 1896 in Mr. Ellis's memory by his son, Augustus Van Horne Ellis. Until 1910, this collection remained in a sepa-

[1] Since 1909 generously lent by Madame Rutherfurd Stuyvesant.

PLATE V

ROMAN AND DACIAN SOLDIERS
FROM TRAJAN'S COLUMN, II CENTURY A.D.

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rate gallery in Addition C (31). (See catalogue of Arms and Armor, Metropolitan Museum of Art, 1905.) It was later transferred to Gallery 6 in Addition D, near the de Dino Collection, so that all the Museum's armor and arms could be examined together conveniently.

Various additions have come to the galleries since the installation of the de Dino objects. Purchases were made; some interesting arms from the collection of William Cruger Pell were presented (1906) by his daughter, Mrs. Ridgely Hunt; a series of Persian and Turkish arms was given by William B. Osgood Field; and in the Moore Collection were similar and admirable specimens. In 1903, a loan collection of Japanese armor was exhibited which, excepting two specimens, has since remained on exhibition, and with this were exhibited the Japanese swords of Brayton Ives which were secured in 1891. Accessions to the Japanese armor collection came in 1910 in the gift of the dozen or more harnesses, with accessories, of excellent workmanship, which Dr. George M. Lefferts gathered in Japan about 1893; also in the objects secured by the curator in Japan in 1905, which he lately donated. These included many early pieces, notably those from the well-known Kawasaki Collection of Tokyo. The most recent accession in this field is the series of sword-guards presented by Mrs. Adrian H. Joline (1914).

A few arms of the Bronze Age and of classical antiquity had been represented in the Cypriote Collection of General di Cesnola—subsequent purchases

(1903, 1907, 1909) yielded a dozen or more important objects in this early field, including casques, plastrons, and shield bosses. Of supreme interest is the Etruscan chariot acquired in 1903.

Of arms of the Middle Ages and the Renaissance, purchases have been made in recent years in various European sales, including the Whawell-Thill in Munich in 1908, and the Keucheleff-Bezborodka in Paris in 1912. In this year, also, two historical suits were obtained from the Earl of Chesterfield—they had been made about 1585 for Sir James Scudamore, in the English state armory at Greenwich, by or under the direction of the master-armorer, Jacobe.

To the Metropolitan Museum the year 1913 was in many directions the most important in its history. To its arms and armor it now added the William Henry Riggs Donation. This included, in fact, the entire collection of this well-known amateur, not only arms, but contemporary portraits of armored knights, a library upon armor, numerous pieces of Renaissance furniture, and panels of stained glass—a benefaction to the Museum which up to that time was second only in importance to the Rogers Bequest.

Mr. Riggs (see Bulletin of The Metropolitan Museum of Art, March, 1914, pp. 66–74) was born in New York, but from the early fifties had made his home in Paris, where, in the greatest art market in the world, he was in constant touch with collectors and antiquity merchants. For over sixty years he devoted his time and fortune to his life-work. This

PLATE VI

FRANKISH SOLDIER, VI CENTURY A.D.
AFTER GIMBEL

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he maintained was to bring together "for the benefit of the art-loving people of his country" a collection of arms and armor which in its scope and quality would rank with European national collections. To this end he labored zealously. He traveled extensively in Germany, Italy, France, and Spain, and made remarkable "finds." He knew what had been secured by the early collectors, and, awaiting his opportunity, he gathered from them, sooner or later, the pieces he coveted. In fact, the history of his objects is the history of the great collectors, such as Uboldo, Meyrick, Fontaine, Carrand père, Spitzer, Pourtalès, von Leyden, Magniac, de Cosson, Belleval. Not infrequently his treasures could be traced to national collections. Mr. Riggs's patient watchfulness brought him many historical pieces, and he did not allow them to slip through his fingers when once captured. His work went on so quietly that few, even amateurs, realized the value of the collection which he was bringing together. For one thing, he permitted very few people to see it; and in later years, when accessions were made they were apt merely to be stored away in his home in rue Murillo, which came finally to be so filled with packing cases that the owner himself could hardly find access to his purchases. Only when the first international exhibition took place in Paris did the art world realize what the retiring American amateur had accomplished—for he then permitted some of his most important pieces to be placed on public view.

About 1910, Mr. Riggs decided that The Metro-

politan Museum of Art should become the permanent home of his collection; he had consulted Mr. Morgan and Vice-President Stuyvesant about the conditions in the Museum, and he was influenced in making his choice by the fact that Mr. Morgan, his life-long friend, was the President of the Museum. He accordingly placed the matter in Mr. Morgan's hands, and at the latter's suggestion the Trustees arranged to exhibit the Riggs objects in the three present galleries. They were completed in 1913, and were approved in person by Mr. Riggs, who then visited his native city for the first time in forty-four years. Thereafter, within a few months, the collection was packed and shipped, the contents of a hundred odd cases arriving at the Museum without mishap. As a further instance of Mr. Riggs's generous attitude, we need only mention that he insisted that his collection should not be kept distinct from objects of similar nature in the Museum, and he expressed the wish that the arrangement of the arms and armor should be chronological, since by this means the scientific and artistic interest of the collection could best be demonstrated to the general visitor.

SYNOPSIS OF THE MUSEUM COLLECTION OF ARMS AND ARMOR

The European objects comprise twenty-nine hundred numbers, the Japanese sixteen hundred, other Oriental objects one hundred. There are in round numbers one hundred suits and half-suits of European armor and fifty of Japanese; seventy specimens

PLATE VII

FRANKISH SOLDIER, IX CENTURY
AFTER GIMBEL

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of European mail; sixty European banners and forty Japanese; six hundred European pole-arms and sixty Japanese. The European material includes further ninety spurs, one hundred and ten daggers, forty guns, one hundred pistols, four hundred and fifty swords, eighty shields, two hundred helmets, two hundred and ten other pieces of armor, eighty maces, one hundred and seventy horse trappings, embracing bridles, bits, and stirrups.

III

EARLIEST ARMS AND ARMOR

NO attempt has yet been made to represent in the present collection the typical arms of the Stone Age. From various specimens shown, however, it will be seen that the art of the maker of arms had already made important strides in the earliest times. Stone axes, daggers, knives, and arrow-points, which are certainly more than five thousand years old, were fashioned with no little skill. Especially to be noted are the daggers and swords shown in the Egyptian room (D 3), which date from the predynastic period (about 3500 B. C.). At this time, a degree of refinement in the chipping of flint had been attained which marks probably the highest point in the development of the art. (Plate I.)

It may be remarked that the arms in chipped stone which appeared in various countries, and even continents, are often curiously alike. In many instances, objects of the same shape and treatment can hardly be distinguished, although from widely separate localities and of very different ages. It is probably in certain of these instances that the degree of skill shown in a definite locality was developed in an in-

PLATE VIII

NORMAN AND SAXON ARMOR, LATE XI CENTURY, AFTER BAYEUX "TAPESTRY"

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dependent way, that is, as an instance of what the biologist would call "parallelism." Thus the skill developed in Japan in the making of chipped arrow-points or axe-heads (celts) was in all likelihood a purely local development, i. e., unrelated to that developed in Denmark or in North America. Especially in arrow-points, curious and highly specialized forms paralleled one another in widely separated places. And this is the more remarkable since some of these forms must have severely tested the skill of the artist who made them. There is perhaps no way of appreciating more clearly the difficulty of preparing such objects than by attempting to copy one in a similar material, aided even with modern means for holding the object and for chipping it. It is even doubtful whether some of the highly ornamented flint or obsidian arrow-points, made by a "savage" more than four thousand years ago, could be copied accurately at the present day.

Whether armor was employed earlier than the age of bronze is not definitely known. By analogy, however, it is more than probable that some types of defensive arms were already in use. We may safely conclude that shields were carried, and it is probable, judging from our knowledge of the cultural conditions of primitive peoples, that forms of armor had been developed, fashioned either of fibres or of hides.

IV

ARMS AND ARMOR OF THE BRONZE AGE AND CLASSICAL ANTIQUITY

FOR about six thousand years, man has been a worker in metals. He made his earliest implements and arms in copper, either pure or alloyed—this at least is the commonly accepted view. Some investigators, however, maintain that he worked in iron, to a limited degree, at about the same time. And this view has in general no technical objection to it; for iron is readily reduced from a rich ore in malleable lumps, as distinguished from "cast" iron (which has been in use only about three hundred years). This view, it may be mentioned, is based upon reported discoveries in Egypt. Here, the date of the appearance of bronze can be established with reasonable accuracy, e. g., in the finds of Mêdûm, dating about 3700 B. C. In China, it may have been in use earlier still, if we are willing to accept definite limits in far-eastern chronology.

There is certainly strong documentary evidence to show that bronze was in general use earlier than iron. Thus the Greek classics refer repeatedly to the widespread use of bronze and to the late appearance of

PLATE IX

BANDED MAIL WITH SHOULDER SHIELD, 1274

AFTER GAY

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iron. We know, too, that objects used for religious or tribal ceremonies, whether in Rome, Egypt, Siberia, or Japan, were of bronze, rather than iron, and that such objects, on many grounds, were primitive. We find, further, that bronze implements and weapons occur in older burials, and that iron objects, when they begin to appear, assume shapes which had been developed in bronze only in later times.

We cannot assume, however, that a bronze age was universal or even developed at the same time in widely separated countries. Each continent or country shows wide variations. In northern Europe, where this age has been carefully studied, bronze appeared about 2000 B. C., and its use for arms and armor was continued well into the time of the Roman Empire, centuries after iron was generally employed. There were clearly reasons for this conservatism in the use of bronze: copper, pure or alloyed, was more easily handled than iron, it was splendidly malleable, it could be developed with less labor into plates and points, it did not rust, and it was sufficiently hard for its purpose. Few, indeed, realize today how hard copper may be made. It cannot be "tempered" like steel, but if hammered, its fibre becomes compact, so that a bit of soft copper may be pounded into a point which will penetrate almost as well as iron. I recall seeing the first director of this Museum demonstrate the hardness of a Cypriote lance-blade (which was nearly pure copper) by driving it into the oak floor of the gallery—the point when drawn out was found almost uninjured. But

the hardening of copper was mainly due to alloys. Thus it was found that certain ores which were impure, e. g., those which we now know contain arsenic or antimony, furnished a more durable "copper." It was also early discovered that a slight admixture of tin produced arms which were of excellent quality. This result was probably the outcome of a local experiment in using a copper ore which happened to be rich in tin, say to the degree of two per cent. From this stage an experimental evolution proceeded until a bronze was produced which contained tin to the amount of about ten per cent.

