position, are intermediate between fibrous tissue and bone, and there­fore the cartilaginous tumour has frequently a life history more closely allied to the malignant than to the simple type of tumour formation.

No attempt can here be made to classify the different forms of tumour. The surgeon at the bedside meets with tumours as living parasitic formations. He studies their life history ; he observes their birth, their growth, their peculiarities, and their tendencies ; he naturally attempts to classify them from a study of their physio­logical or clinical aspects. The pathologist, on the other hand, examines the tumour after it is removed ; he studies it as it appears to the naked eye and under the microscope ; and he attempts to classify tumours from an anatomical standpoint. Within recent years the pathologist’s classification, associated with a recognition of the developmental division of the human embryo into different layers, has become the favourite ; but it is hoped that, as science advances, the increase of clinical knowledge, assisted by microscopic and embryological research, will make a physiological classification a reality.

IV. Operative Surgery.

Within recent years the main advance in surgery has been from the scientific side, due to increased precision in physiological knowledge and a careful study of the relation of organisms to various diseased conditions. And with this progress operative skill, in many directions previously unthought of, has kept pace. Cranial operative surgery has advanced as the motor areas on the surface of the brain have been localized with greater precision. The ex­perimental physiologist has done his part ; the clinical observer is now doing his. Cranial surgery necessitates special notice. In the thoracic cavity also diseased con­ditions are now relieved by surgical operations. The greatest advance of all, however, is in connexion with the abdominal cavity. Under this head the work of the last thirty years requires special notice. The peritoneum was at one time considered a closed book to the operator; now all is changed, and abdominal surgery has become one of the most important branches of operative work. Joints in a state of inflammation are also now freely opened and tension is relieved. With the relief of tension the in­flammatory process subsides and the joint recovers. The excision of diseased joints has also become part of the everyday work of the surgeon. Cancerous affections—using the term in a clinical sense—of the tongue, rectum, and larynx are now treated by excision of these organs. But it is still a question in what cases the operation prolongs life, and what cases are specially suited for operation. While greater latitude has been given to surgical interfer­ence with the different cavities of the body, operations upon the limbs have been restricted in consequence of the ac­ceptance of Lister’s views with regard to wound treatment. Many limbs upon which formerly amputation was per­formed, as, for example, in the case of compound fractures, are now saved. The term “ conservative surgery,” which formerly had reference to the excision of a diseased joint instead of amputation of the affected limb, has now a wider meaning, and covers not only the different excisions which have taken the place of amputation but also those cases in which a limb is saved by careful antiseptic man­agement after severe injury. At one time, perhaps, in the early stages of antiseptic wound treatment the brilliancy of the results obtained by these means, and the immunity which resulted from the prevention of blood-poisoning, en­couraged surgeons to save a limb which, when the wound was healed, was not really useful. An upper limb saved, however inefficient, is better than any artificial substitute, and every endeavour in the direction of conservation should be made. Conservation in the case of a lower limb, on the other hand, may be carried too far. Unless the saved limb can support the weight of the body, it is far better to per­form amputation, because a satisfactory artificial substitute can be found to take the place of the lower extremity. In performing amputation on a lower limb every endeavour

should be made to obtain a stump which will bear, in part at any rate, the weight of the patient’s body. Since the introduction of anæsthetics rapidity in performing an amputation is not essential. Flaps can be carefully made ; time can be taken to shape them ; and they can be so arranged that the resulting cicatrix will not be opposite the sawn extremity of the bone. In order to obtain such flaps the surgeon is justified in sacrificing to some extent the length of the limb, if by so doing he can leave a mobile and painless stump on which an artificial limb can be comfortably fitted. But this does not hold good to the same extent for an upper limb. The pressure on the ex­tremity is not so great, and the longer the stump the more easily can an artificial substitute be fitted on. As a result also of Lister’s teaching operative procedure for the cure of various deformities, such as knock-knee, rickets, and club-foot, in which the bones affected are freely attacked, has done much to relieve unsightly deformity and increase the usefulness of the individual. In all operations absorb­able catgut ligatures for the cut vessels have since about 1861 taken the place of silk, which had to come away by ul­ceration,—a destructive process antagonistic to rapid heal­ing. Greater care is taken to save blood by emptying the part to be operated on before beginning the operation. Greater care is also taken to tie all bleeding points, so as to prevent reactionary hæmorrhage and the escape of blood between the surfaces of the wound, whereby healing is retarded. Free drainage by india-rubber and glass tubing, by absorb­able tubes made of decalcified bone, by skeins of catgut acting by capillarity—all the outcome of an understanding of the local irritation and constitutional fever caused by tension—have done more than anything else to enable the surgeon to attain his triple object,—painlessness, rapidity, and safety in the healing of a wound. Lastly, the clear understanding of the term “ antiseptic ” in its fullest mean­ing, the knowledge of the power which the unirritated and healthy tissues have as germicidal agents, and the introduction of various antiseptic or rather antitheric sub­stances, some of which destroy, some of which paralyse, those lowly organisms whose power for evil in an un­healthy tissue or an injured part is so great, contribute towards the same great end. By these means operations are to a great extent relieved of their dangers, and by anæsthesia, which prevents pain and suffering, they are robbed of their terrors. (j. **c.)**

1. *Cranial.*

The necessity for setting apart a distinct section of this article to deal separately with the region of the head does not depend upon any specialization in the principles of treatment peculiar to that region. The general laws of surgical procedure hold good here as elsewhere throughout the body ; but they have to be exemplified in relation to a region so separated from others in its architectural and functional peculiarities as to call for special record and delinea­tion. The surgeon has to deal with a most intricate series of con­siderations—anatomical, physiological, and psychic— in devising suitable treatment for abnormal conditions in this region ; the inter­relation of cranial tissues and organs, their capital importance in the physical economy, and the position of some of them as the sub­strata of mental activities render any surgical interference a matter of great delicacy and grave anxiety. So much is this the case that it has been left for the most daring and the most modern surgeons to prove that this is a region to which ordinary surgical rules may properly apply ; and hence what must be here recorded is largely matter of quite recent history and to a large extent at variance with the doctrine of former epochs. The function of the cranium as a protective agent for the brain and the organs of special sense is strikingly shown by its architectural design. The proper discharge of this function is of paramount importance from the economic value of the cranial contents ; and the demands upon it are the more exacting from the extreme delicacy of physical structure and the unstable physiological equilibrium present in the brain. Clothed externally by the densely resisting textures of the scalp, further protected by a layer of heat-deflecting hair, the cranium itself consists of a firmly welded bony casket of ovoid form, maintained in its balanced position upon the upright spinal