

BIBLIOGRAFIA

NOLFO DI CARPEGNA: *Armi da Fuoco della Collezione Odescalchi*.
Ed. Marte. Rome 1968. Ill. in text, 23 plates, one in colour, and two plates with maker's stamps.

It must be welcomed by all who are interested in ancient luxury hand-firearms that this catalogue by Dr. Nolfo di Carpegna, director of the Soprintendenza alle Gallerie di Roma, has been published. The precious collection of old luxury firearms from the palace of the late princes Ladislao and Innocenzo Odescalchi deserves to be known widely by all enthusiasts and collectors of ancient weapons. It was a great gain to Rome—as to Italy as a whole—when this collection about 10 years ago was acquired by the Italian State in order to keep it together and thus preventing it from being dispersed at international arms sales. With the opening to the public of the Odescalchi collections in 1969 Rome got an important attraction to all students and investigators of ancient arms.

The catalogue is a beautiful publication with fine reproductions of all the firearms described, one of the finest pieces even in colours. The carefully prepared descriptions of each specimen, with measures, bibliography and reference notes make the book a fine little manual of precious firearms from their most refined and elegant periods, the middle of the 16th to the beginnings of the 19th century. The list of historical persons and of famous collectors connected with the objects, lists of gun-makers and artists, stamps, initials, inscriptions and even of collections on sale make the book additionally useful.

The book starts with a little chapter about the family of the Odescalchis, and how the collections were established. Though an old family with traditions far back into the Middle Ages it is first in the 17th century that its «Roman» history begins with cardinal Benedetto, who in 1676 was elected pope under the name of Innocenzo XI. His nephew, Livio, acquired from the Orsinis the castle of Bracciano, which later on came into the hands of the Torlonias and in 1848 definitively returned into the hands of the Odescalchis. A nephew of Livio, Baldassare, in 1745 acquired the palazzo Chigi on piazza SS Apotoli in Rome famous for its façade by Bernini. These two castles later on became the seats of the collections.

The Odescalchis probably had a family armoury in their castles just as had many other noble families of Italy, Spain, France, etc. Their artillery—about 25 pieces—once was placed in the castle at Palo at

the Tyrrhenian coast. In 1794 it was acquired by the Camera Apostolica. However there is till now no documentation for an old family armoury. The collections here catalogued, were the work of one single person, prince *Ladislao Odescalchi* (1846-1917), who was a great enthusiast of ancient weapons and collected them from an esthetical point of view and with an exquisite taste. The armoury was created during the last part of the 19th century and the beginnings of the 20th century. After the death of prince Ladislao his nephew, prince *Innocenzo*, continued the work of his uncle's.

After the Napoleonic wars many dynastic collections had been dispersed. A particular romanticism surrounding ancient weapons from historical or legendary ancestors came on mode in the first half of the century. In aristocratic circles collections were founded now, on the base of famous, royal and historical pieces of arms and armours on sale. Some of these collections later on found their way to public museums, others were sold again at international sales. In the later part of the 19th century many famous private collections came on sale in the capitals of Europe, not least in Paris and London. It was just in this period prince Ladislao founded his collections. He had contacts with some of the best antiquarians and sales houses, such as, e.g., Whawell in London or the frenchman Bacherau, as well as with other houses. Among the famous private collections on sale which came into the hands of the prince were, e.g., those of Brett, Berthold, Richards, Kuppelmayr, Spitzer, Zschille, Hefner-Alteneck and several others. Thanks to his good contacts and his refined taste the prince succeeded in acquiring such objects as he wanted for his palaces. He did not concentrate about technical or warlike aspects. His interests were of purely esthetical character. For that reason his collection was not very comprehensive in regard to numbers, but of a high quality. In the time of prince Innocenzo it was open only to special friends and collectors, who were invited to see it. During the first world war it was evacuated to Montecarlo. Prince Ladislao did not see its return. He died in 1917, and it was his nephew Innocenzo who from now had to take care of this collection. He did it with the greatest care and interest and augmented it when he got possibilities for getting hold of exquisite specimens. But the competition with collectors from U.S. now had become rather strong. By the death in 1953 of prince Innocenzo the collection was parted in two. After a minute selection a large group of specimens was installed in the castle of Bracciano, while the finest part remained in palazzo Odescalchi on piazza SS Apostoli. In 1959, the Italian State acquired the collection in Rome and had it transferred to palazzo Barberini, where it was installed in some new galleries. This part of the collections consists of about

1,200 specimens, of which the firearms only make out a rather small part. They comprise about 150 objects, such as guns, carabines, pistols, lock-mechanisms, accessories of firearms, powderflasks, etc., and a few cannons and models. All these specimens belong to the most refined periods of luxury weapons from 16th-18th centuries (a few pieces from 19th century). They give an excellent impression of the refined taste that dominated the European courts during these centuries. The collections of long guns and carabines only cover some 20 specimens, all of them of a very fine quality. Among the finest objects is the wheellock carabine dated 1598 with marks from well known and famous gunmakers from Nüremberg and with its rich intarsia of bone, representing mythological scenes. No. 10 has on its barrel the initials of the famous Johan Pichler from Munich. It is a wheellock carabine dated 1600, with mythological and allegorical scenes and inscriptions as well as the blasons of prince Ernest of Bavaria, elector of Colonia (1583-1612). A fine German work is the wheellock gun with breech-loading (no. 14) from about 1600-1625, and the precious wheellock carabines of Austrian workmanship from about 1630s with refined intarsia, resembling the works of the anonymous Austrian master, who made several works for the emperor Ferdinand III, the so-called «Meister mit der Tierkopfranke».

The most numerous part of the collection is that of the pistols. This part comprises pieces from several European countries, particularly from Germany, Italy and France, thus giving a fine impression of the development of luxury pistols during these centuries. Probably the most outstanding piece is the German pistol with wheellock and with the barrel dated 1548. The butt is richly decorated with ivory intarsia, representing various religious and mythological scenes. There is a fine pistol with two wheellocks and double barrels from Nüremberg about 1575-1600 and a beautiful pistol with two locks and barrels and the butt with an extraordinarily large ball, all of it of metal, richly decorated and bearing the blasons of the Saxonian court, probably of the elector August (1580-1590). There is a beautiful pair of wheellock pistols, about 1600, probably from Paris and from a workshop which worked for the French court. French flintlock pistols are represented amongst others by an outstanding pair, about 1680, signed by a Huguenot, Gruché from Paris, one of the most famous masters of his time, on level with such masters as the Thuraines, Bertrand Piraube or Chasteau. The decoration with the fine medallions and incrustations of scrolls and mythological scenes, is of an excellent quality. The blasons indicate the Bohemian family Schlick.

Among the Italian pieces are represented such makers as the family of the Acquafresca, Matteo Acquafresca (1651-1738), from Emilia, with

his signature (no. 27). The series of refined Brescia pistols and carbines with their characteristic ironchiselling is represented by a wheellock pistol and a pair of flintlock pistols signed with the name of Lazzarino Cominazzo. Among other famous names are, e.g., those of Giovan Maria Francini, who worked in Brescia, and Negroni (dated 1767), and for the little collection of lock mechanisms the signature of Pietro Ancini from Reggio, Emilia, with the sculptured figures. The Russian pistols from Tula are represented by a fine pair, dated 1768, the reign of Catharina II (1762-1796), and the early 19th century is represented, e.g., by a pair of pistols from Nicolas de Boutet from Versailles.

The collection of lock mechanisms shows a fine little representation of various types, e.g., «alla catalana», «alla fiorentina», «alla romana» and others. There are several fine gun barrels with precious decoration, such as the precious specimen richly decorated and of the type known as «a la tabatière» for its system of loading. It was probably made for the Palatine and Bavarian prince Ott Heinrich (1502-1559).

The catalogue terminates with a series of fine and elegant powder flasks of various types and materials. It is a beautiful and useful catalogue.

A. BR. H.

NOLFO DI CARPEGNA: *Antiche Armi dal Sec. IX-XVIII già Collezione Odescalchi*. Catalogo a cura di Nolfo di Carpegna. Roma-Palazzo Venezia, maggio-luglio 1969. Ed. De Luca. Rome 1969. 99 pp. 543 ill. 3 plates with maker's stamps.

In spring 1969 the 5th international congress of arms and military history museums took place in Rome. On initiative of the Italian *Ministero della Pubblica Istruzione* an exhibition was arranged in Palazzo Venezia under the care of the *Soprintendenza alle Gallerie di Roma*, and dealing with a choice selection of the finest arms and armours from the former collections of the late princes *Odescalchi*.

About half part of the weapons acquired by the Italian State in 1959 was here exhibited for the first time to investigators and later on to the public. The preparation of the catalogue was entrusted to Dr. Nolfo di Carpegna. It is a fine and comprehensive publication, a guide to the exhibition and at the same time a kind of manual to collectors and museums. The descriptions are short and exact, with origin and chronology of the objects present, their inventory numbers and their provenience as far as it has been possible to trace it. There are references to similar objects in other museums and collections and bibliographical notes. All

the objects are rendered. In total, 543 objects have been described and reproduced. A comprehensive bibliography and a list of arms makers and artists terminate the book.

With the exhibition the organizers have intended to give an impression of the precious and magnificent weapons in use at the royal and princely courts of Europe from Middle Ages up to the end of the 18th century, the Renaissance and Baroque constituting the greater part as the most refined and luxurious period in the history of ancient weapons in Europe. The exhibition comprises almost all kinds of weapons from armours and parts of armours, helmets, breast plates, various types of shields, swords, daggers and hafted weapons for practical use and for ceremonies to crossbows with their bolts and to hand firearms with their accessories.