Some of the earliest European arms were prepared with no little skill, and from various points of view, technical and artistic. Some were hammered out of the metal direct, others were cast and then finished with hammer, file, and chisel; many show beautiful outlines and ornaments. Lance-heads with subelliptical blades, arrow-heads with broad points, leaf-shaped sword-blades, and various forms of axe-heads (celts and palstaves, which were narrow celts furnished with a socket into which the handle fitted) (D 12) date from 2,000 B. C. to about 600 B. C.

By far the most interesting of the earliest objects in the Museum is the Babylonian sword presented in 1911 by J. Pierpont Morgan (D 12). This is probably the oldest arm extant which is inscribed in such a way that it can be given a date. It bears cuneiform characters, which state that it belonged to the "Son of Budil, King of Assyria," who flourished in the fourteenth century B. C. (Plate I.)

PLATE X

COMPLETE CHAIN-MAIL, LATE XIII CENTURY
(BRASS OF SIR JOHN D'AUBERNOUN)
AFTER HEWITT

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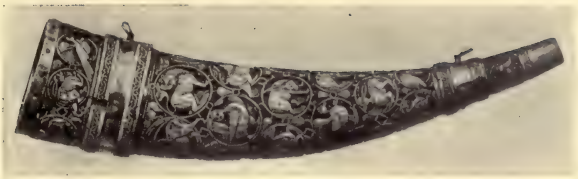
Among earliest types we should mention the arms of the so-called Minoan period, dating from 1600–1500 B. C., of which reproductions are exhibited in the Cretan Room (H 4). The daggers and swords are straight and massive, beautifully mounted, with ivory grips and golden guards and pommels. They suggest Egyptian objects of earlier age shown in Addition E, 3.

The oldest armor with which we are acquainted consists of *jaẓerans*, or jackets covered with scales. Of these, however, only the detached bronze scales are preserved, and it may be noted these are curiously similar in shape and size, in various and widely separated countries. Thus the same type of bronze scales (often gilded) is found in Egypt (Addition H, 1), Spain, India, China, Japan (H 6, Case 1), and the regions of the Euphrates and Danube. With this body armor appear bronze helmets which exhibit a modeling of no mean order; some are fashioned in a single piece, others are made up of plates which overlap and are riveted together. In some instances these defenses continued to be worn when iron was already in general use.

The first European iron objects date between 850 and 400 B. C. This we know from the burials in the famous cemetery at Hallstatt in the region of Innsbruck in Austria, where the finds have been studied with great care. In graves in this locality iron sword-blades, spear-heads, and arrow-points appear side by side with bronze armor and arms, showing that for a considerable period the armorer used

both metals. From this epoch of transition date many important specimens in the Bronze Room (Addition D, 12). (Plate II.) Foremost among these is the bronze chariot (biga) acquired by the Museum in 1903. This was discovered in fragments in a tomb near Monteleone di Spoleto in Umbria. Its front and sides are encased in beautifully embossed bronze, showing on the front panel archaic figures in whose hands are an elaborately embossed shield and a casque of "Corinthian" pattern. (Plate III.)

Other bronze objects which date from the "Hallstatt period" include a bronze corselet, Greek, dating probably from the fourth century B. C., also several bronze casques shown in the same case. Of these, the rarest is undoubtedly the Italic head-piece with a triangular median crest ornamented with lines of embossed dots and circles. (Plate II.) Casques of this type are known in about fifteen examples and are described by Freiherr von Lipperheide in his Corpus Cassidum, Berlin, 1902. Associated with this head-piece is a corselet of the same type, dating probably from 700 B. C. (Plate II.) The present example is figured in Forrer's dictionary of archaeology and has been several times exhibited, notably in the military exhibition of Strassburg about 1905. In referring to this object, we should mention the discovery in Fillinges in the Haute Savoie which took place several years ago, when a hoard of five or more breastplates of this type and one backplate were found lying together like a pile of broken shells. The backplate is here exhibited. Additional objects of



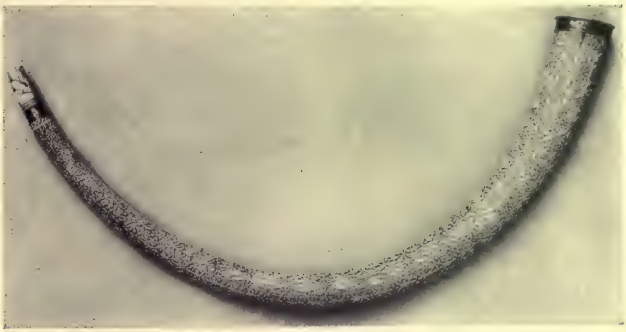


PLATE XI

HUNTING (OR WAR) HORNS
XI, XII, AND XV CENTURIES
DE DINO AND MORGAN COLLECTIONS

SEE PAGE 40

this period in the present collection include several gracefully modeled greaves, sixth or fifth century; a belt, Etruscan, fourth century B. C. from the ruins of Bitulinia; shield bosses, dating from the seventh century (?); together with a series of spear-heads, swords, and daggers. Of the latter, one retains its bronze sheath. In all these arms, it may be mentioned, the workmanship is excellent. The designs have been traced free-hand, but accurately, and no little artistic judgment is shown in execution. In this regard, one recalls the "Casque of Hannibal," an Etruscan head-piece, which is now preserved in the museum of Perugia. This object ranks with the best of armor, whether ancient or mediaeval.

The beautiful arms of Greek, or broadly, Italiote workmanship of the sixth and fifth centuries B. C., are a legitimate product of this splendid period. Their makers were artists whose position in the community appears to have been quite equal to that of the designers of vases or buildings, and in their pride in their work, they sometimes carefully signed their pieces. It is only to be deplored that the works of these early armorers are now so rare. The casque in Perugia, and fragments in the museums in Athens, Naples, Paris, or Berlin, are at least enough to show the degree of taste, one is tempted to say perfection, which the art of the armorer had then attained.

In spite of the lack of many objects for study, the equipment in Greek times is adequately known. Contemporary paintings, coins, and sculpture yield details which are in all probability accurate. Figures

in armor were favorite themes of vase painters and from their works we may classify corselets and casques, swords, bows, quivers, lances, war-axes. (Plate IV.) The helm, close-fitting, fashioned from a single piece, protecting not only the cranium but the nose, cheeks, and chin (Corinthian form), was an excellent test of the armorer's skill, and such an object (Addition D, 12) well repays careful examination. It was so made that the metal was thickest at exposed parts: then, too, rims were reinforced, and there were apt to be ornamental borders and well-planned ridges which strengthen the surfaces and at the same time provide attractive lights and shades. Corselets were of numerous types, the most highly specialized having been modeled closely to the muscles of the chest. The abdomen was little protected, also the sword arm. The legs, on the other hand, were furnished with tall greaves and, rarely, thigh defenses, or *cuissards* (see Plate IV). A huge shield was the major defense.

Altogether, the panoply was designed to hamper as little as possible the movements of the wearer. And if a modern, or, still better, a mediaeval soldier could have observed the individual attacks at Marathon or Plataea, he would probably have been dumbfounded at the suddenness of the charges, the rapidity of the thrusts, and the quickness with which the heavily armored Greek dropped to his knee, rose, or feinted. I have seen no comment upon the supreme activity of the Greek soldier in battle, but his armor gives the clearest proof that he specialized his equip-

PLATE XII

"IVORY" SADDLES, XIV, XV, AND XVII CENTURIES
DE DINO COLLECTION

SEE PAGE 41

ment in this functional direction. There was no reason why he should not have worn more complete armor, and if he did not protect his abdomen and thighs it was because he wished to keep unhampered his movements in running, leaping, twisting, bending, and stooping. Note, for example, the details of his greave: its ends show that it was formed so as to restrict as little as possible the varied movements of knee and ankle. That his sword arm was bare showed that he would not embarrass it even with the weight of a leathern sleeve; for to retard the movement of his arm the fraction of a second might cost him a fatal wound. The use of the shield does not mean, indeed, that it was unnecessary for the soldier to protect otherwise the abdomen and thighs: certainly his sword arm was exposed, yet was unprotected, and his corselet fitted too closely the lower ribs and marked out too accurately the limits of the muscles which function in stooping, to have been developed as a mere accident. In fact, even when armor of the thighs is present it is of a special form so as to hinder little their activity.

This line of development in armor, i. e., allowing a maximum of the wearer's active movements, seems to have been followed for a considerable period, for we have numerous documents tracing its changes during the last centuries before Christ and during the early centuries of the Roman Empire. The soldier of Rome (Plate V) was provided with armor which was suited for long marches and active movements. The flexible corselet and shoulder defenses, or span-

drels, were admirably designed to these ends. They were formed of bands of iron, articulating by means of leather straps, and were probably a modified form of the earlier jazeran—which was still occasionally used—in which the horizontal rows of scales became transformed into bands. This enabled the wearer to discard the underlying jacket and to substitute a stronger corselet at less outlay. For the study of the arms and armor from about the year 400 B. C. to the time of Augustus Caesar many important finds have been made in the Swiss lake deposits. At La Tène (near Neufchâtel) so complete is the series of these remains that one can give relative dates to various forms of iron swords, spear-points, and other weapons. And it is found, in the most interesting way, that these comparisons hold good for arms found throughout Europe generally.

