SURGICAL PRINCIPLES

AND

MINOR SURGERY.

INTRODUCTION.

In the outset of the study of any science, it is essential that the student should have a correct knowledge of the terms and nomenclature; very often as a pre-requisite to success. Perhaps in the case of surgery the above may be modified, as the principles and practice of the art are continually undergoing changes, additions, and expurgations; in fact the whole subject, like many others in medical literature, while based upon fixed scientific principles, contains much that cannot, from its very nature, be considered truly scientific. Nevertheless, the boundaries of our study, and a correct understanding of our duties and prerogatives, can only be attained by a rational conception of the peculiar and distinctive technology. We may ask, then, in the very outset, what does "surgery" itself mean? Unquestionably, if we confine ourselves strictly to the etymology of the word, we would imbibe a false conception of the duties of the surgeon. As in anatomy, we find many words, which, having a definite etymology, in the course of time have been retained simply for convenience, and to avoid the confusion that would arise from frequent changes, we find

that almost the whole field of medical study is filled with similar modifications from the original use. If a strict enforcement of the original principles were demanded, and professional men compelled to use words with the primary significance, our text-books would all need rewriting. Materia Medica, for instance, would then embrace a consideration of all the appliances, remedies, and agents of any kind used in the treatment of the sick, as well as those required in case of accident, and indeed all the exigencies of medical life, even to the instruments of the surgeon, and obstetrician. Happily, the lines are not as strictly drawn, and we find many words used in a conventional as well as a literal sense, and some of them requiring frequent changes in interpretation, as advancement in the sciences of medicine demands.

Surgery, therefore, while a corruption from *chirurgy*, meaning to work by hand, or referring to a mere handicraft, has gradually emancipated itself from the thraldom of a mechanic art, and taken its place among the sciences as one demanding the highest social, personal, and professional characteristics, graces, and qualifications. It may truly be considered the consummation of medical science, as it reaches out, more or less, into every department into which modern research has been compelled to divide the field of medicine. The old significance of the word can no longer be retained, and we are compelled to use it, for convenience, with a widely different meaning. None of the definitions I have seen sufficiently express the actual province of the surgeon, and I have been accustomed to give my classes an original one, which may now have lost, to some extent, its individuality

Surgery is that department in medicine which treats of morbid processes chiefly characterized by objective phenomena, as well as all those which demand mechanical or instrumental treatment. The practice also includes cases of accident, and deformities, that result therefrom, that are congenital, or the sequelæ of disease.

Even this somewhat comprehensive definition will shortly require modification, as "objective phenomena" includes not only symptoms visible to the surgeon through the medium of sight, but that can be interrogated and observed, without the aid of the patient, by means of the stethoscope, rhinoscope, ophthalmoscope, endoscope, and the various speculæ, or any of the modern diagnostic appliances. The above will serve very well to assure the student, that with a desire to master this noble and ancient science, he will undertake no light task. His best energies will be demanded, and unremitting study and application is the price to be paid for the acquisition of its stores of wealth.

It is proper, therefore, to next consider the *qualifications of the surgeon*. Guy De Chauliac speaks as follows: "He, the surgeon, should be courteous and condescending, bold in security, cautious in time of danger, avoiding impracticabilities, compassionate to the infirm, benevolent to his associates, circumspect in his prognostication, chaste, sober, pious, and merciful; not greedy of gain, no extortioner, but looking to his fee in moderation, according to the extent of his services, the ability of his patient, the result of his treatment, and a proper sense of his own dignity."

The accomplished surgeon should, as a first and vital qualification, possess an accurate *knowledge of anatomy*, both surgical and general. Without this it would be an utter impossibility to perfectly understand the nature of lesions presented to him for treatment, or to intelligently undertake the performance of any of the major operations. It will not only be necessary that he make frequent dissections, but that in

all cases requiring operations involving the great cavities, or in a region in which important vessels or nerves are situated, special dissection should be made of the part under consideration. There are very many cases, unquestionably, which from their urgency will not permit such a preparation, from want of time, and this is an additional reason why frequent general dissections should be made. It will not be sufficient to confine our studies of anatomy to the dead subject. None but experienced surgeons know the difficulty that exists, in certain cases, in distinguishing with certainty the difference between an artery, nerve or tendon. Under favorable circumstances one may well be mistaken for another, and unless the observer is very familiar with the anatony of the part, and the peculiar appearance of different tissues during life, mortifying mistakes may occur. In fact I know of a case in which the tendon of the biceps brachialis was tied for the brachial artery; strange as such a mistake may seem, it actually occurred. To become familiar with the appearance of different parts, the surgeon should take every opportunity to witness operations. The principles of operative surgery having once been acquired, an ordinary amount of practice will keep them in mind, and no one who desires to distintinguish himself in the practice of surgery, should fail to keep himself well informed in anatomy. There are those, who from mental peculiarity, are unable to retain names and terms with facility, but are perfectly at home in a knowledge of the structure of anatomical regions, and can see in their minds eye, a topographical map on looking at a part. The faculty is valuable, but must not be allowed to be cultivated at the expense of more complete knowledge; it is important to remember the *names* as well as the location. While all departments of anatomy should be well studied, if circumstances demand a neglect of some of them, particular attention should be paid to the distribution of the arteries and nerves.