Among the armours there are several more or less complete specimens. Here the incomplete, precious parade armour (no. 14) must be noted. It is a beautiful Milanese work from about 1550-1560, which records the fine half-suit in Metr. Mus., New York, from about 1560, made for the Duke of Sessa, Gonzalo Fernández de Córdoba, governor of Milan. Another exquisite and incomplete armour, composed of various fine pieces is no. 7, a fine armour in «Maximilian» style, once in coll. Brett. It is composed exclusively of German parts, each of them of a noteworthy quality. Helmet and breastplate are from one armour, the breastplate with initials and the date 1530, the gorget is from Nüremberg. Some of the other parts are related with Augsburg works reminding of Kolman Helmschmied. There are fine breastplates from 15th century, some of Innsbruck workmanship, pauldrons and vambraces, as well as gauntlets, some of them Milanese. The part of a «Grand Garniture» (no. 9) probably is of Augsburg workmanship from about 1550. Some parts of this garniture is now in Metr. Mus. Noteworthy is the collection of helmets, which is comprehensive, representing great variation as to types. Remarkable are two bacinets from about 1400, one of them with its vizor, and probably of Italian workmanship. An excellent Milanese barbuta from about 1470 still has its border of gilt ornaments. There are many bourgonets from Italy and Germany (e.g., from Augsburg) and several morions of Italian and German (Nüremberg) workmanship. Among the types of shields are some fine Tyrolese pavases of wood with parchment and blasons (house of Austria). Outstanding is the round shield with front of painted textile, signed and dated by Giovanni Stradano in 1574, and made for the Medicis. According to the investigations of Lionel Boccia it represents the battle which took place in august 1554 at Marciano in Valdichiana between imperial troops on one side and French and Siense on the other.

The collection of swords is rich and comprehensive, starting with Viking types. Noteworthy is here the fine specimen with its copper-incrusted pommel and quillon. Among the medieval types is one specimen with a characteristic and rare shape of pommel. The series of early swords almost represents the general outlines of development of the medieval swords up to their transition to renaissance types. From shortly after 1500 is the excellent specimen with the disc pommel, curved quillons and etchings in the blade. It is similar to the sword no. G-23 in Real Armería in Madrid and to a little group dispersed in various museums. The type was worn in Spain at least in the 15th century according to representations in illuminations; probably it was used by some military orders. However this has not been sufficiently documented. As to no. 217 this type is found in Spain too. (One specimen has a blade signed by a German swordmaker, who for a period worked in Toledo.) The kinsman to no. 236, formerly in coll. Reubell in Paris, has come back to Spain and is now in Inst. Valencia de Don Juan in Madrid. There is a fine series of Renaissance rapiers, several of Italian, others of German, even of English workmanship. Among the Spanish rapiers the characteristic cup-hilt rapiers with pierced and chiselled cups are found in several specimens. In regard to daggers one finds a good selection of types from rondel daggers and kidney daggers to the elegant eardagger with its golden ornaments, cinquedeas, some of them not quite intact, a Holbein dagger, landsknecht daggers and a characteristic German sword-breaker, the Spanish counterpart of which is in Vict. & Albert Mus. London. The Spanish left-hand daggers with pierced and chiselled guards terminate with the late specimen of a slender and refined type bearing the inscription: Vyva Felipe V (1700-1724).

As a matter of fact there is a good representation of swordmaker names. From Italy are, e.g.: Andrea Ferrara, Pietro Caino, Antonio and Federico Piccinino (with a pair of twin-rapiers), Alessandro Sacchi, from Spain: Hernández, Sahagún el Viejo, Juan Martínez, Pedro de Formicano, Francisco Ruiz, Pedro de Toro, and from Germany: Peter Wirsberg, Johannes Hoppe, Heinrich Dinger, Willem Paulus and others.

The group of hafted weapons is comprehensive too. It starts with some 15th century Swiss and German halberds, some of them with stamps. There are French and Italian glaives, corsèques, fauchards and partisans. Among the luxury weapons are some originating from imperial and electoral courts, such as Austria and Saxonia, e.g., for the guards of Ferdinand I, Maximilianus II, Christian I as well as a fauchard from the ducal family of Mantova, the Gonzagas, or the precious specimen from about 1620 with the blasons of the Borghese family crowned by a cardinal hat, and originally belonging to a group of fauchards from the

court of Scipione Borghese. There is a spear with the blasons of the cardinal Benedetto Odescalchi, who was elected pope as Innocenzo XI in 1676.

The collection of crossbows only comprises a few specimens, some of them noteworthy, from 15th century, with composite bows and the tillers inlaid with bone. Among the cranequines one has very fine etchings. The last part of the catalogue comprises the firearms, treated above. As the last number of the catalogue do we find a falcon's hood with its stand of ivory in the shape of a falcon's head, and with inscriptions. It is an Italian work from 16th century.

The last three pages of the catalogue give the maker's stamps and some blade inscriptions, the numbers of which correspond with their respective numbers in the text.

This richly illustrated catalogue means a valuable increase of material to investigators of arms and armours as well as an excellent guide to museums and collectors.

A. BR. H.

Ordinamenti militari in Occidente nell'alto Medioevo. Spoleto, Centro Italiano di Studi sull'alto Medioevo, 1968, 2 vols.

La XV Settimane di Studi a eut lieu du 30 mars au 5 avril 1967. Elle s'est tenue à Spoleto comme les précédentes et une fois de plus, des maîtres éminents présentèrent à leurs auditeurs le fruit de leurs travaux et de leurs recherches.

Le fait que certaines leçons aient été refaites par leurs auteurs avant l'impression définitive et qu'elles aient vue ainsi leurs proportions croître jusqu'à atteindre l'extension d'un véritable livre, a été cause que l'ensemble des travaux forme deux volumes de douze cents pages au total, au lieu d'un volume d'environ 500 pages comme pour les Settimana précédentes. De plus, ces volumes ne furent réellement achevés qu'en 1969, deux ans après la réunion au lieu d'être prêts en 1968. Mais ce son là de simples plaintes d'ordre chronologique, qui ne sont formulées que parceque trop souvent les publications «es-lettres» paraissent avec un sensible retard et qui n'enlèvent rien à l'intérêt des travaux, interet toujours de premier ordre et, fort souvent, exceptionnel.

Le contenu de ces deux volumes se distribue de la façon suivante: Gina Fasoli, *Pace e guerra nell'alto Medioevo*; Ernesto Sestan, *Ricordo di Giorgio Falco (1888-1966)*.

a) *Ordinamenti militari dell'età prefeudale e feudale*: Emilio Gamba, *Considerazioni sugli ordinamenti militari del tardo Impero*; Joachim Werner, *Bewaffung und Waffenbeigabe in der Merowingerzeit*; François L. Ganshof, *L'armée sous les Carolingiens*; Jacques Boussard: *Services féodaux, milices et mercenaires dans les armées, en France, aux X^e et XI^e siècles*; C. Warren Hollister, *Military obligation in late-saxon and norman England*; Lucien Musset, *Problèmes militaires du monde scandinave (VII^e-XII^e siècles)*; Claudio Sánchez-Albornoz, *El ejército y la guerra en el reino astur-leonés (718-1037)*; Ottorino Bertolini, *Ordinamenti militari e strutture sociali dei Longobardi in Italia*; Agostino Pertust, *Ordinamenti militari, guerre in Occidente e teorie di guerra dei Bizantini (secc. VI-X)*; Francesco Gabrieli, *Gli Arabi in Spagna e in Italia*; Georges Duby, *Les origines de la chevalerie*; Giovanni Tabacco, *Il Regno italico nei secoli IX-XI*; Karl Ferdinand Werner, *Heeresorganisation und Kriegsführung im deutschen Königreich des 10. und 11. Jahrhundert*.

b) *Problemi tecnici*. 1) Armi, armature e tecniche di guerra: Giulio Schmiedt, *Le fortificazioni altomedievali in Italia viste dall'aereo*; Hermann Vettters, *Von der Spätantiken zur frühmittelalterlichen Festungsbaukunst*. 2) La guerra sul mare: Ekkehard Eickhoff, *Galeerenkriege im Mittelmeer (7. bis 11. Jahrhundert)*; Michel Mollat, *Les marines et la guerre sur mer dans le nord et l'ouest de l'Europe (jusqu'au XII^e siècle)*.

c) *Arte, diritto, filologia*: Carlo Battisti, *I nomi longobardi delle armi e le loro sopravvivenze nella lingua e nei dialetti italiani*; Michelangelo Cagiano de Azevedo, *Le opere d'arte nei bottini di guerra*; Giulio Vismara, *Problemi storici e istituti giuridici della guerra altomedievale*; Mario Salmi, *Ancora per la storia di San Salvatore di Spoleto*; Carlo Guido Mor, *Epilogo*.

Il suffit de jeter un coup d'oeil sur ce sommaire pour voir le profit qu'on tirera de la lecture et de la méditation des leçons. Les lecteurs de GLADIUS pourront, peut-être, faire observer que les historiens sont trop portés à croire que l'on se battait, jadis, à coups de chartes et de diplômes, et que l'aspect *armement* apparaît quelque peu négligé. Cette limitation, fort regrettable d'ailleurs, fut imposée par l'orientation même de la Settimana, davantage historicienne qu'archéologique.

Cette réserve faite, il ne reste qu'à féliciter les auteurs des communications et le Centro qui, une fois de plus, a réussi à faire une réunion vraiment utile et à offrir aux chercheurs des volumes d'une grande valeur.