We have few objects to illustrate the work of the artists of La Tène times, nor yet of Imperial Rome. In the Bronze Room there is, however, an excellent horse frontal, beautifully incised, which dates probably from the second division of La Tène times (250–150 B. C.), and there are also several helmets and a few arms. Our knowledge of the armor of the Roman Empire is based largely upon contemporary sculptures, portrait statues, and especially upon the reliefs given in wealth of detail on Trajan's column (A. D. 114). Here appear not only Roman officers, legionaries, and their train, but barbarians in full panoply. The latter show that highly ornamented arms were sometimes carried, that scale- and chain-armor were

PLATE XIII

CHESS FIGURE, ABOUT 1350
MARBLE RELIEF, ABOUT 1300

SEE PAGES 41, 43

in frequent use, that their horses were sometimes armored, even to the fetlocks. Here, too, the famous Roman short sword is pictured, but, curiously enough, the *pilum* is not represented. This was a long-necked spear which could be driven through a shield and passing its full length, transfix several enemies—breaking the virtue of the close-set mass of soldiers, or "phalanx," which had played so important a part in earlier wars.

The best actual specimens of the armor of this age are preserved in the Naples museum, which exhibits the remarkable finds from Pompeii and Herculaneum (A. D. 79), including objects engraved, gilded, and embossed. Of the last type is the famous visor of a helmet in the form of a face which was found in England (Rochester) and is now preserved in the British Museum. Its workmanship suggests the hand of a Roman Negroli!

V

THE EARLY CENTURIES OF THE CHRISTIAN ERA

WITH the breaking down of the Roman Empire new styles of arms and armor were developed, and new methods in warfare were introduced. Roman fashions were rejected or could not be reproduced. The types of arms that then came into being suggest in details Oriental influence. Scaled corselets (jazerans) appeared more abundantly, shields developed larger bosses, and swords became again long and narrow, but straight-edged, not leaf-shaped as in early Gallic times. Axes appeared in such numbers that they are spoken of as the national weapons of the tribes which swept into the Roman Empire over the German and Dacian frontiers. Specimens of these arms date usually from the fourth to the eighth century A. D. They are shown in numerous examples in Case 1 in the present main hall—a remarkable series which forms by no means an unimportant part of the J. Pierpont Morgan Collection. They were originally brought together by Stanislas Baron, who for many years explored the Frankish cemeteries in the neighborhood

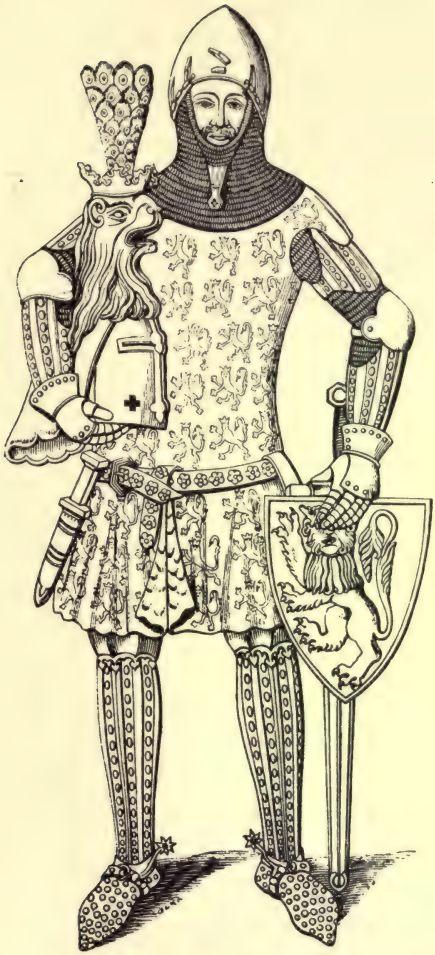


PLATE XIV

TRANSITIONAL ARMOR OF GUENTHER VON SCHWARZBURG, 1350, AFTER HEWITT

SEE PAGE 42

of Vermant, Belgium. They include a number of splendid swords, one of which has its hilt enriched with gold and garnets; a shield boss of unusual size entirely incrusted with gold; numerous axe-heads and spear-points; daggers of peculiar form, or *scramasax*, which in several specimens preserve their scabbards.

The warrior of the sixth or seventh century (Plate VI) was often far less completely armored than the Roman legionary: he had no metal corselet, a jacket of hide protecting his body, and he had no defenses for face or neck. On the other hand, his arms and legs were protected in a measure, and his lower legs were closely wrapped with a kind of puttee. His major defense was his *Spangenhelm*, or conical casque made up of many pieces, and his great shield, which was wooden, covered with leather, and reinforced with iron—the latter in the form of a central boss and radiating and concentric bands. His equipment, although primitive to a certain degree, bore sometimes, as the present specimens show, rich ornaments. Buckles, hooks, hilts, scabbards, bands of casques, are sometimes engraved and gilded, or beautifully inlaid with precious metals in close-set Merovingian strapwork (Addition F, 2).

The supreme development of early Teutonic armor may be seen (Plate VII) in the equipment of a Frankish warrior of the time of Charlemagne (early ninth century). Here the jacket of hide has been replaced by a jazeran, or coat of scales (see the specimen in Case 15, which dates, however, from the fifteenth century) on which the scales, whether of metal

or boiled leather, are sewed in place. The helmet is fuller and deeper, protecting the face by its flaring rim: attached to it is a hood, of leather or mail, to protect the neck and face. In offensive arms the pilum-shaped dart has given place to a stout lance, finished with a long, leaf-shaped head, reinforced by basal prongs (Case 2).

PLATE XV

ARMOR TRANSITIONAL FROM CHAIN TO PLATE, 1360
AFTER HEWITT, FROM MS. "MELIADUS"

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VI

CHAIN-MAIL AND MEDIAEVAL ARMOR

A FAIRLY distinct period in the history of European armor is marked by the development of chain-mail. This was flexible, light, and extremely strong. It came, therefore, to supplant the cruder defenses of Carolingian times. It was largely in use from the tenth century onward, but became a secondary defense about 1300. In general, this type of armor is believed to have been introduced into Europe from the Orient, where its use survived until recent times—and where it may still survive. In the Caucasus, for example, coats of chain were worn recently, and in Thibet within about ten years a British expedition found native soldiers in shirts of riveted mail. It was early held that European mail was introduced from the East during the Crusades. But it is now known that the people of northern Europe wore mail at an early period. The Norse records speak of primitive hauberks as "warnets woven by the smith hand locked and riveted," and fragments of these have been found in Viking burials. This mail, it is true, may have come from the East, for we know that the Norsemen carried

their excursions far into the Mediterranean and were well acquainted with Oriental objects. In this connection, one recalls the peacock feathers—which came probably from India—which were found in one of the Viking boats now preserved in the University of Christiania. On the other hand, it is probable that chain-mail was more or less continuously used in Europe since Roman times, for the sculptures on Trajan's column (A. D. 114) demonstrate that the *lorica catenata* was quite similar to mediaeval mail.

Specimens of mail which undoubtedly date between the earliest times and the fourteenth century are almost unknown in collections. Even fragments of it are very rare; for mail, presenting in each link so large a surface for rusting, has in the course of centuries melted away. Our knowledge of early mail has therefore been based upon contemporary illustrations, notably illuminated miniatures and gravestone figures.

The mail of the eleventh century is pictured in detail in the embroidery of Bayeux. (Plate VIII.) From this wonderful "document" we know that several types of ring mail were already in use. A prevailing form was fashioned of heavy iron rings which appear to have been sewed in bands upon a heavily padded garment: this padding, by the way, was always of the utmost value in this type of defense; for chain-mail, while preventing a point or edge entering it, was flexible and did not guard against a crushing blow, as of a mace or war-axe. There are no actual specimens of the mail of this period, but we

PLATE XVI

EARLY PLATE-ARMOR, 1401
AFTER BRASS OF SIR NICHOLAS DAGWORTH

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conclude that the rings were heavy and large: we know that the hauberks were long and complete, enveloping the head and extending to or below the knees. The head-piece was a conical helmet made of several plates riveted together and provided with a heavy nose guard (see Case 1). A further defense was a long, kite-shaped shield which usually retained its median boss, recalling, in fact, the shields of earlier ages. Offensive arms of this period include the war-axe (Cases 1, 18), which now is provided with a long handle and is wielded by two hands; a large, long-bladed, two-edged sword; darts or javelins; and various forms of arrows and bows.

Complete suits of chain-mail date from the twelfth century and were the characteristic armor of the early Crusades. Examples of this type, but of slightly later date, are pictured in Plates IX and X. One of these shows the long-discussed "banded" mail which sometimes dates as early as 1200. In this the bands appear to have been produced in different ways: in one of them thongs of leather were passed through successive rows of links. We know that at one time the mail covering the feet was included with the leg covering, and that a hood and mittened sleeves were continuous with the skirt. During this period, the head-piece was a broad iron cap, or primitive basinet. Over the body was worn a cloth surcoat, which hung loosely from the shoulders and was drawn together at the waist by a knightly girdle. It bore heraldic devices, which were also blazoned on a short triangular shield (Case 18) carried slung from

the shoulders. It has been observed that the shield became reduced in size as the efficiency of the mail increased. About the end of the thirteenth century supplemental shields, also with heraldic ornament, appeared in curious plates, or *ailettes*, which were laced to each shoulder. (Plate IX.) They were so attached that when struck they tilted over and deflected the blow. They are characteristic of a period of about half a century. No actual example of a European ailette appears to have been preserved. In Japanese armor, on the other hand, an ailette-like defense, the *sodê*, was retained for over a thousand years.

Advances in the offensive arms of this period include the lengthening of the sword, which now tapers from hilt to tip, and the more constant appearance of the lance.

Horse armor is not pictured in the Bayeux "tapestry." It appears, however, occasionally during the late thirteenth century. It was then a blanket-like housing of chain-mail.

