of the urethra by internal section. Both Leonides and Antyllus removed glandular swellings of the neck *(strumae)* ; the latter ligatured vessels before cutting them, and gives directions for avoiding the carotid artery and jugular vein. Flap-amputations were practised by Leonides and Heliodorus. But perhaps the most striking illustration of the advanced surgery of the period is the freedom with which bones were resected, including the long bones, the lower jaw and the upper jaw.

Whatever progress or decadence surgery may have experienced during the next three centuries is summed up in the authoritative treatise of Paulus of Aegina (a.d. 650). Of his seven books the sixth is entirely devoted to opera­tive surgery, and the fourth is largely occupied with surgical diseases. The importance of Paulus for surgical history during several centuries on each side of his own period will appear from the following remarks of Francis Adams (1796-1861) in his translation and commentary (ii. 247) :—

“This book (bk. vi.) contains the most complete system of opera­tive surgery which has come down to us from ancient times. . . . Haly Abbas (d. a.d. 994) in the 9th book of his *Practica* copies almost everything from Paulus. Albucasis [Abulcasis] (10th century a.d.) gives more original matter on surgery than any other Arabian author, and yet, as will be seen from our commentary, he is indebted for whole chapters to Paulus. In the *Continens* of Rhases, that precious repository of ancient opinions on medical subjects, if there be any surgical information not to be found in our author it is mostly derived from Antyllus and Archigenes. As to the other authorities, although we will occasionally have to explain their opinions upon particular subjects, no one has treated of surgery in a systematical manner; for even Avicenna, who treats so fully of everything else connected with medicine, is defective in his accounts of surgical operations; and the descriptions which he does give of them are almost all borrowed 'from our author. The accounts of fractures and dislocations given by Hippocrates and his commentator Galen may be pronounced almost complete; but the information which they supply upon most other surgical subjects is scanty.”

Paulus’ sixth book, with the valuable commentary of Adams, brings the whole surgery of the ancient world to a focus. Paulus is credited with the principle of local depletion as against general, with the lateral operation for stone instead of the mesial and with understanding the merits of a free external incision and a limited internal, with the diagnosis of aneurism by anastomosis, with an operation for aneurism like that of Antyllus, with amputa­tion of the cancerous breast by crucial incision, and with the treatment of fractured patella.

The Arabians have hardly any greater merit in medicine than that of preserving intact the bequest of the ancient world.

To surgery in particular their services are small— first, because their religion proscribed the practice of anatomy, and, secondly, because it was a characteristic of their race to accept with equanimity the sufferings that fell to them, and to decline the means of alleviation. The great names of the Arabian school, Avicenna (980-1037) and Averroes (1126-1198), are altogether unimportant for surgery. Their one distinctively surgical writer was Abulcasim (d. 1122), who is chiefly celebrated for his free use of the actual cautery and of caustics. He showed a good deal of character in declining to operate on goitre, in resorting to tracheotomy but sparingly, in refusing to meddle with cancer, and in evacuating large abscesses by degrees.

For the five hundred years following the work of Paulus of Aegina there is nothing to record but the names of a few practitioners at the court and of imitators or com­pilers. Meanwhile in western Europe (apart from the Saracen civilization) a medical school had grown up at Salerno, which in the 10th century had already become famous. From it issued the *Regimen salernitanum,* a work used by the laity for several centuries, and the *Compendium salernitanum,* which circulated among the profession. The decline of the school dates from the founding of a university at Naples in 1224. In its best period princes and nobles resorted to it for treatment from all parts of Europe. The hôtel dieu of Lyons had been founded in 560, and that of Paris a century later. The school of Montpellier was founded in 1025, and became the rallying point of Arabian and Jewish learning. A good deal of the medical and surgical practice was in the hands of the religious orders, particularly of the Benedictines. The practice of surgery by the clergy was at length forbidden by the Council of Tours (1163). The surgical writings of the time were mere reproductions of the classical or Arabian authors. One of the first to go back to independent observation and reflection was William of Saliceto, who belonged to the school of Bologna; his work (1275) advocates the use of the knife in many places where the actual cautery was used by ancient prescription. A greater name in the history of medieval surgery is that of his pupil Lanfranchi of Milan, who migrated (owing to political troubles) first to Lyons and then to Paris. He distinguished between arterial and venous haemorrhage, and is said to have used the ligature for the former. Contemporary with him in France was Henri de Mondeville (Hermondaville) of the school of Montpellier, whose teaching is best known through that of his more famous pupil Guy de Chauliac; the *Chirurgie* of the latter bears the date of r363, and marks the advance in precision which the revival of anatomy by Mondino had made possible. Eighteen years before Lanfranchi came to Paris a college of surgeons was founded there (1279) by Pitard, who had accom­panied St Louis to Palestine as his surgeon. The college was under the protection of St Cosmas and St Damianus, two practitioners of medicine who suffered martyrdom in the reign of Diocletian, and it became known as the College de St Côme. From the time that Lanfranchi joined it it attracted many pupils. It maintained its independent existence for several centuries, alongside the medical faculty of the university; the corporations of surgeons in other capitals, such as those of London and Edinburgh, were modelled upon it.

The 14th and 15th centuries are almost entirely without interest for surgical history. The dead level of tradition is broken first by two men of originality and genius—P. Paracelsus (1493-1541) and Paré, and by the revival of anatomy at the hands of Andreas Vesalius (1514-1564) and Gabriel Fallopius (1523-1562), professors at Padua. Apart from the mystical form in which much of his teaching was cast, Paracelsus has great merits as a reformer of surgical practice. “ The high value of his surgical writings,” says Häser, “ has been recognized at all times, even by his opponents.” It is not, however, as an innovator in operative surgery, but rather as a direct observer of natural processes, that Paracelsus is distinguished. His description of “hospital gangrene,” for example, is perfectly true to nature; his numerous observations on syphilis are also sound and sensible; and he was the first to point out the connexion between cretinism of the offspring and goitre of the parents. He gives most prominence to the healing of wounds. His special surgical treatises are *Die kleine Chirurgie* (1528) and *Die grosse Wund-Arznei* (1536-1537) —the latter being the best known of his works. Somewhat later in date, and of much greater concrete importance for surgery than Paracelsus, is Ambroise Paré (1510- 1590). He began life as apprentice to a barber­surgeon in Paris and as a pupil at the hôtel dieu. His earliest opportunities were in military surgery during the campaign of Francis I. in Piedmont. Instead of treating gunshot wounds with hot oil, according to the practice of the day, he had the temerity to trust to a simple bandage; and from that beginning he proceeded to many other developments of rational surgery. In 1545 he published at Paris *La Méthode de traicter les playes faictes par hacquebutes et aultres basions à feu.* The same year he began to attend the lectures of Sylvius, the Paris teacher of anatomy, to whom he became prosector; and his next book was an *Anatomy* (1550). His most memorable service was to get the use of the ligature for large arteries generally adopted, a method of controlling the haemorrhage which made amputation on a large scale possible for the first time. Like Paracelsus, he writes in the language of the people, while he is free from the encumbrance of mystical theories, which detract from the merits of his fellow reformer in Germany. It is only in his book on monsters, written towards the end of his career, that he shows himself to have been by no means free from superstition. Paré was adored by the army and greatly esteemed by successive