J.-F. FINÓ

HAROLD L. PETERSON: *Round Shot and Rammers*. Ill. by Peter F. Copeland, Donald W. Holst and Robert L. Klinger. Stackpole Books, Harrisburg, Pa. 1969. 128 pp. 57 full page drawings.

The chief curator of the National Park Service and of U.S. Historical Sites, Mr. *Harold L. Peterson* in this book gives an interesting introduction to an important period of the history of U.S.A., to just those centuries in which the new nation established itself on the northern continent of America. It is a lively pictured, history from the time about 1539-1865, told in outlines by cannons and cannons.

Fights and battles between the various groups and nationalities of colonists and conquerors of this continent, and defense against its legitimate inhabitants, the Indian tribes, characterize this exciting and bloody epoch of pioneering. The book gives a picture of how the newcomers to this savage continent with all the difficulties they met, step by step, created an artillery of their own, a national artillery, on basis of a whole series of more or less antiquated, as a rule rather heterogeneous, models, brought from Europe, particularly from Spain, France, England, Holland and even Sweden. The conditions of building up an artillery, for its construction and use, differed from conditions in Europe. The little societies of colonists and conquerors with their poor economics did not allow them to waste the same quantity of money for experiments as did the kingdoms of Europe. It was necessary to adopt and use already existing material, which had been brought in an earlier time and to supply with more or less occasional accessions, such as land-coast-and naval pieces, and use them for purposes for which most of them had never been designed.

Detailed investigations in ancient manuals, diaries, journals, etc., as well as drawings from national American archives, combined with examinations of the existing pieces from museums and historical forts, as well as a training of modern time crew in firing old muzzle-loading guns in the proper manner, make the basis of this book. The detailed plans of cannons, carriages, accessories, etc., are instructive and are even thought as a help to private model makers.

We follow the development of land artillery in the new nation from the days of the emperor Carlos V «in whose empire the sun did never set» to the time when artillery entered a new and epoch-making development on its way towards modern war tools.

It is history told by cannons, swivel guns, columbiads, mortars and howitzers and the persons who attended them. Manufacture, management, aiming, ammunition, equipment of instruments, carriages, etc., have not been omitted. Even the colours of carriages and mountings

are treated. The book is no detailed treatise of the development of artillery. The purpose is to give a general background to the military historian and enthusiast from the beginnings of the colonization of North America in early 16th century to the apex of the muzzle-loader in the period ca 1836-1865.

The four main chapters treat: The Beginnings, The French Wars and the Revolution (1689-1783), The New Nation (1784-1835) and The Apex of the Muzzle-Loader (1836-1865). For those who want more details, the extensive bibliography, guide to drawings and an index are informative.

The Spanish «conquistadores» were the first to bring artillery to the New World. Cannons of many sizes had been in use in Peru, Central America, Mexico and along the Caribbean coasts. In 1512, Ponce de León discovered Florida, Texas was discovered in the years 1529-1536, and in 1541, Hernando de Soto found Mississippi river. De Soto brought with him some great bronze cannons, when he in 1539 landed at Tampa Bay and from here across Florida penetrated the thick forests and swampy areas in the Southern States. His difficulties were so enormous that he had to leave behind him the heavy bronze guns as a gift to a famous Indian chief, Cosa. Hernando Coronado who in 1540 dragged with him seven bronze guns from Mexico towards the North, had to leave three of the heaviest pieces behind him and brought four light types with him. They were however not strong enough for conquering the native «pueblos», the characteristic cliff villages of this part of the continent. Some of the last bronze guns of the Spanish expeditions were those of Juan de Oñate at the end of the 16th century in New Mexico.

With the *colonization* of the new continent artillery increased in importance. We see it from the Spanish forts in Florida, built for battering down the English free-booters at the coasts, or the French forts built by Huguenot engineers near modern Jacksonville in Florida, and in South Carolina. The greatest and best pieces came to Boston and surroundings, where the wealthier classes from England had settled, while the «Pilgrims» in Plymouth had only small guns. Dutch artillery was among the best of the time. But it was not able to resist the English at Manhattan where the Dutch had to surrender New Amsterdam. It did not influence upon American artillery.

The control of the continent in the 17th century was parted between Spain, France and England. English artillery came to dominate for a long time. Some of the earliest American artillery traditions were founded just now in Boston in the Massachusetts Bay colony. Here we find the cradle of the leadership of American artillery as early as in 1628. «The Ancient and Honorable Artillery Company of Boston» was estab-

lished in 1638 by colonists from the London Company, and it is still active.

The early colonists had beside their large cannons, culverins and other pieces a series of light breechloaders, mostly swivel guns, used for the defense of fortifications, still in use in 18th century in some places. They were considered ideal for defending small posts against assaults of the Indians. Most of the American guns of this period, including those of the forts, were mounted in large two-wheeled carriages, manœuvrable even on rough ground. Ship carriages have been used in some forts, e.g., at Plymouth, where they had been taken from «Mayflower». Favorite wood for carriages were oak-wood for the wheels, and flasks, walnut for transoms, but many kinds of wood are found, even cedar and hickory, not least among the French. Wooden elements were gaily painted: red, green, blue or only oiled with turpentine, while iron elements often were of a different colour.

In the colonial period the ammunition mostly consisted in solid balls of cast iron, with charge of black powder. Smaller sizes sometimes used leaden balls. Among other types of projectiles could be mentioned cross bar shot, jointed cross bar shot, chain shot, cannister, grape shot, etc. Varicus types of incendiary shots such as carcass and spike shots were used too. The drawings illustrate the types of quadrants, gunner's level, shot calipers, etc.

The period between 1689-1783: *The French Wars and the Revolution*, brought many changes in the history of artillery. European countries standardized their artillery, light field artillery came into use and the colonists followed their respective motherlands as well as possible. Beside this a true American artillery with American artillerists appeared. The guns were designated, not by names, but by the weight of the solid shot, they could throw. A minion had become a 4-pounder, a culverin a 18-20-pounder, etc., after its bore. The mortars followed the same patterns, but were designated after the diameter of their bores. The howitzer was introduced to the continent. As to standardizing artillery the French general Vallière had made a pioneering effort in 1732. But it was not before the French engineer Jean-Baptiste Gribeauval in 1767 systematized almost every phase of artillery material in France that a general systematization could be carried through everywhere, even in America.

Artillery still mostly was used as siege artillery for defending or attacking forts. Spain had strengthened and completed its forts in Florida, France built new forts here and in the interior of the continent, and England built forts along the coasts or penetrated into the interior, where they conquered some forts from the French, such as the later Pittsburg,

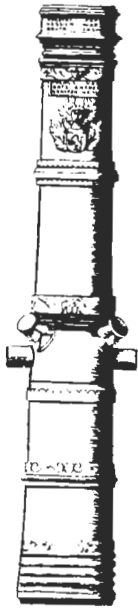
Ticonderoga and others. Everywhere artillery was improved, and the types ranged from the 32-42-pounders (Castle Williams) down to swivel guns on the tiny forts in some places. With the American Revolution field artillery was taken into use in the hostile encounters in such civilized areas that had roads or cleared fields. In spite of its poor start at Bunker Hill it soon made rapid progress thanks to Henry Knox. During this period English artillery types in America were the best, though still much heterogeneous. Among the first distinct types was the so-called «Rose and Crown», from the pattern on its tubes. All surviving pieces of this type in U.S. were made during the reign of Queen Anne, and were of iron. Among the famous names in England in regard to standardizing systems were those of John Armstrong and John Muller (from Woolwich). Among the types of mortars the so-called «coehorns» —4½-inch mortars were used. They got name after their inventor, the Dutchman Menno van Coehorn. The author gives an explanation of the use of the terms brass and bronze in connection with his description of brass mortars and howitzers. Most British gun tubes, mortars and even petards were as a rule marked with the royal cyphers and badges, often with name of maker, place of manufacture and date as well as their actual weight. As a rule iron founders were anonymous. We find in the book a list of the Armstrong system and of the dimensions of all kinds, as established by the Ordnance Board in 1764. Though not very handsome the English artillery of the period was functional and apt for its purposes in America.

French artillery was next to influence American artillery. The system by Vallière was the first to come. The material was brass, the guns were long, slender, elegantly decorated and with gay red carriages. It was soon followed by the system of Gribeauval. With this engineer, who had served in Austria with its excellent artillery, French artillery now was brought to a leading place among European powers, even in regard to all details such as carriages, rolling stock, equipment, pontoon bridges, etc. He coordinated the elements and distinguished between: siege, field, garrison, seacoast use, etc. Although met with protests at first Gribeauval's system was adopted in America in 1767; but it did not triumph before in 1774, and it was probably not seen here before the Independence of U.S.

With the Revolution matters changed, and in 1775 a national army became a necessity. Henry Knox became coronel of the Continental Regiment of Artillery in 1775, and he set up four regiments. This new American artillery followed British patterns. John Muller: «A Treatise of Artillery», was issued in a pirate edition (Philadelphia) dedicated amongst others to George Washington and Henry Knox.



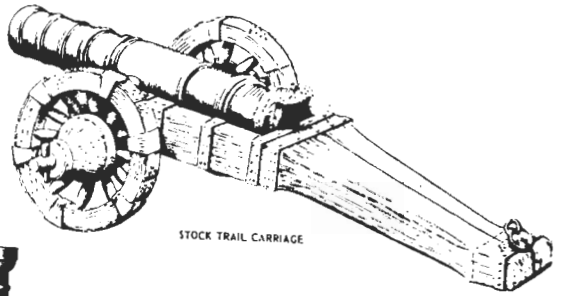
SPANISH CULVERIN, 1526



GERMAN CANNON, 1535



FRENCH CULVERIN, 1550-1600



STOCK TRAIL CARRIAGE



SPANISH CANNON, 1600-1650



SPANISH DEMI-CULVERIN, 1572



THE ARMS OF SPAIN



Early Spanish, French and German Cannon.