In the present collection there are few objects dating from the earlier period of chain-mail. The oldest hauberks in the collection, shown in Cases 11, 12, 14, certainly do not antedate the fourteenth century, and, with few exceptions, were worn under complete armor or as supplemental defenses. With these are exhibited coiffes of chain-mail which probably date from the first half of the fourteenth century, and leggings of mail, also of this century. In other cases (Cases 2 and 4) are mail neck-defenses, *camail*,

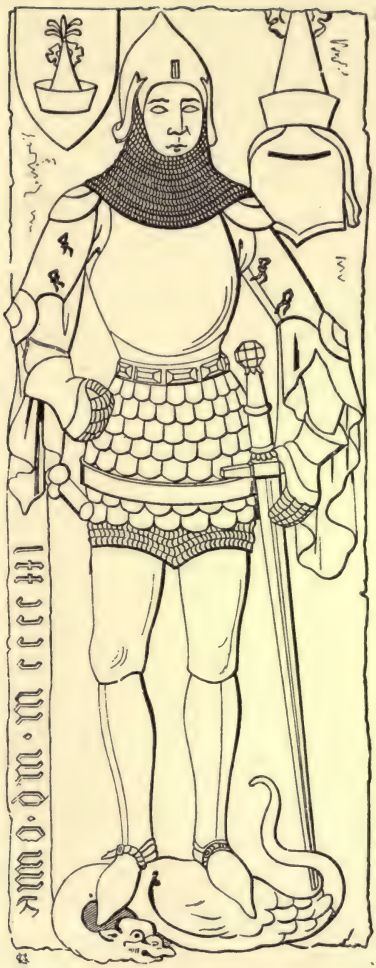

PLATE XVII

PLATE-ARMOR, 1421
AFTER AN EFFIGY OF A KNIGHT OF THE
FAMILY OF HABERKORN

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also *brayettes* or groin defenses (fifteenth century?) (Case 2). There are also head-coverings which are made of coiled rope (probably fourteenth century) and were worn under caps of chain-mail (Cases 12, 13).

In many instances the mail itself is beautifully fashioned. Each link is carefully closed and riveted. Numerous examples of "double" mail are shown. This was rarely formed of doubled links, but was closely woven or reinforced, each link attached to six neighboring rings, instead of four, as in the usual mail (Cases 2, 13). Mail, it may be remarked, is one of the few objects which *faussaires* fail to reproduce, for a copy of a shirt of mail with labor at modern prices would be apt to cost more than an original object. Each link of the shirt is made separately, and one may understand what labor this would involve when he considers that in a single hauberk in the present collection there are upward of two hundred thousand rings, which probably cost its maker years of unremitting work. The collector's embarrassment in dealing with chain-mail is not in avoiding modern copies, but rather in learning to distinguish European from Oriental mail, which is far less valuable; for while European mail was rarely made after 1600, the Oriental armorers produced large quantities of chain shirts during the seventeenth and eighteenth centuries. Only in the technical details do these differ from German or Italian examples.

Dating from the chain-mail "period," the collection shows numerous trappings (Case 16). Prick

spurs are here and early spurs with rowels, including a splendid specimen, engraved and gilded, bearing the arms of the de Dreux family. Here, too, are numbers of armorial pendants (Case 8). These are of various shapes and sizes and were attached to mail or to horse trappings in various ways. Some were "badges of recognition," worn by heralds or messengers. Others seem to have been strung along the lower rim of a horse's chest-strap, or *peytrel.* Others still were parts of stirrups or even spurs (see the splendid example in Case 8). These objects are frequently ornamented with enamels, fashioned elaborately, and beautiful in their blazonry. They date from the eleventh to the sixteenth century, the majority, however, probably from the fourteenth century. Many of the specimens are Spanish. The present series formed an important part of the de Dino Collection.

Near the case of armorial pendants are two ivory hunting (or war) horns (Case 6) which merit careful inspection. (Plate XI.) The larger one is an *olifant* from the Benedictine abbey at Dijon; it dates from the twelfth (?) century, and is accompanied with a leather case which was prepared for it in the fifteenth century. It may well have had an Oriental origin, possibly Persian, its deeply incised medallions picturing lions, antelopes, elephants, and a turbaned figure. The smaller specimen is earlier; it is probably from northern Europe. Other olifants, including a fragment which suggests our larger specimen, may be seen in the Morgan Collection. In Case 16 note also

PLATE XVIII

GOTHIC ARMOR, ABOUT 1435
AFTER THE BRASS OF ROGER ELMBRYGGE

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the ivory hilt of a dagger carved elaborately *à jour*; it is Venetian, thirteenth century.

These ivory objects suggest the "ivory saddles" shown in Cases 7 and 9, although they are not so old as the olifants here considered, nor are they really of ivory. They are early, none the less, and are among the rarest objects in the collection. (Plate XII.) The smaller saddle is German, dating 1400 or earlier; the other is Italian, about 1450: both are wooden, veneered with plates of bone which have been sculptured and polychromed. From the standpoint of early ornament these objects are of the highest interest. Few museums possess them: the most closely related examples are in the imperial historical museum in Vienna and in the Wallace Collection in London.

As a final illustration of the equipment of this period, one should examine the small equestrian figure (Plate XIII) which came from Poblet, probably from the tomb of King James the Wise of Aragon, who died in 1276 (see Bulletin of the Metropolitan Museum of Art, August, 1913, pp. 171–173): this is now exhibited in Addition F, 1.

VII

THE PERIOD OF TRANSITION FROM CHAIN-MAIL TO PLATE-ARMOR

DURING the period from 1200 to 1400, there were notable improvements in military equipment. In one regard, chain-mail came to be reinforced with bands or plates of steel which guarded the wearer from the shock of blows. In early examples, suits of chain were reinforced with an occasional plate, e. g., a knee- or elbow-guard, or a face-plate attached more or less loosely to the head-piece. These supplementary pieces were sometimes of iron, often, however, of leather hardened by boiling. Of the latter material were probably the supplemental defenses of Guenther von Schwarzburg, King of the Romans (about 1350), which are represented in his tomb-effigy. Here (Plate XIV) only the bands, ornaments, and head defense appear to have been metal. Another line of improvement concerned the defensive armor of the head. The casque, or *basinet*, was closely modeled to the head of a wearer and it had laced to it a *camail*, or wide collar of chain-mail. At this period, the basinet had sometimes fitted over it, but separated by heavy padding,

PLATE XIX

ARMOR OF 1450

FROM ONE OF THE CAESAR TAPESTRIES (BERN)

AFTER JUBINAL

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a second helmet, a thimble-shaped *beaume*. This, together with surcoat and shield, bore heraldic devices. From this period, say 1350, dates the interesting little chess figure, illustrated by Hewitt in his work on armor. The original of this has, it appears, been lost, but a copy in plaster had been preserved and this is shown in Case 6, giving an excellent idea of the military equipment of the time. (Plate XIII.) In this chessman, which is probably English, the housing of the horse is of chain-mail, and came down to its fetlocks, in spite of Hewitt's picture; for the cast shows that the little horse was slid along the chess-board on an elliptical base and never had longer legs. The head of the horse is completely enclosed in a case which from its size and construction was probably of boiled leather. The cavalier has leg defenses of metal or of hardened leather and he bears on his arm a small shield. (Compare also the armor shown in Plate XV.)

Actual examples of armor of the transitional period are extremely rare. The present collection is, however, rich in its series. It has important basinets (Cases 1, 2, 10, 16), some with their curious visors "pig-faced" or "dog-faced." It has also leg defenses which show the traces of stuff (canvas, covered with silk?) with which they were originally covered (shown mounted in Case 14), and several pieces of boiled leather defenses for knees or elbows (fourteenth century) (Case 2). The last were lately discovered in a grotto in the neighborhood of Bordeaux and are believed to be the only specimens of the kind

extant. In the same case is a gauntlet dating from 1380, together with an elbow and upper arm defense. There are also pieces of chain-armor, including camail. Other objects include spurs, swords, axes, and daggers. (Cases 2, 16, and 18.)

It was in this period that fire-arms were first used in European warfare. They appear in the siege of Algeciras in 1341 and of Calais in 1346. They were cannon which when small were usually funnel-shaped, or when large, fashioned like barrels out of iron staves and hoops. At the best, they were crudely made, often by local armorers and blacksmiths. Instead of cannon balls, stones were used, which of course had little penetrating power, especially with the imperfect powder of the time. Still, the advantage of this type of arm was soon realized, and many victories were gained through the breaches in city walls made by these early *pierriers* and *bombards*. Within a century, artillery became a vital part of large armies. Constantinople was taken by means of cannon, and the losses of the Moors in Spain were due in no little part to the operations of the Spanish and Italian artillerymen. A cannon of the earliest type, *pierrier*, is shown in the present collection near Case 15 (wooden stand and iron mountings modern), and one of somewhat later date, *falconet*, near Case 21 (stand and mountings also modern).

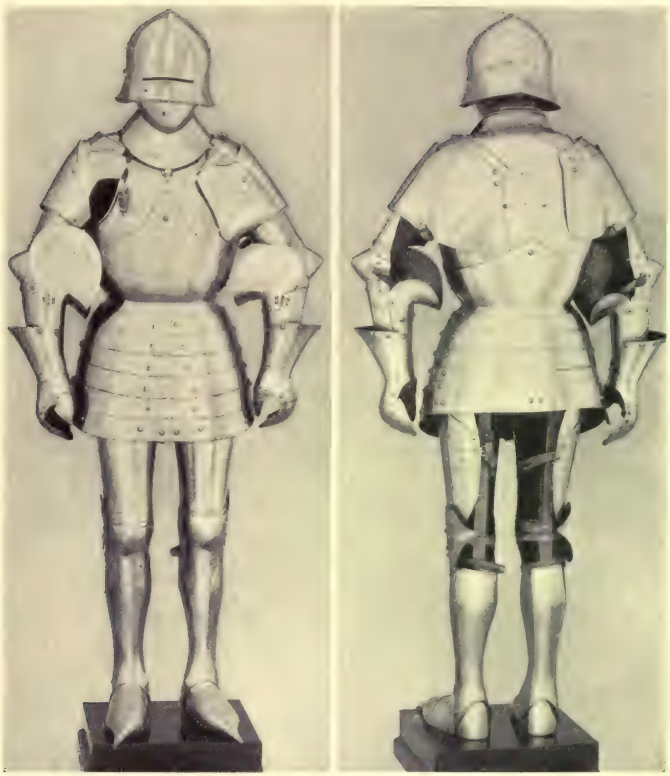

PLATE XX

GOTHIC ARMOR, ITALIAN, ABOUT 1460

DE DINO COLLECTION

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VIII

THE PERIOD OF PLATE-ARMOR AND OF FIRE-ARMS (1400–1780)

COMPLETE armor of plate was in use at the beginning of the fifteenth century, and it was during this time, as already noted, that the armorer produced his best work. Already in the sixteenth century, his art began to decline, and the supreme examples of a later period are important as illustrating the work rather of the goldsmith than of the armorer. In the seventeenth century complete armor disappeared, for at this time, owing to the perfection and widespread use of fire-arms, the soldier found that the great weight of his armor, which indeed made it almost unbearable, did not compensate him for the imperfect protection it offered. So it came about, during the time of the Thirty Years' War, which ended in the middle of the seventeenth century, that armor was discarded piece by piece. In the eighteenth century it was used only as a ceremonial costume for the highest officers.

