transferring his title and services to the university the year after ; as he was the first systematic teacher of medicine or surgery in Edinburgh, he is regarded as the founder of the famous medical school of that city. In both London and Edinburgh a company of barbers and surgeons had been in existence for many years before ; but it was not until the association of these companies with the study of anatomy, comparative anatomy, physiology, and pathology that the surgical profession began to take rank with the older order of physicians. Hence the significance of the eulogy of a living surgeon on John Hunter : “ more than any other man he helped to make us gentlemen ” *(Hunterian Oration,* 1877). The state of surgery in Germany may be inferred from the fact that the teaching of it at the new university of Göttingen was for long in the hands of Haller, whose office was “ professor of theoretical medicine.” In the Prussian army it fell to the regimental surgeon to shave the officers. At Berlin a medico-chirurgical college was founded by surgeon-general Holtzendorff in 1714, to which was joined in 1726 a school of clinical surgery at the Charité. Mili­tary surgery was the original purpose of the school, which still exists, side by side with the surgical cliniques of the faculty, as the Friedrich Wilhelm’s Institute. In Vienna, in like manner, a school for the training of army surgeons was founded in 1785,—Joseph’s Academy or the Joseph­inum. The first systematic teaching of surgery in the United States was by Dr Shippen at Philadelphia, where the medical college towards the end of the century was largely officered by pupils of the Edinburgh school. With­out attempting to enumerate the great names in surgery during the 18th century, it will be possible to introduce the more prominent of them in a brief sketch of the addi­tions to the ideas and resources of surgery in that period. A great part of the advance was in surgical pathology, including Petit’s observations on the formation of thrombi in severed vessels, Hunter’s account of the reparative pro­cess, Benjamin Bell’s classification of ulcers, the observa­tions of Duhamel and others on the formation of callus and on bone-repair in general, Pott’s distinction between spinal curvature from caries or abscess of the vertebræ and kyphosis from other causes, observations by various surgeons on chronic disease of the hip, knee, and other joints, and Cheselden’s description of neuroma. Among the great improvements in surgical procedure we have Cheselden’s operation of lithotomy (six deaths in eighty cases), Hawkins’s cutting gorget for the same (1753), Hunter’s operation (1785) for popliteal aneurism by tying the femoral artery in the canal of the triceps where its walls were sound (“ excited the greatest wonder,” Assalini), Petit’s, Desault’s, and Pott’s treatment of fractures, Gimbernat’s (Barcelona) operation for strangulated femoral hernia, Pott’s bistoury for fistula, White’s (Manchester) and Park’s (Liverpool) excision of joints, Petit’s invention of the screw-tourniquet, the same surgeon’s operation for lacrymal fistula, Chopart’s partial amputation of the foot, Desault’s bandage for fractured clavicle, Bromfield’s artery-hook, and Cheselden’s operation of iridectomy. Other surgeons of great versatility and general merit were Sharp of London, Gooch of Norwich, Hey of Leeds, David and Le Cat of Rouen, Sabatier, La Faye, Ledran, Louis, Morand, and Percy of Paris, Bertrandi of Turin, Troja of Naples, Palleta of Milan, Schmucker of the Prus­sian army, August Richter of Göttingen, Siebold of Würz­burg, Olof Acrel of Stockholm, and Callisen of Copen­hagen.

Two things have given surgical knowledge and skill in the 19th century a character of scientific or positive cumulativeness and a wide diffusion through all ranks of the profession. The one is the founding of museums of anatomy and surgical pathology by the Hunters, Dupuy­

tren, Cloquet, Blumenbach, Barclay, and a great number of more modern anatomists and surgeons ; the other is the method of clinical teaching, exemplified in its highest form of constant reference to principles by Lawrence and Syme. In surgical procedure the discovery of the an­æsthetic properties of ether, chloroform, methylene, &c., has been of incalculable service ; while the conservative principle in operations upon diseased or injured parts and what may be called the hygienic idea (or, more narrowly, the antiseptic principle) in surgical dressings have been equally beneficial. The following are among the more important additions to the resources of the surgical art :— the thin thread ligature for arteries, introduced by Jones of Jersey (1805); the revival of torsion of arteries by Amussat (1829) ; the practice of drainage by Chassaignac (1859) ; aspiration by Pelletan and recent improvers; the plaster-of-Paris bandage or other immovable applica­tion for simple fractures, club-foot, Ac. (an old Eastern practice recommended in Europe about 1814 by the English consul at Bassorah) ; the re-breaking of badly set fractures ; galvano-caustics and écraseurs ; the general introduction of resection of joints (Fergusson, Syme, and others); tenotomy by Delpech and Stromeyer (1831); operation for squint by Dieffenbach (1842); successful ligature of the external iliac for aneurism of the femoral by Abernethy (1806) ; ligature of the subclavian in the third portion by Astley Cooper (1806), and in its first por­tion by Colles ; crushing of stone in the bladder by Gruit- huisen of Munich (1819) and Civiale of Paris (1826) ; cure of ovarian dropsy by removing the cyst (since greatly perfected); discovery of the ophthalmoscope, and many improvements in ophthalmic surgery by Von Gräfe and others ; application of the laryngoscope in operations on the larynx by Czermak (1860) and others; together with additions to the resources of aural surgery and dentistry. The great names in the surgery of the first half of the century besides those mentioned are:—Scarpa of Italy (1747-1832); Boyer (1757-1833), Larrey (1766-1842),— to whom Napoleon left a legacy of a hundred thousand francs, with the eulogy : “ C’est l’homme le plus vertueux que j’aie connu,”—Roux (1780-1854), Lisfranc (1790- 1847), Velpeau (1795-1868), Malgaigne (1806-1865), Nélaton (1807-1873),—all of the French school; of tho British school, John Bell, Charles Bell, Allan Burns, Liston, Wardrop, Astley Cooper, Cline, Travers, Brodie, Stanley, and Guthrie; in the United States, Mott, Gross, and others; in Germany, Kern and Schuh of Vienna, Von Walther and Textor of Würzburg, Chelius, Hesselbach, and the two Langenbecks. In surgical pathology the discoveries and doctrines of the 19th century are greater in scientific value than those of any antecedent period ; and it would be unprofitable to attempt any enumeration of them, or of their authors, in a brief space.

The authorities mostly used have been—Wise, *History of Medicine among the Asiatics,* 2 vols., London, 1868 ; *Paulus Ægineta,* trans­lated with commentary on the knowledge of the Greeks, Romans, and Arabians, in medicine and surgery, by Francis Adams, 3 vols., London, 1844-47 : Häser, *Gesch, d. Medicin,* 3d ed., vols. i. and ii., 1875-81. (C C.)

Part II.—Practice of Surgery.

A great change has taken place in the practice of surgery since the publication (1860) of the article Surgery in vol. **XX.** of the 8th edition of the present work. This change is due in great part to the fact that the germ theory of disease has been accepted by the majority of surgical teachers and practitioners. Scientific men have demon­strated that the causation of many diseased conditions is closely connected with the presence in the diseased organ, tissue, or individual of living organisms, which have to a certain extent been classified, and are supposed to be forms