From this period Spanish artillery types were almost only to be found in Florida. They resembled much to French types. Spain had soon adopted the Gribeauval system, while that of Vallière never had been introduced. There may have been some Spanish pieces of the Gribeauval system in Florida even up to 1821. In the West, e.g., in California, it probably was to be found now and then. Swedish artillery came to play some part to the American development, though Sweden had no colonies since the little colony at Delaware in 1655 had come to the Dutch. But Sweden supplied cannons to many European countries, particularly for arming ships. Quite a number of Swedish cannons are still to be found in U.S., removed from their vessels. Some are now in the Smithsonian Institute in Washington.

Chapter III treats the *New Nation, 1784-1835*, a period with many difficulties. It was no easy matter to build up and organize the national artillery. Various organizations were created (some of them are still active) and their joining became of vital importance as a help to supply the regular manning of coastal forts, guard the frontiers or accompany troops in field. National manufactures arose. The manufacture of Springfield in Massachusetts was a federal gun foundry; in the south J. Byers of Philadelphia had fame for fine work together with Daniel King of Germantown and others.

The name of Henry Dearborn is tied to the conversion from brass to iron. American iron guns had a development of their own, and took a rather streamlined direction. Little by little they got very slender, and sometimes would burst when fired. One of the ordnance types of 1818 had the nickname «Walking Stick». Beside the field artillery the seacoast artillery of the federal period became the most important branch, while siege-and garrison artillery fell into disuse. After about 1800 many of the seacoast cannons were of French naval patterns, from French ship armaments. The name «columbiad» through the time has presented quite a riddle to artillery students, interpreted as it was in various manners. At first it may have come from the Columbia foundry in Georgetown, D.C., which supplied great part of North America with heavy artillery. Next it may have signified all kinds of guns made in America, and probably it at last became the name of a short shell gun of large caliber for coast defense. But there is no proof for it. George Bomford apparently was its inventor.

As to seacoast carriages the Gribeauval system for fortifications with pivoted chassis of barbette and casemate emplacements probably was adopted in some of the forts. In this time do we find the use of naval carronades in seacoast armament for flank defense.

In regard to ammunition both old traditions and modern innovations were found, such as spherical case or shrapnel, which, long after its invention in England by Henry Shrapnel, had been used in Spain, before it came to America. The new French drill system now replaced the old English drill.

With chapter IV, the *Apex of the Muzzle-loader, 1836-1865*, we are in the very middle of the strong development of American artillery. The rifled guns made their appearance. American gun making entered a rich period. The Civil War marked both the Zenith and the real end of the old muzzle-loaders. To U.S. it meant a hard but great era, starting with the Mexican war and the battle at Palo Alto in May 1846. American artillery proved decisive here and in the next year at Buena Vista. In the West the little mountain howitzers accompanied the expeditions, and they often held the forts against hostile attacks. The officers of the regular armies welcomed these little howitzers, but the Indians feared them. The big guns put an end to the masonry forts. As to field artillery it entered a period of important changes, e.g., with the return to bronze instead of iron tubes, rifles and introduction of stock trail field carriages. A new limber, holding the ammunition chests, was adopted. Among the systems which came up, one of the most important was that of Alfred Mordecai, who even supervised a whole volume of text descriptions beside an atlas with all details for every kind of artillery and artilleristic equipment. In 1857, the versatile «Napoleon» appeared (name after the French emperor), often called a gun-howitzer, though it had none of the howitzer's characteristics. It could fire canister, shell and solid shot. In the hot battle at Gettysburg all batteries except one in the Army of the Potomac had «Napoleons» or rifles. The confederates and the West still clung to 6-pounders and the 12-pounder howitzers. As to rifled artillery many experiments were made. Important were the design by Charles T. James, who also invented a method for converting smoothbores to rifles, the James rifles. In the federal service two patterns came to dominate, that of Parrott and that of Ordinance. The Parrott rifles were cast at West Point, supervised by Parrott himself. Both systems were adopted as standarts in 1861. Various types came up, such as Armstrong, Withworth and others. In a category of its own was the 12-pounder mountain howitzer which first appeared in 1836 and was modified in 1841. It never became popular in the East, while it was highly appreciated in the West. The prairie carriage with its particular limber appeared in 1850, with some improvements after ca 1860.

The last part of the book deals with siege and garrison artillery comprising a group of guns, howitzers and mortars for battering the hostile

fortifications, defending fixed positions, etc. Naval guns sometimes served in field forts. In the Civil War the various types of big guns and siege mortars played an important part, e.g., at Gettysburg, on the hands of the confederates. Even on some of the Union river boats were they mounted. Most important was the development of the seacoast artillery. George Bomford approved two new types of columbiads, redesigned in 1858. Already in 1861 they were superseded by the model called Rodman after its inventor, Thomas Jefferson Rodman. This was a completely new cannon differing in every respect from its predecessors both to external form and to manufacturing technique. Among the new mortars appeared the «Dictator», mounted on railroad flatcar. For the biggest of the heavy seacoast guns coming up now, mechanical shell hoists were necessary to lift the projectiles.

A great leap forward was made with the new types of ammunition. Grape was replaced by cannister and spherical case. A new fuze came up for the smooth-borers, used by Confederates and Unions as well during the Civil War. About 1860 the first rifled projectiles were taken into use. But a series of problems had to be solved, before they acted well. Names as Parrott, Reed, Burton, Dyer and other are connected with these problems. With all the experiments and improvements which had come up, the artillerists of the Civil War had been far better on than their predecessors of earlier time wars. When the Civil War was over, American artillery with its muzzle-loaders indeed has reached its apex. A long and troublesome line, which had started with the early 16th century Spanish bronze guns, culverins, falcons, etc., had come to an end. They were followed by a different era, with breechloaders and rockets, with a series of new inventions as an introduction to the revolutionary development of modern time.

Mr. Peterson's book is no manual in artillery and its manufacture. It is the history of North American artillery told by the actual documents, by guns, mortars, howitzers themselves and by the men who invented and attended them. For technical details the readers have to follow the instructive line drawings, most of them building upon authentic and contemporary illustrations and paintings from archives and museums. Guns, mortars, howitzers, transport systems, implements and accessories, ammunitions, methods of firing and aiming, drill system, etc., can here be followed. A cannon of those days was more than a tool of war. It was «that banner or flag around which the gunners, who served it, grouped. It was their point of honour. They were victorious as long as the gun was theirs. When the gun was lost, all was lost». A veteran confederate artillerist, major Robert Stiles, told his gunners so. It is an interesting book, told in an untraditional manner, where dry facts

concerning technical matters combined with historical events bear witness to the importance of weapons as historical documentation.

A. BR. H.

HERIBERT SEITZ: *Blankwaffen II. Geschichte und Typenentwicklung im europäischen Kulturbereich*. Vom 16. bis 19. Jahrhundert. Klinkhardt & Biermann, Braunschweig 1968. 15 + 421 S. Text, 345 Abb., 16 Farbtafeln.

Mit diesem Buch hat der Direktor des Königlichen Armémuseums in Stockholm Dr. Heribert Seitz seine umfassende Typenentwicklung der Schwerter, Degen, Säbel, Pallasche, Hirschfänger und Dolche sowie der Stangenwaffen und Äxte weitergeführt und beendet. Es ist eine recht grosse Arbeit gewesen. Als Resultat ist ein stattliches und grosses Handbuch der Blankwaffen aller Zeiten erschienen. Man freut sich darüber das Buch aufzumachen. Die vielen ausgezeichneten Illustrationen — nicht am mindesten die schönen Farbtafeln— treten in reicher und fröhlicher Fülle dem Leser entgegen. In diesen Bände werden die Perioden von rund 1600 bis Mitte des 19. Jahrh. behandelt. (Bd. I wurde in GLADIUS IV, 1965, pp. 120-123 besprochen.) Man folgt den Hauptlinien der Entwicklung, den Typen, Varianten, Fechtkunst, etc. Der Verfasser hat sich die Mühe gemacht eine breite Ausdehnung der vielen Details und dabei auch den kulturgeschichtlichen Hintergrund zu geben. Mit seinem umfassenden Wissen hat er den ganzen Entwicklungsprozess sowie die Zweckmässigkeit der Typen klargelegt.

Die Einleitung giebt eine Übersicht über den politischen Hintergrund für den Wendepunkt der waffengeschichtlichen Entwicklung um etwa 1600. Es ist gerade die Zeit in welcher die Handfeuerwaffen sich in den Vordergrund drängen. Die Rolle der Blankwaffen ist aber bei weitem nicht ausgespielt, obwohl Bedeutung und Brauch sich geändert haben. Durch die folgenden Jahrhunderte nimmt die Bedeutung der Blankwaffen als Waffen langsam ab um mit dem 19. Jahrh. ihre zweckmässige und künstlerische Ausführung zu verlieren.

Das 17. Jahrh. ist die Zeit des 30.-jähr. Krieges mit grossen politischen und religiösen Änderungen im Mitteleuropa aber auch mit bedeutsamen Einflüssen auf Südeuropa. Das 18. Jahrh. ist die Zeit der verschiedenen Thronfolgekriege und der französischen Revolution. Im 19. Jahrh. kommen die napoleonischen Kriege und die vielen Revolutionen in verschiedenen Ländern etwa um die Mitte des Jahrh. Für die Entwicklung der

Blankwaffen wird selbstverständlich die ganze politische und damit auch die kulturgeschichtliche Situation von der grössten Bedeutung.