Under this heading, we may trace the development of arms and armor chronologically.

A. ARMOR OF THE FIFTEENTH CENTURY

This is the "Gothic" armor—beautiful in its lines, elegantly fitted, its parts articulating with great precision—which appeals alike to artist and collector. It appeared in the Wars of the Roses, in the Burgundian defeats; it was pictured by Dürer, Van Eyck, and Carpaccio; it is the armor of the time of Joan of Arc, of Louis XI, of the fall of Constantinople, of the conquest of the Spanish Moors, and of the Italian wars of the Renaissance. Early examples are present only in "compositions" in which pieces of armor from different suits are brought together, as in Case 4, which shows a suit made up of separate elements, many of which date between 1380 and 1420. There exist no harnesses, even fairly complete, dating earlier than 1460. And of this period they are known only in the museums of Vienna, Bern, and New York. The specimen shown in Case 25, although somewhat "made up," will probably be ranked by connoisseurs as the most important harness in the present collection. (Shown in Plate XX.) It is of Italian workmanship and bears the mark of its maker on many of its plates. Evidences of its early period are seen in its well-rounded breastplate with its high *pansière*, in its huge shoulder pieces, in the broad guards (*épaule de mouton*) which defend the elbows, in the broad bands of the skirt, and in the wide-cuffed mitten-gauntlets which open broadly on the under side of the wrist. A suit of the same early period is also shown mounted as an equestrian figure (*E. 3*) in the central gallery. This, however, is distinctly

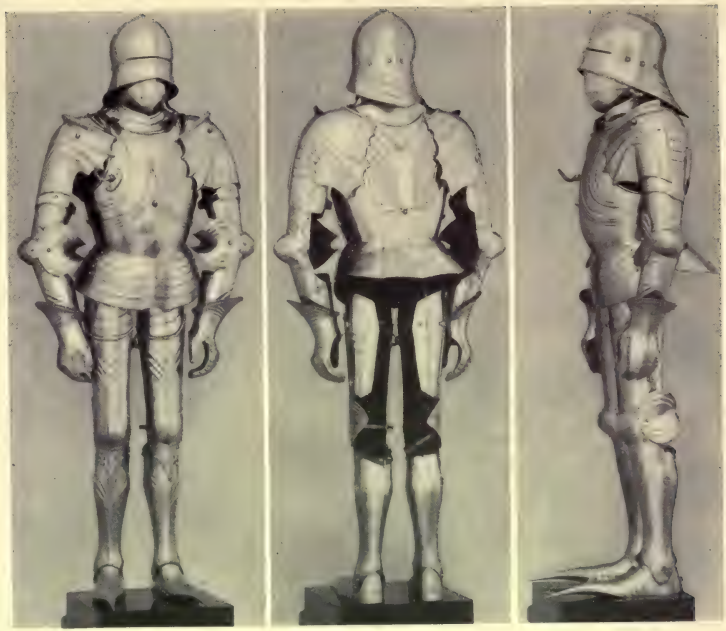

PLATE XXI

GOTHIC ARMOR, ABOUT 1470
STUYVESANT COLLECTION

SEE PAGES 49, 54

a composition, though a number of its pieces were made in Milan by the same family of artist-armorers, the Missaglia, whose proof-marks are borne on various parts of the suit. Breastplate, one gauntlet, casque, face guard, most of the arm pieces, and the great knee guard date about 1450; the other parts, 1460–1475.

On account of the lack of actual specimens, our knowledge of the arms and armor of the first half of the fifteenth century is derived largely from contemporary paintings, tapestries, and monuments, from which we may sketch briefly the changes which took place in the development of the knight's panoply. From such sources we select for illustration Plates XVI–XIX.

In the monumental brass of Sir Nicholas Dagworth, which dates about 1401, there appears one of the earliest complete harnesses of plate. (Plate XVI.) The basinet is still present with its camail and heaume, on which the head of the present figure is resting. The body armoring has a narrow-waisted cuirass, includes a short coat of mail, and is enclosed in a tight-fitting surcoat. The arms were completely protected by plate. The gauntlets were apparently of boiled leather, reinforced by bands of metal. The leg armoring is complete, the knee defense small and characteristic of this epoch; a supplementary plate reinforces the upper part of the greave; the leg appears to have been encased in stockings reinforced with areas of chain-mail; the shoes, or *sollerets*, were narrow and delicately articulated. The knightly

belt bears the long sword with tapering blade, straight guard or quillons, and a dagger with round guard and pommel (*à rouelle*).

At this point we may introduce an illustration (Plate XVII) showing the panoply of a German knight of later date (1421), if only to call attention to the fact that the development of armor did not progress at an equal pace among European nations; for while the English at this period were introducing many innovations, the Germans were conservative, and the present suit still retains many features of the transitional period. The character of the camail still suggests the mail of the thirteenth century: indeed, the thigh guards, the shoulder and elbow plates, hip defenses, sollerets, and possibly also the gauntlets, appear to have been fashioned, as they were in the preceding century, of cuir-bouilli. And in this connection it may be remarked that the student frequently encounters examples of conservatism; thus it is found that types of armor which became obsolete in western Europe by the middle of the sixteenth century, were still used in the Baltic provinces during the seventeenth century, and, as Mr. Riggs writes, "Some amusing texts tell us of Scottish and Irish chevaliers appearing at the English court pageants during the sixteenth and seventeenth cen-

[1] In Case 10 is shown a basinet dating between 1390 and 1415, which several writers have attributed to Joan of Arc. It is evidently an *ex voto;* for it bears ancient injuries, probably from bolt or arrow, and it was arranged to be hung up by a chain, as were memorial objects. In fact, it is from the particular links of chain which it still bears that the identity of this casque is said to have been established; for they agreed with those in the chain which formerly hung above the main altar of the church

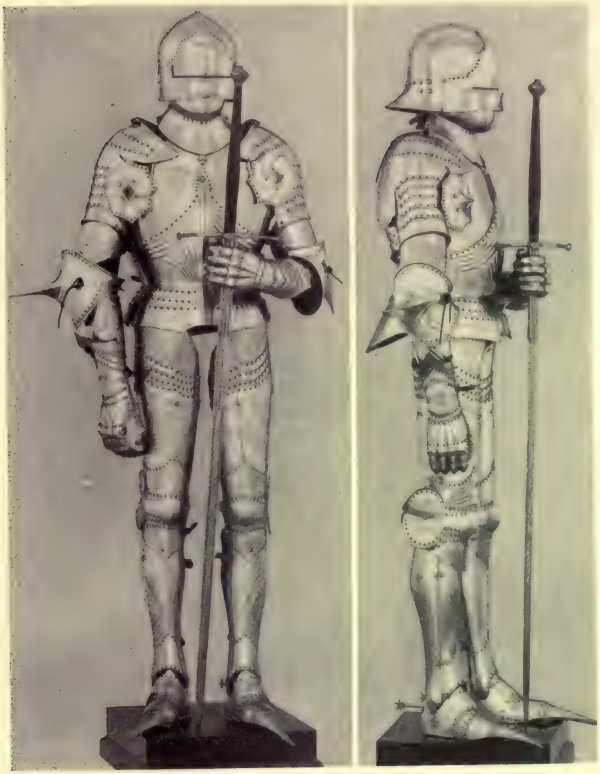

PLATE XXII

GOTHIC ARMOR, ABOUT 1490

DE DINO COLLECTION

SEE PAGES 49, 54

turies, armed with basinets of the fourteenth century and cap-à-pie suits of the fifteenth century."

At a slightly later period, about 1435, roundly the time of Joan of Arc,[1] important changes had taken place in the fashion of armor.

In the tomb brass of Roger Elmbrygge, about 1435 (Plate XVIII), we note that the camail of chain had given place to a chin-piece or beaver of plate, and a neck guard which protected more adequately, although it allowed less freedom of motion; that armpit pieces had appeared to protect the shoulders; that the gauntlets were of plate, simple, however, and mitten-shaped; that the armor of the hip region had become greatly produced; and that no part of the equipment exhibited chain-mail. A heaume was worn, but its value waned; it became less necessary on account of the changes which had taken place in the basinet. By the middle of the century, the heaume was altogether replaced by a visored and beavered basinet.

The second half of the fifteenth century produced great variety in Gothic harnesses, in some of which the simple lines of various plates gave place to elaborate angles and ridges. (Compare Plates XXI and XXII.) In this connection, one should examine the tapestry which hangs at the side of the gallery near the Gothic armor; for by the tapestries of this type

of Saint Jean du Martroi at Orleans and suspended the lost "basinet of the Pucelle." It is certain that the present object is French and, assuming its origin, it may have belonged to Joan. That it dates slightly earlier than the siege of Orleans (1429) is not in itself a fatal objection, although it is certainly an important one, for the leader of a host would hardly have worn a casque of a type which had gone out of fashion.

(see Plate XIX) one might illustrate a monograph on the arms and armor of western Europe between 1450 and 1470. Take, for example, Gothic head-pieces: in the plate cited one sees hat-shaped *chapels-de-fer*, with wide brims; small bowl-shaped *salades* such as archers wore; the knightly salades of the period with heavy and wide visors, sometimes beautifully enriched; also deep-fitting salades or *barbutes* which were modeled around the wearer's face, sometimes to such a degree (as shown in the prostrate figure) as to recall the Corinthian casque (p. 28); and, finally, the visored basinet with neck plates (as shown in the wounded falling knight), which still lingered from the earlier period (see casques in Cases 2, 12, 13, 18, 19, 20). These tapestries, too, illustrate the various forms of cuirasses, cloth-encased armor, padded tunics, and body-armor formed of steel plates riveted together under cloth. They show as well the various forms of swords, lances, war hammers, breakers of chain-mail, and occasionally artillery. They are sometimes painfully realistic, as in the tapestry now exhibited, where prisoners are pictured being put to death barbarously—a horror which may serve as an index of a little-known side of mediaeval warfare, when prisoners who could not pay ransoms were "taken to the rear and piked," or at best sold as slaves.

