Meanwhile a stouter and broader pattern, with sundry minor varieties, continued in use for military purposes, and gradually the single-edged form or broadsword prevailed. The well-known name of Ferara, peculiarly associated with Scottish blades, appears to have originally belonged to a Venetian maker, or family of makers, towards the end of the 16th century. The Spanish blades made at Toledo had by that time acquired a renown which still continues. Somewhat later Oriental example, imported probably by way of Hungary, induced the curvature found in most recent military sabres, which, however, is now kept within

such bounds as not to interfere with the effective use of the point. An eccentric specialized variety—we may call it a “ sport ”—of the sabre is the narrow and flexible “ Schläger ” with which German students fight their duels (for the most part not arising out of any quarrel, but set trials of skill), under highly conventional rules almost identical with those of the old English “ backswording ” practised within living memory, in which, however, the swords were represented by sticks. These “schläger” duels cause much effusion of blood, but not often serious danger to life or limb.

There are plenty of modern books on sabre-play, but comparatively little attention has been given to its scien­tific treatment. It is said that the Italian school is better than the French, and the modern German and Austrian the best of all. Some of the English cavalry regiments have good traditions, enriched of late years by the application of a knowledge of fencing derived from eminent French masters.

*The Manufacture of Swords.—*Mechanical invention has not been able to supersede or equal hand-work in the production of good sword-blades. The swordsmith’s craft is still, no less than it was in the Middle Ages, essentially a handicraft, and it requires a high order of skill. His rough material is a bar of cast and hammered steel tapering from the centre to the ends ; when this is cut in two, each half is made into a sword. The “ tang ” which fits into the handle is not part of the blade, but a piece of wrought iron welded on to its base. From this first stage to the finishing of the point it is all hammer-aud-anvil work. Special tools are used to form grooves in the blade according to the regulation or other pattern desired, but the shape and weight of the blade are fixed wholly by the skilled hand and eye of the smith. Measuring tools are at hand, but are little used. Great care is necessary to avoid overheating the metal, which would produce a brittle crystal­line grain, and to keep the surface free from oxide, which would be injurious if hammered in. In tempering the blade the workman judges of the proper heat by the colour. Water is preferred to oil by the best makers, notwithstanding that tempering in oil is much easier. With oil there is not the same risk of the blade coming out distorted and having to be forged straight again (a risk, how­ever, which the expert swordsmith can generally avoid) ; but the steel is only surface-hardened, and the blade therefore remains liable to bend. Machinery comes into play only for grinding and polishing, and to some extent in the manufacture of hilts and appurtenances. The finished blade is proved by being caused to strike a violent blow on a solid block with the two sides flat, with the edge, and lastly with the back ; after this the blade is bent flatwise in both directions by hand, and finally the point is driven through a steel plate about an eighth of an inch thick. In spite of all the care that can be used both in choice of material and in workmanship, about 40 per cent. of the blades thus tried fail to stand the proof, and are rejected. The process we have briefly described is that of making a really good sword ; of course plenty of cheaper and commoner weapons are in the market, but they are hardly fit to trust a man’s life to. It is an interesting fact that the peculiar skill of the swordsmith is in England so far hereditary that it can be traced back in the same families for several genera­tions.

The best Eastern blades are justly celebrated, but they are not better than the best European ones ; in fact, European swords are often met with in Asiatic hands, remounted in Eastern fashion. The “damascening” or “ watering” of choice Persian and Indian arms is not a secret of workmanship, but is due to the peculiar manner of making the Indian steel itself, in which a crystallizing process is set up; when metal of this texture is forged out, the result is a more or less regular wavy pattern running through it. No difference is made by this in the practical qualities of the blade.

The following list of works is intended to guide the reader, if desired, to fuller acquaintance with the literature and authorities of the subject, and will, it is hoped, be found useful for that purpose, but it does not profess to be in itself sufficient even as a selection.

*Archæology and General History.—*R. F. Burton, *The Book of the Sword* (only one vol. published), London, 1884; Colonel Lane Fox (now Major-Gen. Pitt- Rivers), *Catalogue of Anthropological Collection, South Kensington Museum,* London, 1874; “Primitive Warfare,” in *Journal* of the Royal United Service Institution, 1867, 1868, 1869. For special regions and periods, see Hon. Wilbraham Egerton, *Illustrated Handbook of Indian Arms,* published by the India office, London, 1880 ; Lindenschinit, *Tracht und Bewaffnung des römischen Heeres während der Kaiserzeit,* Brunswick, 1882; Drummond and Anderson, *Ancient Scottish Weapons,* Edinburgh and London, 1881. The more general treatises and handbooks on arms and armour, such as Grose, Meyrick, Hewitt, Lacombe, Demmin, may be consulted with advantage, but are not always to be trusted in details. “The Forms and History of the Sword,” in *Proceedings* of the Royal Institution, 1883, by the present writer, gives further references and citations on various points.

*Swordsmanship.—*Egerton Castle, *Schools and Masters of Fence from the Middle Ages to the Eighteenth Century,* London, 1885 (including a critical bibliography) ; vigeant, *Bibliographie de l’Escrime Ancienne et Moderne,* Paris, 1882; Gomard (assumed name of Posseliier), *Théorie de l'Escrime,* Paris, 1845 (historical intro­duction) ; Grisier, *Les Armes et le Duel,* Paris, 1847 (preface by A. Dumas); Chapman, *Foil Practice,* London, 1861 ; *Notes and observations on the Art of Fencing,* 1864; J. M. Waite, *Lessons in Sabre, &c.,* London, [1881]. The French official M*anuel d'Escrime* (approved 1877) gives a very clear and concise summary of the modern school. Cordelois’s *Leçons d'Armes* (Paris, 1872, 2d ed.) and Camille Prévost’s *Théorie Pratique de l'Escrime* (Paris, 1886) are the latest and best treatises on the small-sword. There is forthcoming in England, in the “Badminton Series,” a work on *Fencing* by W. H. Pollock and F. Craufurd Grove, to which is added *Bibliotheca Artis Dimicatoræ, a Complete and General Biblio­graphy of the Art of Fence,* by Egerton Castle.

*Technology.—*wilkinson, *Engines of War,* London, 1841; Latham, “ The Shape of Sword-Blades," *Journal of* the Royal U.S. Institution, 1862; Marey, *Mémoire sur les Armes Blanches,* Strasburg, 1841, transl. by Lieut.-Col. Maxwell, London, 1860. (F. ΡΟ.)