Man folgt den letzten Stufen des eigentlich kreuzförmigen Schwertes mit seinen drei Haupttypen: wirkliches Schwert, symbolisches Schwert und Richtschwert. In derselben Zeit erreichen Degen und Rapier einen Höhepunkt und erleben eine hervorragende Blütezeit. Diese Entwicklung ist nicht nur im kriegerischen Gebrauch bedingt, hat aber auch einen tiefen Hintergrund in der Mode, wie auch im zivilen Leben, am Hofe, für Duelle und in der Fechtkunst. Die Typen sind nach den Gefässen eingeteilt. Sechs Typengruppen sind ausgeschieden. Mit Ausnahme des Schalenrapiers weisen sie alle eine reiche Variationsbreite aus.

Das barocke Kreuzgefäss ohne Faustbügel und mit seinen Wurzeln tief im Mittelalter war noch während des ganzen 17. Jahrh. beliebt und kommt sehr häufig vor. Form und Ausschmückung sind aber von den neuen Impulsen geprägt. Die S-förmig geschwungenen Parierstangen sind Erbe der Renaissance. Dieser Typ ist mit sehr guten und charakteristischen Beispielen illustriert, wie z.B. mit einem deutschen Rapiergefäss einer Prachtwaffe im Hist. Mus. in Dresden (Weihnachtsgeschenk für den Kurfürsten Christian II im Jahre 1610). Ein anderes sehr charakteristisches Stück ist die italienische Waffe von etwa 1610-1620 im Musée de l'Armée in Paris. Eine spezielle Gruppe findet man in den niederländischen Degen, die im 30.-jähr. Kriege von den Schweden getragen wurden. In demselben Kapitel werden die Kavallier-degen behandelt, sowie die sogenannten «Kopfkissen»-degen, kleine, elegante Waffen ohne zweckmässigen Handschutz und die wohl zum Duell bestimmten Waffen französisches Typs aus der Mitte des 17. Jahrh.

Die folgenden Seiten behandeln die Degen mit ausgereiftem Bügelgefäss, die noch auf ihren Renaissance-erbe weiterleben. Verschiedene historische Prachtwaffen aus der Übergangszeit, um und kürzlich nach 1600, sind hier erwähnt. Unter die Waffen von hoher Qualität kann man das sehr schöne goldtauschierte Rapier um etwa 1600 hervorheben, jetzt im Kölnischen Stadtmuseum. Es ist ein gutes Beispiel des voll ausgebildeten Bügel-Spangengefäss. Wie der Verfasser sagt, deuten die Parierstangen auf Einfluss von Spanien. Eine charakteristisch spanische Feldwaffe derselben Zeit ist das lange, schlanke Stück im Königl. Armémus., Stockholm. In dieser Zeit gehören auch die einst von Charles Buttin als «à la Pappenheim» genannten Degen, die im 30.-jähr. Kriege sehr beliebt waren. Hervorheben kann man den Degen mit Stahlgefäss, den Gustav II Adolf in der Schlacht bei Lützen 1632, führte (Livrustkamm. Stockholm). Das verknappte Bügelgefäss hat einen sehr sparsamen Schutz für die Hand. Verschiedene Varianten existieren. Der Typus bezeichnet eigentlich einen Rückschritt, in entwicklungsmässiger Beziehung die

Schlussfase des Kreislaufes. Sehr schöne und elegante Degengefässe mit Eisenschnitt und Vergoldung kommen noch aus dieser Zeit vor. Bemerkenswert sind die feinen und sorgfältig gearbeiteten Gefässe mit Eisenschnitt, die Werke des Berliner-Nürnberger Künstler Gottfried Leygebess sind. Ein signiertes Exemplar befindet sich jetzt in Vict. & Alb. Mus. London, einige andere, unsignierte, sind in Wien und Kopenhagen. Als Gegensatz zu diesen künstlerisch sehr reichen Gefässen stehen die einfachen, sogenannten Walloner-degen (épée wallonne), Reiterdegen um etwa 1660 und später. Man folgt der ganzen Entwicklung, die typenmässig oft einen Stillstand bezeichnet, und man geht weiter bis zu den feinen und eleganten Rokokodegen, die Kavallerdegen mit goldtauschiereten Rokokoornamenten, mit Gefässen in flerfarbigem Gold, in Silber, etc., die raffinierten Gefässe mit Griff aus Meissen-porzellan oder die gebläuten und vergoldeten Gefässen mit den feinen blauen Reliefornameneten oder Figurszenen auf Goldgrund.

Eine andere Entwicklung findet man in den Degen mit Korbgefässen wo der Verfasser über die ganze Entwicklung der verschiedenen Varianten berichtet, z.B. die englischen Haudegen (mortuary-swords), den Pallaschtyp, der in der zweiten Hälfte des 17. Jahrh. in mode kam oder den schottischen Hochlandtyp, sowie die italienische Schiavona. Die Probleme dieses Typs, seine mehr oder weniger Zusammenhang oder Verwandtschaft mit dem Hochlanddegen sind noch nicht gelöst. Gemein für beide ist, dass sie Kriegswaffen sind. Noch gegen Ende des 18. Jahrh. war die Schiavona im Gebrauch.

Interessant ist die Hervorstellung der Schalenrapiere. Hier treten die südeuropäischen —und speziel die spanischen— im Vordergrund. Schon in 1956 hat der spanische Spezialist und Waffensammler *Emilio Sobejano R. Rubi* einen sehr ausführlichen und gründlichen Untersuchung publiziert (Arte Español) in welcher er die ganze Entwicklung hervorge stellt hat. Für die in Italien entstandenen Exemplaren muss man sich vor Auge halten wie nahe die Verbindungen —politische sowie künstlerische und handelsmässige— zwischen Spanien und Italien schon durch Jahrhunderte waren. (Im Mittelalter und Renaissance Cataluña, Königreich Aragón, Valencia, mit Namen wie z.B. Martín el Humano, Alfonso el Magnánimo in Napoli, Carlos V in Norditalien.) Reghafte Kulturverbindungen existierten mit Milano, Rom, Napoli, die Insel und ganz Süditalien. Spanische Künstler wirkten in Italien. Die Glockenrapiere wurden sowohl auf dem iberischen Halbinsel sowie auch in Italien verarbeitet, von Spaniern und von Italienern.

Der Verfasser bringt eine schöne Auswahl von solchen Glockenrapieren. In der Bildkunst kommt das Glockenrapier mehrmals vor. Der Verfasser nennt eine Reihe von Künstlern; diese Reihe kann indessen

mit mehreren anderen Namen augmentiert werden. (Verschiedene Zeichnungen von Goya zeigen auch Duelle mit Glockenrapier.) Unter den Varianten des Typs existieren in verschiedenen Sammlungen in Spanien mehr oder weniger dekorierte Exemplaren zugleich mit dem zugehörigen Dolch, «daga a mano izquierda». Das Schalengefäß spielt in seiner weiteren Entwicklung eine ganz grosse Rolle in Spanien, nicht nur für feinere Zivilwaffen sondern auch für reglementierte Militärwaffen (Kavallerei). Der sogenannte Bilbo (eigentlich aus Bilbao) ist sicherlich mit baskischen Seeleuten und Emigranten nach den Küsten des Karaibischen Meeres und anderen Orten der spanischen Amerikas gebracht worden.

Die Entwicklung des Säbels wird in einem Abschnitt behandelt in dem man auch die Prachttypen mit türkischen Kilijklingen, sehr köstlichen Gefässen und Scheiden, sowie eine arabische Variante des Saifs und einige persische Shamshirs findet. Interessant ist die Behandlung der polnischen Säbel und die zwei Typenvarianten, der batorowka dessen Namen ursprünglich von König Stefan Batory hierrührt. Sein Porträt schmückte viele von diesen Klingen. Der andere Typ ist der Säbel, genannt Karabela, in der Regel ohne Faustbügel.

Der Haudegen ist eine charakteristische Barockwaffe. Sehr gut ist er in der Schweiz-repräsentiert. Die Pallaschen-hauptsächlich für die schwere Kavallerei-kommen in Anfang des 17. Jahrh. vor. Obwohl sehr prachtvolle und köstliche Pallasche für Fürsten hervorgegestellt worden sind, werden diese Waffen mehr und mehr von der gemeinen Kavallerei gebraucht. Aus vielen Ländern existieren schwere und wohlproportionierte Exemplare als reglementierte Seitenwaffen. Auch unter diesen Waffen kommen Varianten vor. Die Gefässe sind bald aus Messing, bald aus Eisen gemacht.

Der Dolch wird in mehreren Seiten zusammen mit verschiedenen Typen von Messern behandelt. Die Barockzeit kann verschiedene Typen aufweisen, wie z.B. den Parierstangendolch um etwa 1600 und später, oft als paarweise mit dem Degen oder Rapier, als Linkshänder für Fechten gebraucht. Die Einzeldolche machen jedoch die grösste Gruppe aus. Fecht-dolche mit Springklinge werden erleuchtet. Vor allem aber konzentriert sich der Verfasser um die spanischen Linkshänder: «dagas a mano izquierda». Diese machen paar mit dem Schalenrapier und sind in demselben Stil und mit denselben Ornamenten ausgeschmückt. Wie ausgebreitet diese Waffen einst waren, sieht man heutzutage in Kastilien, wo man in vielen Dörfern oft alte Klingen von solchen Linkshändern als Hausgeräte noch im Gebrauch findet, oft aber vom Feuer so sehr miss-handelt, dass man sie nicht mehr retten kann. Eine Typenreihe von den italienischen Stiletten wird nächst gegeben.