We have referred above to a kind of corselet made up of steel plates riveted together under cloth. These were called *brigandines* (Plate XXVI), and they are evidently akin to jazerans, which have been earlier

PLATE XXIII .

MAXIMILIAN ARMOR À TONNELET, ABOUT 1520
DE DINO COLLECTION

SEE PAGE 60

described. In brigandines, however, as in Case 15, the metal scales were attached to the surface of the jacket instead of to its lining. They appear to have been worn in great numbers, judging from contemporary pictures, and we can understand that they formed flexible and strong defenses, better in many ways than chain-mail. During the fifteenth century, and even later, many varieties of them were developed. Some were built up of small plates or scales which widely overlapped; others were made over bands of iron, like the corselet of the Roman legionary; others still had very few plates in their construction, e. g., two in front and three behind (Case 18).

In general, these brigandines were provided with skirts lined with iron plates and bands. In rare cases they developed arm and leg defenses in the same fashion. But of these we know little save from the evidence of contemporary illustrations. In the present collection (Cases 20, 22, 23, and 24) are shown several brigandines of admirable quality, ranking among the best of their kind. It may, indeed, be remarked that only about twenty more or less complete brigandines (only one of them retaining its arms) are recorded among the collections of Europe. They were objects which were not easy to preserve or to repair, and when tattered, they were early thrown away. One of the brigandines from the Riggs Collection is mounted with metal plates damaskeened and retains both its shoulder pieces and its arms. Another has a pair of arms, but these belonged to a different suit.

As a rule, the earlier Gothic harnesses had not developed flutings or even prominent ridges at the borders of the plates. The later suits were distinguished as having heavy ridges at the upper border of the breastplate and around the armpits. This was especially true in the Italian harnesses dating between 1450 and 1500. These, it should be noted, have ever ranked high among beautiful suits of armor; they were simple in lines, excellent in workmanship, and admirably adapted to the needs of the wearer. A mounted suit in a museum seems ever to have within it a living manikin. A harness of this type is exhibited (as an equestrian figure, *E.* 2) on the east side of the main hall. It is of Milanese workmanship, perhaps from the shops of the Missaglia, who then ranked throughout Europe among the greatest of artist-armorers. The casque is no longer the bowl-shaped salade; it has now become a close-fitting helmet; its chin-pieces are hinged from the side and are locked together by a pivot at the point of the chin. This small helmet, or *armet*, had at its base a collar of chain-mail, and at its back a small round shield, or *rondelle*, on a mushroom-like stalk. This has given the casque its name, *armet à rondelle*, a type which was still in use during the first decades of the sixteenth century, as in the Spanish harness in Case 30. It is best known in Italy and Spain; in Italy it is found at an early period, as early perhaps as 1440, for Italy was then highly advanced in the work of its armorers—in some cases, indeed, over half a century ahead of the fashions in northern Europe. This armet

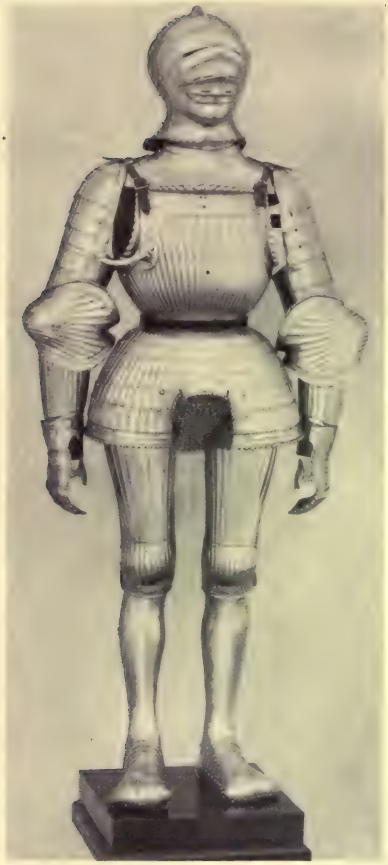

PLATE XXIV

MAXIMILIAN ARMOR, ABOUT 1515
DE DINO COLLECTION

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is regarded by connoisseurs as the most beautiful of all early head-pieces (Case 20).

It may be remarked that helmets of this type, together with salades and armor generally of the same period, are apt to be beautifully executed. The inside is often as interesting as the outside; for it exhibits the hammer marks deeply sunken in the metal, showing with what skill the hard metal was fashioned. Such armor often bears the punch-marked monogram, or even the abbreviated signature of the artist who made it. And with this stamp is usually a key-shaped "proof mark" (Case 18) to certify that the object has been given an official test of strength. This symbol of proof if repeated would signify double or triple proof. The test, it appears, took place at the civic headquarters of the armorers' guild and consisted in striking the object with a bolt shot from a crossbow of standard strength. Sometimes the work would be tested at several points, as in the small armet-à-rondelle (Case 20) made by Thomaso de Missaglia (about 1480), which bears the proof mark in no less than four different places. In those times the value of an object was so directly determined by the practical test that nearly all plates of the same harness might bear the proof mark (Case 25).

Of late Gothic harnesses (i. e., dating from 1470–1490) there are six specimens in the present collection. Four of them appear in separate cases on the east side of the large gallery between the columns. The first of these is a beautiful harness, lent to the Museum by Madame Rutherfurd Stuyvesant (Case

26). It was one of the objects of the Spitzer Collection. In this harness, which dates about 1470, bold ridges and flutings arranged in the order of three appear on different plates. (Plate XXI.) Beyond this (Cases 28 and 29) are two Gothic harnesses from the Riggs Collection, dating from a period relatively late. In this type of armor the ornamental flutings become very numerous, and are always radial in pattern. An admirable harness, Italian, dating about 1490, is exhibited in Case 27 next to the Stuyvesant suit. (Plate XXII.) It is of florid design decorated with many flutings, its borders are closely perforated with trefoils, and its elbow plates are produced as delicate spines. This example, with its beautifully articulated backplate and gauntlets, represents the supreme effort of a Gothic armorer to retain the effectiveness of his style. The work, however, had already become too highly "specialized," and this foreshadowed a decline in the art; for in the work of the armorer a principle seems to hold true which is well known in the evolution of animals: it is that high specializations, such as highly modified kinds of spines or teeth, lead the way for the extinction of a type. According to this principle, a new form would shortly appear which would supplant the old and be again the basis for another line of development.

B. ARMS OF THE FIFTEENTH CENTURY

Before referring, however, to the armor of the next, or Maximilian period, we may briefly review the arms of the fifteenth century.

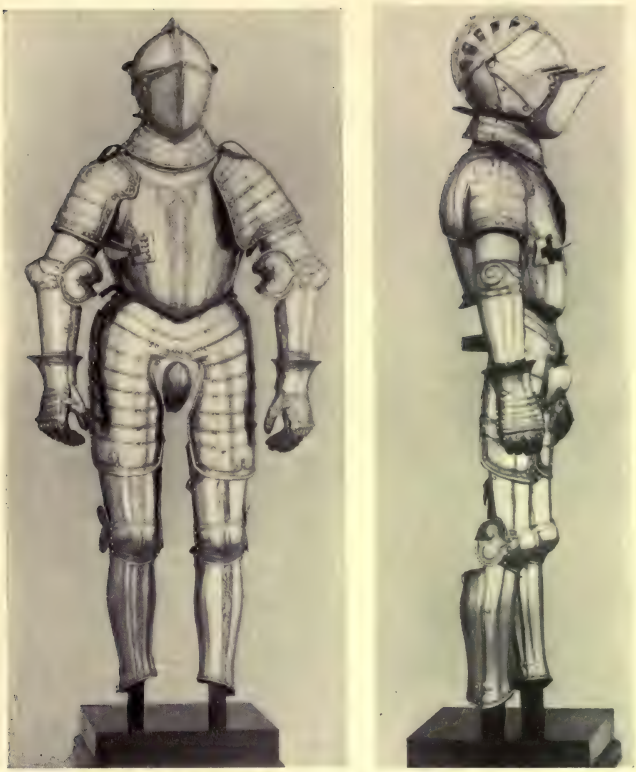

PLATE XXV

ENGRAVED ARMOR, 1540

DE DINO COLLECTION

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Knightly swords of this period are represented in the present collection (Case 18) by two splendid examples. (Plate XLIV.) One of them dates from the first quarter of the fifteenth century and bears a gilt bronze guard and pommel, the latter representing in enamels the arms of a de Gaucourt, possibly the one who figures in the history of Joan of Arc. Its blade is tapering and is so ground that its section is convex. The other example dates from the second half of the century. This specimen, from the Riggs and Meyrick collections, is one of the best of its type. It is admirable in its lines, delicate in its balance, and could be swung by one or both hands. Such a sword may well have been used by an English knight in the battle of Tewkesbury.

War hammers, *becs de faucon*, were in frequent service during this century. Short ones are shown in Case 17, and one which had a long shaft is important from its workmanship and Gothic inscription. Such an arm as this might have been in the hands of Jacques de Lalain, in one of his celebrated *pas d'armes*. With these are exhibited three short hatchets which were designed to be thrown. These, by the way, are among the rarest of Gothic arms. Several crossbows of this period are also shown. One of them bears inscriptions and a blazon: it belonged to Count Ulrich V of Württemberg and has been described by Baron de Cosson in Archaeologica, vol. 53, 1873. These early crossbows were made up of layers of whalebone, sinew, and sometimes horn, glued and bound together. They were "set" by means of an ingenious

lever, a "goat's foot," *pied de biche*, of which examples appear in the same case.

Pole-arms of this period are shown on the walls and at the base of the columns on the east side of the main gallery. Here appear selected types: hook-shaped *guisarmes*, flat-bladed "ox-tongues," knife-shaped *glaives*, and three-pronged *korsekes*, *chauves-souris*, and *runkas*. In the series here exhibited some of the arms are decorated at the base of the blade with etching and gilding, the background of the etched areas ornamented with parallel lines, not with dots or blank areas as in the sixteenth century. Early halberds are present in interesting variety and form a progressive series arising from simpler types of pole-axes and long knife-bladed *berdiches* (near Case 1).

