on one side, near the point. Thus they enter the skin very easily, like a miniature knife, and the minute wound they make is not a hole, but a tiny slit that is at once drawn together and, as it were, obliterated by the tying of the suture. Or, for another simple instrument in universal use, take the catch-forceps that is used for taking hold of a bleeding point till it is ligatured. This forceps is as old as the time of Paré, but he made use of a very heavy and clumsy pattern. Up to the last few years the artery-forceps was made with broad, curved, fenestrated blades, with the catch set close to the blades. At the present time the forceps in general use, named after Dr Pean in France and after Sir Spencer Wells in England, is made with very narrow grooved blades, and the catch is placed not near the blades, but near the handles: thus it takes a surer hold, and can be set free when the ligature is tied by a moment's extra pressure on the handles.

Among other instruments in universal use are divers forms of retractors, for holding gently the edges of a wound: the larger patterns are made with broad, slightly-concave, highly-polished surlaces, that they may, so far as possible, reflect light into the wound. Among tourniquets, the old and elaborate Petit’s tourni­quet, which was a band carrying a pad screwed down over the main artery of the limb, has given place to the elastic tourniquet with Esmarch’s bandage. For example, in an amputation, or in an operation on a joint or on a vessel or a nerve in a limb, the limb is

raised, and the Esmarch’s elastic bandage is applied from below upward till it has reached a point well above the site of the opera­tion; then an elastic tourniquet is wound round the limb at this point, the bandage is removed, and the limb is thus kept almost bloodless during the operation.

It is not possible to describe here the many forms of other ordinary instruments of general surgery—probes, directors, scissors, forceps, and many more—nor those that are used in operations on the bones. Nor again can the numerous instruments used in special departments of surgery be discussed in detail. But, with regard to the special

surgery of the eye, and of the throat and ear, it is to be noted that the chief advance in treatment arose from the invention of the present instruments of diagnosis, and that these are of compara­tively recent date. The *opthalmoscope* was the work of Helmholtz. The *laryngoscope* was invented by Manuel Garcia in the middle of the

19th century; and the use of a *frontal mirror,* for focussing a strong light on the membrana tympani, in the examination of the ear, was in use somewhat earlier. Before the ophthalmoscope it was impossible to study the internal diseases of the eye; before the laryngoscope the diseases of the larynx were invisible, and were mainly a matter of guess-work, and of vague and often futile treat­

ment. Before the use of the frontal mirror the diseases of the ear were hardly studied, in that sense in which they are studied now. The wonderful advance of the special departments of surgery was, of course, the result of many forces, but one of the chief of these

forces was the invention of proper instruments of diagnosis. The textbooks that were written immediately before those instruments became available were not far in advance of Ambroise Paré, so far as these special departments are concerned.

It may be well next to consider in what ways the conduct of an operation is influenced by those two great discoveries of anaesthetics, and the more gradual development of the principles of antiseptic and aseptic surgery; with special reference to the use of the instruments of surgery. The jubilee year of anaesthesia was 1896; the first use of nitrous oxide was on the nth of December 1844; the first opera­tion under ether was on the 30th of September 1846; the first use of chloroform was on the 4th of November 1847. The choice of the anaesthetic, or of some combination of anaesthetics, that is best suited to each particular case, is a matter of careful consideration; but, on the whole, the tendency in England is to keep to the *via media* between the more general use of chloroform in Scotland and the more general use of ether in the United States. Of the methods of administering chloroform there is no need to say much ; by some

anaesthetists no instrument is used save a fold of lint or some such stuff, or a piece of flannel made into a sort of cone or mask. Use is generally made of a modification of “Junker’s inhaler,” whereby the vapour of chloroform is administered by means of a hand-ball. For the administration of ether some form of Clover’s inhaler is generally used, whereby the ether in a small metal chamber passes as vapour into an indiarubber bag, and there is combined with the patient's breath in pro­portions determined by the anaesthetist through­out the operation. Thc metal chamber is so de­signed that by turning it the exact proportion of ether to air is fixed in accordance with the requirements of the case. Of late years, by the use of an iron cylinder of nitrous oxide, connected by a tube with a Clover's inhaler, it is possible to begin with nitrous oxide, and to go on, without interruption, with ether. More recently an admir­able method has been devised of administering nitrous oxide with the admixture of air or of oxygen in such a way that the anaesthesia pro­duced by the gas may be maintained for time enough to allow of an operation of some length.