Unter die Messer kommen verschiedene Typen vor, z.B. die italienischen Dolche aus dem 17. und 18. Jahrh., die oft von den spanischen schwer zu unterscheiden sind. Spanien hatte in diesen Jahrhunderten —wie auch heutzutage—eine bedeutende Messerindustrie in Albacete. Hier fabrizierte man z.B. die charakteristischen Navajas, die Faltenmesser mit Sperremechanismen, die in der Regel mit einer Art von Yelman auf der Klingenträgerseite versehen waren. Diese Messer wurden in verschiedenen Grössen verarbeitet, von ganz kleinen bis sehr langen. Man kennt Exemplare etwa bis 136 cm. (der Verfasser), aber die überlangen Exemplare sind doch meistens als Kuriositäten zu betrachten. Die Literatur ist noch sehr sparsam und die meisten Auskünfte findet man in der älteren spanischen schönen Literatur sowie auch in alten Bildern und Zeichnungen. Der Typ wird heutzutage als Taschenmesser gebraucht. Das Wort navaja wird heute schlechthin allgemein von Messer gebraucht.

Auch die Stangenwaffen und die Äxte werden ausführlich durchgegangen. Die verzierten Stangenwaffen der Renaissance gingen ins Barock und Rokoko über. Aus diesen Epochen findet man eine ganze Reihe von Prachtwaffen mit durchgebrochenen Blättern, die vergoldet, gebläut, geätzt, in Relief gearbeitet erscheinen usw. Hellebarden, Partisanen für fürstliche Trabanten- und Gardetruppen z.B. in Sachsen, Polen, Schweden, Dänemark, Russland, etc., sind mit grosser Pracht verarbeitet.

Die Sponton-Partisanen sind ganz im Geiste des Rokokos. Friedrich d. Grosse führte sie in Preussen um etwa 1740 ein. Am Ende des 18. Jahrhunderts findet man den Typ «Lilie» in mehreren Ländern. Die Prozessions-Gläser der Dogen-Garde, um etwa 1750, sind wahre Ausdrücke des Barock-Geistes. Zum Schluss redet der Verfasser von den bäuerlichen Notwaffen wie z.B. Kriegssensen, die in England gebraucht wurden, wie übrigens auch in Osteuropa und anderen Orten. (In Dänemark um etwa 1849 im Drei-Jahr. Kriege.) Die norwegischen Bauernäxte haben sehr alte Tradition als Nachkommer der Wikingeräxte. Die eigentümlichen, russischen Bardiche waren noch im 18. Jahrh. im Gebrauch. Wenn auch recht kurz sind noch die wichtigsten Klingenzentren behandelt: Solingen, Toledo und verschiedene andere in Europa. Man konnte hier wohl beifügen, dass in Spanien verschiedene Wirksamkeiten in Sevilla, Valencia und andere Orten noch existierten. Sie waren speziell mit Rokokodegen beschäftigt. Das Material ist aber meistens noch unpubliziert. Dasselbe gilt von den Schwertfeuern, die Gefässe für Galanteriedegen machten. Von den Zeichnungen und Vorlagen für Degengefässe sind mehrere von den berühmten Meistern reproduziert.

Mit den politischen Umwälzungen am Ende des 18. Jahrh. kam eine stilistische und kulturelle Umwälzung. Neu-Klassizismus und Empire brachten mit sich Konsequenzen für die blanken Waffen. Es kam eine

Wiederauferstehung des Schwertes, obwohl nicht in der alten Bedeutung und Gebrauch, z.B. die Schwerter mit Goldgefäßen, die für Napoleon als Ersten Konsul und Kaiser gemacht wurden oder das Schwert, welches der Kaiser seinem Polizeidirektor Fouché (späterhin Herzog von Otranto) schenkte. Diese Schwerter wurden bei Boutet in Versailles hervorgegestellt.

Die neuen Stilarten berührten im allerhöchsten Grade die Kavallerie-degen, die mit charakteristischen, schlanken Gefäßen und häufig mit vasenförmigem Knauf gemacht wurden. Die Ornierung war oft von brilliantgeschliffenem Stahl, oder aus Silber, Email, ja sogar aus Wedgwood-porzellan gemacht. Nach etwa 1800 kam auch für den Säbel eine Neuaufstehung. Er wurde Modewaffe. Genannt vom Verfasser werden hier die russischen Pracht- und luksussäbel von Zlatoust, sowie die mehr einfachen, reglementierten Kavalleriesäbel verschiedener Typen und aus vielen Ländern. Mit der Romantik des 19. Jahrh. tritt die Blankwaffe eigentlich in seinen Schlussakt ein. Die englischen «Mameluksäbel» gehören hierher. Die russischen Schaschkas, wenn auch als sehr köstbare Luxuswaffen hervorgegestellt, bewährten stets ihre Bedeutung als Nutzwaffe. Sie werden auch heutzutage in Russland als militärische Waffen getragen.

Der rote Faden durch all dies ist die Fechtkunst. Die früheren Stufen der Entwicklung wurden schon vom Verfasser in Bd. I behandelt. Hier setzt er mit den verschiedenen Schulen fort: die italienische, die spanische (mit Besprechung des spanischen dreiband Werk von Francisco Lorenz de Roda, 1705) und die französische Schule. Die spanische Schule starb in der Wirklichkeit aus mit dem königlichen Hause Bourbon auf dem Thron in Spanien. (Ganz wie die alten Toledaner Wirksamkeiten.) Die französische Schule brachte mit sich eine Neuerung auf dem Gebiete des Degens, «la courte épée». Das Florett, gekannt um etwa 1600, war wahrscheinlich aus französischer Ursprung. Auch die italienische Schule hatte seine Übungswaffe, fioretto, wie die spanische seine florete. Das Buch schließt mit einem Kapitel über Säbel- und Soldatenfechten (Helmbartenfechten, etc., wie beschrieben von Sutor in dem Buche: Reiterstudien, um 1612, und Wallhausen: Kriegskunst zu Pferde, um 1616).

Die Fechtwaffen sind bis zur allerneuesten Zeit hervor geführt, z.B. die Waffen mit elektrischem Kontaktmechanismus an der Klingenspitze, für Wettkampf. Der Kreislauf der edlesten aller Blankwaffen ist damit beendet: vom Flintdolch bis zum «elektrischen Florette».

Mit dem zweiten Bande von Blankwaffen hat der Verfasser ein sehr umfassendes Handbuch geschaffen, nützlich für Waffenforscher und für alle, die sich für die alten Waffen interessieren. Man merkt in wie hohem Grade der Verfasser ein Sachkunniger ist in Beziehung der Typenfor-

schung. Man folgt in diesem Bande den Blankwaffen von ihrer höchsten Blütezeit bis zum Ende der kriegsmässige Bedeutung, über Neidergangszeit und Verwandlung, von brauchbaren Streitwaffen, eleganten Zivil- und Ceremoniawaffen bis zum Wettkampf im Fechtboden.

Die sehr vielen Illustrationen sind ausserordentlich gut; viel neues Material ist mitgenommen, die man gewöhnlicherweise nicht in früheren Handbüchern gesehen hat. Die zwei Bänder machen ein schönes Handbuch aus.

A. BR. H.

A. M. SNODGRASS: *Arms and Armour of the Greeks*. London, Thames and Hudson, 1967. 151 pp. 60 ill.

This is a new book by the lecturer in Classical Archeology at the University of Edinburgh. (His book *Early Greek Armour and Weapons*, 1964, was mentioned in GLADIUS IV, 1965, pp. 116 ff.)

This book treats the history and development of the Greek armament from the Mycenaean of the Shaft-graves passing through the Dark Ages, the Hoplite time and the Great Wars to the Macedonian era under Alexander the Great and his successors, covering almost a millennium rich in warlike events in Greece as well as among the Barbarian peoples. It opens with the «Heroic Age», when Agamemnon at the head of the united Greek chieftains and warriors crossed the Sea in order to besiege and conquer famous Troy, the city of Priamos and Hector, and it takes the reader down to the decisive battle at Pydna in the year 168 B.C. when the Greeks had to surrender to the Roman armies.

Archaeological objects from these long spans of time are rather scarce, although their number is augmenting year by year thanks to modern time excavations over almost all Greece and the islands of the Archipelago. Beside the objects themselves, which make the central part of the investigation, there is an important documentation from the Greek literature and from art of certain periods. Sifted critically by a schooled investigator this last material apparently offers less facts than one should imagine beforehand. However they prove that the Greeks in certain periods had excellent weapons —often better than their adversaries— and that the victories won by arms were not the result of personal courage alone. The Greeks of Classical time were no bellicose peoples compared with other nations. They were proud of their weapons, and their country was rich in raw material for manufacturing weapons.

The book comprises five chapters besides the introduction. The chapters are: The Mycenaean, The Dark Age, The Ages of the Hoplites, The Great Wars and The Macedonian War. Finally the author gives a list of bibliography, notes and an index.

It is no easy job to give an account of the history and development of the Greek army, its equipment and tactics, although there apparently is a lot of information. The bronze weapons themselves, excavated particularly during the last 10-20 years in various sites of Greece, the votive deposits remembering important victories and afterwards deposited in the temples such as Olympia, Dodone, Samos, Rhodos, Olynthos, etc., are very important. They are supported by art representations, such as bronze and clay figurines, little bronze reliefs and the like, and particularly by vase paintings, starting with the Geometric style, but particularly with the black-and red-figured vases from 6th and 5th centuries B.C. In addition we have some representations on tomb stelae, friezes of monumental buildings, etc., representing battle scenes, single combats, warriors alone with their personal equipment and the like. Apparently such a documentation should be informative as to military equipment and art of war. Further the artistic documentation can be compared with the literature, such as the Homeric epics and further down the centuries to Hellenistic time. Besides there are numerous references from a later period from Greek and Roman authors and historians.