Shields at this time were of three types: fist shields, arm shields, and standing shields. The first of these bears a boss into which the fist projects, grasping a cross-bar. These shields are made of wood or metal and are sometimes garnished with velvet. The fist shield is, by the way, a very early type: its use was common less in Europe than in the East and in northern Africa—in Tunis it is used at the present time in fencing exercises. The arm shield of the fifteenth century was usually broadly triangular, sometimes square, generally formed of wood and covered with rawhide. Standing shields were wooden, sheathed with canvas or hide, and their surface was often covered with gesso and painted. In the present collection hand shields appear in Cases 22, 23, 24, and on the east wall of the main gallery. Two arm

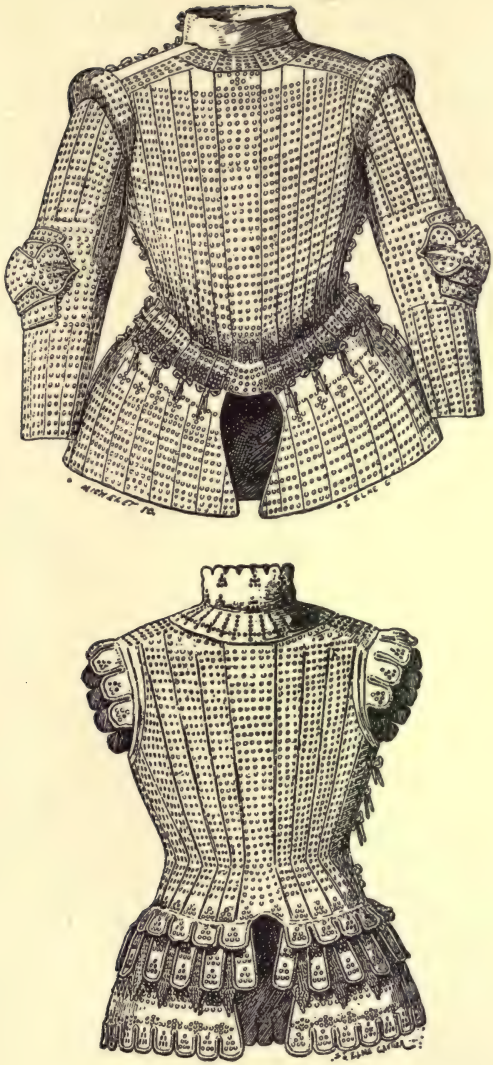

PLATE XXVI

BRIGANDINES, END OF XV AND MIDDLE OF XVI CENTURY. RIGGS COLLECTION

AFTER GAY

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shields are shown on the south wall of the main gallery and in this neighborhood appear several standing shields. The last were often part of the equipment of crossbowmen who sheltered behind them when setting their pieces.

Daggers were an important part of the fifteenth-century equipment, and of them there are four typical forms. One of these, the "kidney" dagger, had a heavy blade and a stout wooden handle out of which a guard was carved in two rounded lobes, which together suggest the name for this arm. It is a form which appeared already in the fourteenth century and its use continued for over a hundred years. The earlier daggers of this kind were the heaviest and the kidney-shaped lobes were of large size; in the evolution of this type the lobes become smaller and smaller until they can hardly be recognized. The second form of dagger is the *dague à rouelle.* In this the guard and pommel are shaped like disks and through their centers passes the blade. The disk-shaped guard and pommel were originally thick, shaped like cylindrical boxes, which in the development of this dagger became successively larger and flatter while the blade grew narrower, thicker, and longer. Its use extended well into the sixteenth century. The third type, the "eared" dagger, was distinctly an Oriental model, the hilt of which ends not in a pommel but in a pair of flattened or ear-shaped lobes. This dagger is frequently known as the *stradiote* from its use by the estradiots, semi-Greek or Levantine soldiers in Venetian service. It is first known

in the fifteenth century; some of the earliest forms are from Spain, and are probably Hispano-Arab. They are of beautiful workmanship and are rare objects in collections. (See figure in Plate XLVIII, which shows a number of decorated daggers.) The fourth type is the so-called "ox-tongue dagger," which appeared in southern Europe during the fifteenth century. It had a short, wide-grooved blade and a hilt flattened, often of ivory, usually ornamented by rosettes of pierced work, suggesting filigree. This broad dagger developed a short "ox-tongue" sword, or *cinquedea*, a name derived from the width of the blade at its base (five finger-breadths). (Plate XLIII.) Cinquedeas were used in northern Italy at the end of the fifteenth century and during the early sixteenth century. They were sometimes richly gilded and etched with Renaissance borders and figures. Actual specimens are rare and from their beautiful lines and decoration have an especial attraction to collectors.

The foregoing daggers are well illustrated in the Museum collection. "Kidney" daggers (Plate XLVIII), dagues à rouelle, and stradiotes are shown in Case 16; "ox-tongue" daggers and swords, in Case 20. In the middle of this case is a long, narrow, Venetian cinquedea, said by M. de Beaumont to have been worn as the formal sword of the Council of Ten. On the other side of the same case are specimens richly gilded and engraved. Two of these are probably from the hand of the greatest artist who decorated cinquedeas, Hercole di Fideli, whose work has been described in

PLATE XXVII

HALF-ARMOR ATTRIBUTED TO CHARLES DE BOURBON, 1520
HALF-ARMOR OF THE DUKE OF ALVA, 1565
RIGGS COLLECTION

SEE PAGES 70, 72

late years by the French archaeologist, M. Charles Buttin.

C. ARMOR OF THE MAXIMILIAN PERIOD (1500–1530)

The Austrian Emperor, Maximilian I (1493–1519), is said to have suggested numerous changes in the knightly panoply. In his court, "Gothic" armor was replaced by harnesses whose surfaces were developed into series of nearly parallel grooves. By this device each element of the armor was thought to be strengthened and at the same time given new beauty in play of lights and shades. In the earlier style points and ridges had been prominent; in the newer style surfaces became rounded or globose, and terminals were blunted or truncated. Thus casques rounded off their sharp median ridges, or crests, or even lost them entirely; the breastplate was globose, the tassets wide, truncated below. The defenses of knees and elbows were well rounded, and the sollerets, which were pointed in Gothic harnesses, now became excessively square-toed: in some cases their terminal plates measured six inches in width. The majority of these specimens are German, although the fluted style had been well begun by Italian armorers. In general, the Italian forms of "Maximilian" armor had the fluting formed as ridges upon a flattish background; the German fluting was distinctly grooved. This style of workmanship appears in German armor until about the middle of the sixteenth century, specimens dating usually from 1505 to 1525.

The present collection is rich in Maximilian armor. (Plates XXIII and XXIV.) It exhibits seven complete harnesses of various types, dating from 1500 to 1540; also a series of detached fragments and over thirty head-pieces. The earliest suit (Case 31) was lent in 1904, by Rutherfurd Stuyvesant. This is one of the most complete harnesses of its type. Its primitive features include a subdivided breastplate (of which the lower half was the *pansière*, quite in the Gothic fashion); a casque in which, as in armets à rondelle, the chin-piece opens, hinge fashion, at the point of the chin; margins of the plates unornamented, i. e., without the "roping" which became characteristic of Maximilian armor.

Another suit of great interest is shown in Case 32. (Plate XXIII.) This is parade harness dating about 1520, executed with fluting and engraving in the fashion of court costume. The puffs, slashes, and even the texture of the dress are pictured; a deep skirt is present (*braconnière à tonnelet*), and, as a second rare feature, the visor is carefully modeled from a human face, probably picturing the original owner. A similar harness is preserved in the Vienna collection and is said to have belonged to Philip I, who died in 1506. There can be little doubt that the present armor was designed for a noble of high rank: it is engraved on the sides of the visor with the briquette, or fire-stone of Burgundy, which had then become one of the badges of the Hapsburgs.

Near these specimens are harnesses illustrating various Maximilian types. In the earliest of these,

PLATE XXVIII

HALF-ARMOR OF THE DUKE OF SESSA, ABOUT 1560
DE DINO COLLECTION

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the fluting occurs sparingly (Case 38) and the head-piece suggests a Gothic salade. In another (Case 40), the borders of various plates are not "roped," a feature which, with its large "shells" at the side of elbow and knee, recalls the Gothic fashion. In still another suit (Case 37), this from the Riggs Collection, the elbow guards are like wide rings and were attached to the upper and lower arm by straps, after the Gothic fashion, instead of being riveted to intermediate elbow plates. Here, too (Case 34), is an admirable half-harness, fluted in the Italian style, its bands alternately bright or gilded and etched. There is good reason to believe that this armor was worn by Charles de Bourbon, constable of France, for it corresponds to parts of his harness which are preserved in Vienna. (Plate XXVII.) While referring to the fluted, gilded, and engraved armor of Case 32, we should note a *tonnelet*, or skirt of Maximilian armor, slashed, engraved, and gilded, which hangs nearby on the west wall. This is from the Tower of London and is said to have belonged to a harness of Henry VIII.

The Maximilian head-pieces of the collection (Cases 42 and 45) form an interesting developmental series. The earliest of these (1500) is practically a Gothic salade, but modeled more closely to the head; its great visor extends downward and is slightly rounded in at the neck. In the next type (1505), the chin region is emancipated from the visor and covered by a separately rotating piece, or beaver. In the Gothic harness, on the other hand, this element

did not belong to the head-piece, but was a separate reinforcing plate which could be strapped in position over the chin. In these early Maximilian armets flutings are few and the median crest is angular. Within a few years, however (1510–1515), flutings become numerous and the median crest is a wide ridge developed as a "roped" border. In all these instances, the neck-covering portion of the casque is made up of several large underlapping pieces, suggesting the neck cover of the more ancient salade. In the earlier head-pieces the Maximilian visor resembled that either of a basinet or an armet à rondelle. The visors of later ones became "bellows-shaped," i. e., moulded in transverse flutings, three at first, later four, five, or even six. In some instances (1515–1540), the visor is modeled, as we have already noted (Cases 29, 43), as a human face.