The early periods are represented with such literature as the Homeric epics, the Spartan poet Tyrtaios, the Lesbian poet Alcaeos as well as other poets, the historians such as Herodotus, Thucydides, Xenophon and later on Diodorus Siculus, Polybius, Plutarchus, Arrianos and various other authors. Here you find descriptions of war, weapons, even poliorcetics and references to weapons and their making. In spite of all this we still can only establish the fact that we do not know sufficiently about the matters to write the complete history of the weapons and art of war of the Greeks. The Homeric poems cannot fill the gaps of our archaeological knowledge from an early time. Heroic elements from legendary past and poetic elements must be put aside. Conventional battle scenes on the vases, warrior's departure and the like and the works of later time sculptors cannot be taken completely for scientific documentation. Historical informations —though very important— often are rather short in regard to details of equipment and tactics. The reason for this is that the antique authors as a rule considered such details well known matters of course to their readers. Many aspects must be taken into consideration, not least the structure and economics of the ancient society in the various Greek states, the strong regionalism characteristic to Greece, not

least during that period which affects the days of the Hoplites and the time of the Great Wars.

As to the Mycenaean period, here starting with the shaft-graves, excavations during the last 10-20 years have yielded a very important material from the mainland, Crete, Cyprus and other places. Important are the mainland finds, e.g., from Mycenae, Dendra, Thebes, Pylos and other places. The objects from here are supported by the still very partial and disputed contents of the clay tablets with Linear B inscriptions. However we are not able to get an impression of the Mycenaean art of war. The shaft graves let us see kings and princes at arms for war and hunting, protected by their huge figure eight shields or tower shields. The remnants of boar's tusk helmets have increased in number. Very important is the find of a bronze cuirass from the following period, the Palace time, from the warrior's tomb at Dendra (exc. in 1960) probably the oldest known metal armour from European soil. Together with this magnificent cuirass were found bronze greaves, they too probably the oldest known European greaves. A bronze helmet, beaten of one piece, from about 1400 B.C., was found in a warrior's tomb at Cnossus. The Palace period tells about a warrior's aristocracy with elegant and excellent bronze weapons and warriors acting from chariots. A special royal body-guard seems to have been equipped with large and broad bronze spears, almost like the much later Byzantine imperial body-guards. The fencing rapiers of bronze from Crete and Mycenae with their richly adorned golden hilts are substituted by smaller and more effective swords, better fit for cutting than for thrusting. As a special weapon the chariot must be considered. It had been introduced to Crete partly from the Mycenaean mainland and from the Near Orient. On the mainland the chariot probably never played any important part on account of the terrain. It is used by the aristocracy surrounding the king for hunting and for processions. Horses served for transport to the battle field. A true cavalry is unusual.

An important weapon for attack was the bow. The usual type was the plain «self» bow made of one single staff, except on Crete where we soon find a composite bow made of horn and with upturned ends for the string. On Crete archery played an important part during centuries.

In the third period of Mycenaean time, about 1250-1150 B.C., it is the simple soldier and not the prince, who is represented. Pylos, the palace of «Old Nestor», has left a lot of clay tablets of interest to arms investigators. An important novelty is the «Griffzungenschwert», the type originating in the plains of Hungary. Spear types have relations with Central Europe, but contacts with the East still exist, e.g., in various types of arrow-heads. An adoption from the Eastern neighbours is the

spear butt. The warrior's vase from Mycenae is a most important document for the existence of an organized and uniform type of army. Notable here is the change in equipment and armament, no doubt indicating a change of tactics. Metal cuirasses apparently have been abandoned, and there is an adoption of a kind of jerkin and kilts. The Pylos tablets mention chariots. Soon after this period the Greek cavalry probably was born, as seen on a vase from Crete about 11th-10th centuries B.C. representing cavalry in its infancy.

At the beginning of the Dark Age Greece has entered its iron-age. As in earlier periods Cyprus played an important part as an intermediary. Importation of iron-knives from here is known. The iron swords from proto-geometric time show relations with Cyprus and the Levant. The Geometric time sword is short and straight with a large and half-moon shaped wooden pommel. It is known from the Dipylon vases. Javelins from the graves indicate adoption of long-range tactics. Bows are secondary weapons; the composite bow, known from mention in the Odyssey and Iliad, has appeared. The vase painting illustrates the Scythian «cupido» bow. Particularly interesting for this period is the new type of bronze cuirass, the Argos-corslet from 8th century, showing relations with the «Urnengräber» civilization and with some corslets found in Italy. Important is the bronze helmet with cheek-pieces from Tiryns. Soon after, about 800, the crested helmet appears. The conical shapes have their relatives in Syria and the Near East. The characteristic Dipylon shield probably may be considered a «heroic» shield and not for practical use in war.

Chariots still are in use in Asia Minor, Cyprus and on the plains of Thessaly. About the middle of the 8th century it is possible to see how much the pattern of warfare has changed since Late Mycenaean time. There doesn't seem to be any uniformity or organization. The battles apparently were fought with missiles and as hand-to-hand fights with swords and spears, as seen on vases and known from Homer. After the middle of the 8th century —almost contemporary with the appearance of the new system of scripture— a change in the military equipment seems to have taken place together with a change in burial practice. Weapons in the tombs are now rare. We must look for them in the votive deposits of the temples in Olympia and many other places. But here a new difficulty appears: these weapons rarely are datable, because early and later time votives often have been mixed in the lapse of time. Some help can be found from vase-paintings, clay-and bronze figurines of Archaic and Classical time. With the development of social life, of the state as well as of the economic matters, little by little possibilities are created of establishing an army with a more or less uniformity in

regard to equipment. The close packed phalanx was developed and accepted almost everywhere. The hoplite with his metal equipment: bronze armour, helmet, greaves, round metal shield as the basic elements dominates. For about 300 years the hoplite became the backbone of the Greek army. In Greek art the hoplite became the most popular subject: arming, departing for war, fighting and dying. At Marathon and at Plataiai he still played an important part. But the hoplite army was not created in a day. The development can be followed in its various stages, in archaeological material and in art representations. In regard to plate armour it starts in Geometric time with the warrior's grave from Argos.

After 700 the Corinthian helmet was created. It is mentioned by Herodotus (IV, 180) and frequently represented upon Corinthian pottery with its two shapes of crest. The Greek regionalism is found at an early time, e.g., in the shapes of helmets: Corinthian, Illyrian (probably Peloponnesian), Chalcidian, Ionian, Attic, etc. Crete, as in many other respects, takes a way of its own. The great round shield, hoplon, has given name to this type of soldiers. This wooden shield was mounted with metal with its porpax and antilabe inside. Often a blason is found on the front. It was an important novelty and in all probability a Greek invention. In vase painting it is seen side by side with the Beotian figure-eight shield, almost of Dipylon shape. But this last shield seems to be the «heroic» shield, used in epic scenes. The spear was the main weapon, the sword of secondary importance. The fully developed hoplite and the phalanx-tactics are seen on the Chigi vase. The hoplite probably was a quite new and purely Greek creation, different from the light armed soldiers from the warrior's vase or the Mycenaean princes. The hoplites constituted the only really trained Greek troops from Classical time; but lightarmed troops of archers and slingers existed, as stated by Thucydides (IV, 94). Hoplites served in the navy too. The poet Alcaeus from Lesbos gives a detailed description of a hoplite equipment. The sword particularly in use was the Chalcidian type. Chalcis was the «Toledo» of Greece. Hoplite mercenaries appear, amongst others recruited among the Carians, a non-Greek people. The Ionian hoplites were armed almost like the mainland soldiers, with slight modifications, such as the particular Ionian edition of the Corinthian helmet. Sparta, Argos, Corinth and some other places of Peloponnes were important in regard to weapons. The poet Tyrtaios in his poems let us know how the Spartan hoplite was equipped. Athens in the early time followed the types of Corinth and Argos in regard to helmets, corslets, etc., but later on Athens took a special air in regard to weapons, and became famous for its armourers. The particular Attic helmet, with its cheek-

pieces on hinges, was created in the 6th century. Surviving examples are extremely rare. Prominent was a new variation of the Corinthian helmet, the Chalcidian, named after its occurrence on Chalcidian vases. Probably it was a South Italian contribution to the hoplite equipment. An excellent specimen is now in the City Art Museum of Saint Louis, U.S.A. Important was Aigina for its hoplites and its navy. Famous too was Beotia. Hoplite warfare spread to Magna Graecia, where objects of Greek and Italian workmanship have been found. Cavalry existed here. Shortly before 600 Greek panoply was introduced in Etruria, where the graves bear evidence of it. About 500 we find the first Greek (Etruscan) influence upon Roman weapons. Direct importation of Greek hoplite armours is known from Serbia, Bosnia, Rumania; in Spain two excellent Corinthian helmets have been found. Magnificent is the specimen from Ría de Huelva (publ. by A. García y Bellido). Even from Syria and Iran hoplite equipment has been found. The hoplite himself had to provide most parts of his equipment. For that reason the great mass of soldiers could not afford to become hoplites. In the navy the poorer soldiers often served as rowers. Beside this a great many served as light armed infantry, particularly as javelin-throwers. Among the special groups were archers and slingers, the last group often performed by professional mercenaries. The javelin-thrower was called peltast on account of his shield type, the pelta, a wickerwork faced with animal-skin, and regarded as a characteristic Thracian arm. The amazons often are represented with a pelta, but the true amazone shield was the «gerrhon», which only means a Persian shield. Tyrtaios is the first literary evidence of organized light-armed troops.

Among the specialized troops the archers probably were the most important. According to Pausanias Cretan archers were a frequent sight in Greek battlefields. Arrow heads belong to the most frequent archaeological objects. Archery was stimulated from the East. With the invaders from the Black Sea, the Cimmerians and the Scythians, came the «cupido» bow, used by horsemen and infantrymen as well. It had a characteristic quiver, the gorytus, combined with a bow-case, and could hold up to 300 arrows with their slim shafts and tiny bronze heads, cast with a hollow socket. The Scythian bow often is seen in the hands of Artemis. The construction of such a Scythian bow took months or almost years to perform and it was not up to everybody to make it. In a certain period in Greek vase-painting do we find representations of Scythians in close co-ordination with Greek hoplites. The sudden appearance of the Scyths may be connected with the tyrant of Peisistratus, who possibly was the person who introduced Thracian pelta and mercenaries to Greece. Shortly after 500 and about the time of the battle of

Marathon they disappear. Slingers apparently played a less important part in Greece. In Classical time the Rhodians had fame as specialists in that art and served as mercenaries. The missile troops were furnished with a short sword or a dagger. The Scythians had a battle axe, a sagaris, mentioned by Herodotus and represented in vase-painting.

Neither in art representations nor in literature the cavalry seems to have played any important part, at least not in an early time. Horses mainly served for transport to the battle field. At that time neither the horse-shoe nor the stirrup had appeared in Greece. In Thessaly, on the other hand, cavalry played an important part. From a rather early time the Thessalian plains had been famous for their horse-breeding. Beotian cavalry got some fame in the 4th century. In Archaic time the horse-bit of the type known already in Mycenaean time had been replaced by the Assyrian type. Pieces of horse-armour are very rare in Greece. However they are found in South Italy and in Sicily, which were the most important cavalry regions of the Greek world before the time of Alexander. No evidence of the use of chariots exists, neither in the Greek mainland nor on the islands of the Archipelago from Archaic or later time. Only on Cyprus it is to be found at least as late as in the 5th century. In North Africa, among the Egyptians, Libyans and in the Greek communities here, where the plains were suitable for the use we still find chariot-warfare in the 4th century. War-dogs were a Greek speciality particularly in the Ionian regions.

During the great wars with the Persians the hoplites are still the backbone of the Greeks. Light infantry with javelins and archers did not play any important part because they could not compete with their adversaries, the Persians, who were specialists in war at a distance. From these epochs the archaeological material as well as the artistic material grow still more scarce. There are no burial weapons, the votive deposits of the sanctuaries become more scarce. The literary sources however are rich though not sufficient, because they do not give detailed descriptions neither of the objects in use nor about the art of war. Almost contemporary sources are the historical works by Herodotus, Thucydides, Xenophon and others, with important information. One novelty has come up: the light corslet of linen, known in the Eastern world since time of old. It is mentioned in the Iliad and it may have been worn in Mycenaean time. Probably it disappeared. Being made of perishable material it, at least has disappeared from the tombs. Alcaeus mentions such corslets. In the army of Xerxes the Assyrian troops were dressed in linen corslets. The Greek corslets combined flexibility and ventilation with impenetrability. In artistic representations from the end of the 6th century and later on we find them, e.g., on the Aristion-stele or

—most excellently rendered— on the Sosias-cup in Berlin, with Achilles bandaging Patroklos. About the time of the Persian wars arming scenes with just this corslet type are frequent on vases. Another type in use was closer to the ancient «bell»-type consisting of a bronze front-and rear plate, a kind of muscle armour with pteryges and cymation borders. According to the vase-paintings both thighs and upper arms were protected by metal guards. Among the helmets the Corinthian type in an advanced shape still was important beside the Attic type. In Sparta the pilos was in favour. For cavalry a new type came up, the metal petasos particularly in favour among the Beotians. It was represented in the mural paintings by Mikon showing the Marathon-battle. The Thracian caps of animal skin or other soft materials were in use in the same period (Phrygian bonnet).

As to the shields the pelta still was in use for the light armed soldiers and the round shield for the hoplites. Interesting is to note how the bronze spear-heads now dominate the iron spear-heads. A new type of swords—the machaira or kopis— appears. It is the single edged cutting sword with curved inside, much like the Gurkas' kukris. After the battle of Salamis archery comes to play a still more important part. Mounted archers acted in Athenian warfare in the Peloponnesian wars. The importance of archers and slingers as well as of javelin throwers was encreasing, and the Athenians used them, e.g., on their expedition to Sicily in 415. Numerous arrow-heads have been found all over Greece, e.g., at Thermopylai, Marathon, the slopes of Acropolis. Some of them inform us about the Persian types of arrow-heads, used for the Scythian bows. Among the famous archaeological objects is to be mentioned the bronze helmet which once belonged to Miltiades, found in Olympia and furnished with a dedicatory inscription. Recently a cavalry helmet has been found in Olympia. Its dedicatory inscription says: «From the Athenians to Zeus. Taken from the Medes.» Another wellknown helmet with inscription is that of Hieron, from Syracuse, from the battle at Cumae in 474, now in Brit. Mus. Herodotus describes the weapons of the Persians: tiara, a loose cloth, scale armour with sleeves, trousers, shield of «gerrhon» type made of wicker, short spear, bow and arrows of reed, together with a dagger.

Though the book here concerned is not particularly dealing with tactics, the author stops a moment to look at the hoplite tactics, e.g., at Marathon, Thermopylai and Plataiai. The hoplites' quality deserved admiration in all three battles. As a protection against the missiles from arrows, slings, etc., the round shields from now on often were furnished with a leather apron in order to protect the legs and the lower body. About 413 a true cavalry brigade came up, equipped with two javelins,

light body protection, petasos, leather boots in stead of greaves and without shields.

At the battle of Mantinea a cavalry regiment saved the hoplites from too heavy losses, according to Thucydides. With the Peloponnesian war a chapter of Greek warfare ends. Important changes are obvious, and we find them described by Xenophon. His work: «About Horsemanship», gives a contemporary Greek view of cavalry and its equipment: Beotian helmet, neckguard, gorget (new, but rarely seen in art), a special type of javelin and the kopis, which would make an excellent cavalry sabre. For the left arm was introduced a long leather sleeve (cheir) from shoulder to fingers. A kind of horse-protection, the parapleuridia, was taken into use. The prestige of the peltast increased. Plutarchos mentions the modern half-corslets (hemithorachion). During the 4th century the mercenaries grew still more usual, just as did the professional soldiers. The situations on Sicily urged on Greece. The armouers of Syracuse were highly occupied with forging arms and armouers.

The last chapter of the book treats the Macedonian period from the days of Filip II and Alexander to their successors, and we here find a complete change of matters. We know quite a lot about the tactics from this period, but in regard to weapons we are more bad on than before. Representations in art fail to a great extension. The Macedonians were a cavalry people with a little group of heavy cavalry and a more numerous group of light cavalry. Their special force lay in the particular invention by Alexander: his sarissoforoi, with the long sarissa as their main weapon. The light armed were composed of missile troops, such as Cretan archers and javelin throwers from Thrakia. Polybios provides us with the first direct comparison between Greek and Roman weapons and he says that the Romans modelled their cavalry equipment on that of the Greeks (corslets and heavy spears with bronze butts). Parts of such an equipment is to be seen in the Pergamon reliefs. In regard to the corslets there is important information in the biography by Plutarchus about Demetrius Poliorketes. It is a question if the Macedonians had a hoplite force, though Filip himself had learned hoplite art from Epaminondas of Thebes. According to Theophrastus (History of Plants, III, 12, 2) the dominating weapon for attack, the sarissa, could have a length of about 18 feet, and Polybios (XVIII, 29, 2) speaks of sarissae of 21 feet length. The head of a sarissa was small and the long, vibrating shaft had no sauroter. It reminds of the Swiss pikes of 16th century. The Spanish sword, gladius hispanicus, impressed the Macedonians highly. They themselves wore, e.g., the kopis.

Southern Italy still used the heavy infantryman with plate corslet, greaves and ankle-guard. A new type of breast-plate is seen, probably influenced from the Samnites. The Macedonian forces achieved their greatest success on the South Italian plains against the Romans in the famous battle under Pyrrhus of Epirus, though it was only a proverbial victory. The following century lets us see the Romans as the victors of the Macedonians in the battle of Pydna in 168 B.C. The vulnerable flanks of the Macedonian phalanx had to succumb to the Roman legionaries, who had learned quite a lot from their encounters with this effective Macedonian warfare.

The author concludes his book by citing the great authority on Hellenistic military history, Dr. G. Griffith: *Mercenaries of the Hellenistic World*, 1935. It is indeed a very difficult theme, and though both archaeological evidence as well as literary sources have been well examined, so many problems are extant that it still is no easy task to draw the mainlines of ancient Greek warfare.

In this book the author has given a synthetic representation of Greek equipment and the types of Greek soldiers in Greece proper, a comprehensive topic, which is most useful to arms and armour investigators. It shows that there is a wealth of interesting and important material for arms investigators as well as for students of the art of warfare before our own era, of fundamental character for later time development. Archaeology and armeology have been well combined. The book is sober, based as it is on the actual surviving weapons. It deserves to be known by all who are interested in antique history and military equipment. There are many and excellent illustrations representing Greek weapons, many of them from recent excavations.

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