The great armorers of this time were Koloman Helmschmidt of Augsburg (who made the engraved and fluted arm and gauntlet in Case 41), Lorenz Helmschmidt (whose mark appears on the harness in Case 33), Matthaus Frauenpreis the elder, Conrad Seusenhofer, Valentin Siebenburger of Nuremberg, and various members of the family Treyts of Innsbruck (of the work of several of these artists we have examples in the series of helmets), and Wilhelm of Worms, the elder (who made the harness in Case 40).

During the Maximilian period, the equipment for the horse (*barding*) was complete (see *E. 4*, in main gallery, and the later harness, Plate LIII).

PLATE XXIX

HALF-ARMOR MADE BY POMPEO DELLA CHIESA, ABOUT 1575
DE DINO COLLECTION

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Its head was protected by a frontal (*chamfron*), its neck by crinets (*crinière*), its breast by a heavy apron-like element (peytrel, or *poitrel*), and its rump by a massive plate (*croupière*) which flared down on either side as far as the hocks. And by this time, i. e., the earliest decades of the sixteenth century, large numbers of barded horses appeared in actual use. In the fifteenth century, on the contrary, horse equipments were rare, though when they did occur, they were complete and beautifully modeled. Sometimes they included even leg armoring, as one may see from fragmentary specimens, as in the museum of the Porte de Hal in Brussels, or from contemporary pictures, as of the splendid equipment of the mounted armorer in the arsenal in Vienna.

D. JOUSTING ARMOR

It may be safely inferred that the development of armor, whether for man or horse, was influenced by the widespread fashion of tourneying and jousting, for in these military sports various defenses were needed which would not be worn in actual service in war. In the end, accordingly, panoplies came to be designed solely for jousting. The evolution of this special kind of armor, it is found, extended over considerable time. Thus, during the thirteenth and fourteenth centuries it is known that knights fought in the same armor they would have used in battle, the display being merely a mimic battle where adversaries fought in parties (tourneys) or in pairs (jousts). (Plate XV.) By the fifteenth century,

however, the rules of these games had become more definite. Participants were armed in a particular manner, as in heavier and more complete harnesses, and with special weapons. And by the sixteenth century, as we know from various tournament books, such as Freydal, or those of the Dresden court, or of Duke Wilhelm IV of Bavaria, or in Maximilian's Triumph, the trappings had become highly diversified and eccentric. For there then arose scores of kinds of combats in which the participants fought on horseback or afoot. Of equestrian combats a common form was the "Deutsches stechen," in which the course was more or less open (see equestrian armor *E. 1* in main gallery, also armor in Case 57). Another form was "Sharfrennen," a course run without barriers, the contestants having huge thigh guards attached to the saddles to prevent accidents from collision. Still another form was the Italian course (*ueber die Pallia*), where the contestants were fully armed, but were nevertheless separated from one another by barriers (see armor on equestrian figure *E. 5* in Case 51, and the tilting cape in Case 59), and a specialized variety of this was the "Welsches Gestech" (see parts of armor in Case 58). In Maximilian's Triumph, groups of knights are pictured armed for no less than eleven kinds of courses. Now since each type of Gestech, or "running," brought into play special defenses, it came about that by 1550 each suit of armor was apt to be provided with numerous supplemental or reinforcing pieces. As many as a hundred "pieces of change" were sometimes provided

PLATE XXX

PARADE ARMOR, ABOUT 1590

STUYVESANT COLLECTION

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for a prince's armor. (Compare armor shown in Cases 88 and 89.) Thus, for combat afoot in the lists the armor should protect the wearer both back and front, guarding thigh, groin, inner side of elbow, and armpit. And these defenses were the more necessary since the combatants developed a form of jiu-jitsu, in the gyrations of which various points of the body, if unarmored, were dangerously exposed. For numerous forms of mounted combats defenses of different fashions would of course be selected.

In a word, in earlier days the jousters rode in complete armor, bore a shield on the left arm and a lance held freely in the right hand. But in the sixteenth century the combatants were usually separated from one another by a barrier which in the end became so high that hardly more than their heads were exposed. During this development armor sometimes was given great strength; a harness designed for protecting only the upper part of the body might weigh a hundred pounds, of which weight a third belonged to the great tilting helm. This from its great weight had to be securely fastened, hence it came to be bolted to the cuirass. With such a harness, a special shield was laced in position, and a lance, sometimes four inches in diameter, was practically locked into place by rests attached one in front of the breastplate and one behind the shoulder. As a type of this specialized defense, we note again the equestrian figure (*E. 1*) shown near the front of the main gallery. Here it will be noticed that armor for the legs of the rider has been entirely discarded. In such instances, the armored

saddle, which was pulpit-like at an earlier date, had become reduced to a mere pad from which the rider slid off the back of his charger when struck fairly by the lance of his adversary. Under this condition his fall was not a very serious affair, but had he been imprisoned in an iron saddle his back would probably have been broken. Interesting supplemental pieces for tilting, with helms and shields, rondelles of lances, are exhibited in Cases 56–59 and 74. (See also several pieces of armor in Plate XXXVII.) In the series of tilting helms in Cases 56 and 59, there are half a dozen which deserve careful examination. One of these especially, Case 59, belonged to Sir Giles Capel and was hung over his tomb until about the middle of the last century. Sir Giles was a well-known champion in his day: he fought in France with Henry VIII and was present on the Field of the Cloth of Gold. The present head-piece was prepared for combat afoot in the lists and is one of the best of its kind. One notes its numerous openings for breathing: they were the more necessary since the wearer in the exertion of wielding sword or axe, breathed hard" and rapidly, and, without suitable apertures for ventilation, would have run the risk of becoming suffocated. It may be mentioned that accidents due to this cause are occasionally recorded.

Tilting lances are also shown in Cases 56 to 59, as well as on the south wall of the long gallery. In some of these, the shaft, although apparently heavy, was carved in grooves in such a way that the lance could readily be shattered on a wide shoulder piece or

PLATE XXXI

BACKPLATE AND ARMET OF PARADE ARMOR, ABOUT 1590
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manteau d'armes, especially provided with ridges (see Case 59). It was a broken lance of this type, doubtless, which caused the death of Henry II (1559) when a splinter entered his eye. Carrousel lances were the latest and most degenerate form of these arms. In these the base of the shaft is ornamented with fragile fretwork and the point is no longer a weapon, but an implement for catching a ring.

E. THE ARMS OF THE EARLY DECADES OF THE SIXTEENTH CENTURY

The swords of these decades are either modifications of the earlier Gothic forms or special types newly developed (Case 46). In the former class the pommels are apt to become pear-shaped, lose their strictly bilateral symmetry, and develop "roping" in their decoration. The quillons either droop more sharply or are curved S-shaped, usually at right angles to the blade. (See second figure, Plate XLIV.) In many swords dating from the early sixteenth century the guard develops a ring (*anneau*) at the side, and in some instances, of slightly later date, a pair of rings (*pas d'âne*) at the side of the blade in front of the quillons, as grips for the first and second fingers. Of the newer types, we note a German sword, whose decoration on hilt and blade is elaborately etched after designs by Albrecht Dürer (?). There is also a Venetian sword[1] of first

[1] It might be mentioned as an amusing test of the interest and beauty of this sword that the distinguished expert, M. de Beaumont, would rarely fail to take it in his hands and kiss it when he visited Mr. Riggs's gallery.

rank, its hilt elaborately etched, showing traces of gilding. In its decoration, it suggests the famous "casque of Boabdil" in the museum in Madrid. (Plate XLIV, and pommel in Plate XLV.) Below this sword is an historical blade, bearing the inscription *Leo X, Pont. Max. III.* This is one of the earliest of its type extant. Papal swords, it may be noted, were presented to sovereigns and distinguished generals, commemorating services for the Roman faith. There are recorded about thirty swords of this type, of which all but two are in the possession of European governments. Another interesting sword exhibited in the same case is a state sword which belonged to the family of the doges Mocenigo.

From the early decades of this century date a number of the maces and war-hammers shown in Case 48. (Plate XLVII.) The maces of earlier date have handles which suggest daggers à rouelle, and heads of small size, their plates sometimes inset with strips of brass in the fashion of the end of the fifteenth century. The maces of the middle of the sixteenth century are sometimes richly decorated with foliation and strapwork, chiseled or etched. One of the important maces in the series is of this period and bears the badge of Austria (Case 48): another, richly damaskeened, is believed to have belonged to Henry II of France (Case 102). The later maces have large heads, egg-shaped, and the handle is hardly to be distinguished from the shaft. In Case 48 are also shown numerous examples of war-hammers and hatchets, in some of which (*brandestoc*) a blade is

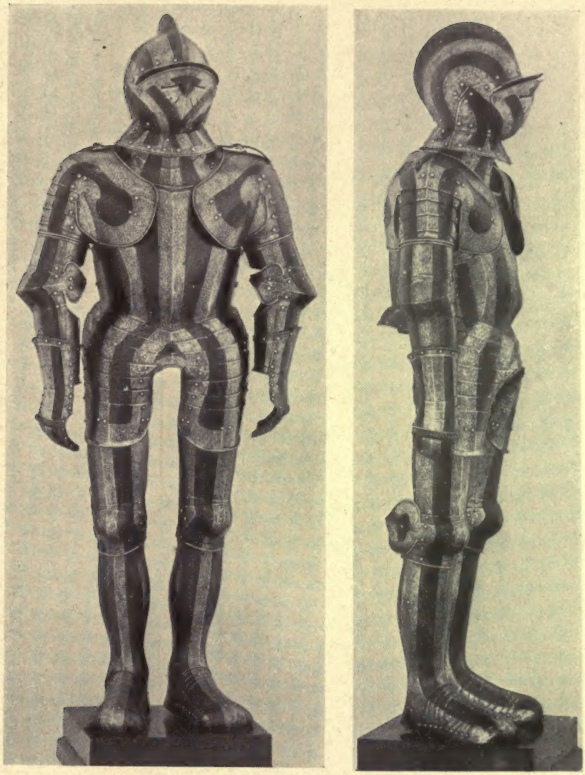

PLATE XXXII

HARNESS, BLACKENED AND ENGRAVED, ABOUT 1600

DE DINO COLLECTION

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