The surgeon should, also be possessed of *courage and* intrepidity. By this I do not mean courage to attempt useless and hazardous operations, but to meet with coolness and fortitude the occasional accidents that occur in actual practice, and to perform dangerous operations when the occasion demands. It has been said that fear of hæmorrhage deters many from attempting operative surgery, and none better know how true this is than those of large experience. The mere fact of arterial hæmorrhage is not so embarassing, as the conviction that the sources of the flow are not fully understood; and that if ligation of the main trunk is demanded one does not feel sure that he can locate it, or even determine what the main trunk is. For instance, one of the facial arteries being wounded, and ligature in the wound not proving effective, the young surgeon may not be able to determine whether the external, internal, or common carotid must be tied, either through defective anatomical knowledge, or from his loss of self-control. The good surgeon is never startled by sudden hæmorrhage, as he is either expecting it, or if deceived by an anomalous distribution, is conscious of his ability to control it. Then again, nothing but long experience can enable the operator to estimate the degree of danger in a given case; what would be a fatal bleeding to one, would be trifling in another. A knowledge should be had of the amount of hæmorrhage to be expected in certain cases, and its source. All these circumstances serve to embarass and appall the novice, and demand courage, based upon knowledge and experience, to meet with the composure so characteristic of the good surgeon.

The surgeon should have some considerable *mechanical ingenuity*, with a fair knowledge of the primary principles of mechanics. Divorced from a thorough professional teaching, mechanical knowledge alone would frequently lead the possessor astray, as he is liable to lose sight of the fact that he has a living being and not a mere machine to exercise his ingenuity upon. For instance, a fractured bone may be readjusted, and the fragments held in firm opposition by the application of proper mechanical appliances, which would suggest themselves to an artisan on purely mechanical principles. The scientist, however, will be forced to take into the account the fact that the living tissues may be devitalized and destroyed by severe compression, and muscles permanently ruined by attention to mechanics alone. Many emergencies arise that demand the exercise of much mechanical knowledge and skill, in which ordinary apparatus cannot be procured, or from some peculiarity in the patient, the part injured, or the nature of the injury, cannot be employed. The qualities under consideration are likewise necessary to enable the surgeon to comprehend the uses and construction of complicated instruments, as well to furnish ease in their use, and ability to repair slight injuries or derangements that may occur when either distance from a cutler or immediate necessity for use forbids delay. In many different ways such skill and ingenuity will be needed, many instances of which will readily occur to the reader.

Allied very closely to the above qualification, a *familiarity with instruments* must be cultivated. Nothing can give this but frequent use, and in the absence of daily surgical occupation, dissection must be sedulously practiced. It is true, as will be shown in another place, that while the edge of the knife is directed to the skin in dissection, in operations on the living

subject this is reversed; still the operator becomes accustomed to his instruments, acquires useful knowedge of the amount and degree of resistance offered by different tissues, and is continually receiving useful information in anatomical relations. While all successful surgeons have more or less facility in the use of instruments, some from natural aptitude, none can afford to neglect opportunities to further perfect themselves.

Pathological knowledge, joined to an intelligent conception of etiology, is absolutely *sine qua non*. The ground covered to-day by surgical pathology, including as it does a consideration of the most subtle forces and minute vital operations, makes it an impossibility for the surgeon to freely and intelligently weigh the indications for treatment without an intimate acquaintance with the natural history of the morbid process under immediate consideration. This question has been fully discussed in the *Introduction* to *Surgical Therapeutics*, and needs no further mention at this time. Not only treatment, but prognosis is entirely dependent upon our knowledge of the case in hand.

Materia Medica, as understood by the Homœopath, must be well studied. There is nothing that the general practitioner should know in this direction, that should be unknown to the surgeon. Unfortunately, too many of our surgical practitioners are deficient in this important particular, and the pages of our text-books are too often marred by suggestions as to treatment not a whit superior to the methods in vogue half a century ago. The examination of a case of disease, purely surgical, must be made with a view to relief by medicinal agents, reserving the use of the knife as a last resort.

Physiology and *physiological chemistry* should also be

understood of course thoroughly, but at all events the leading principles. How can a practitioner undertake the treatment of urinary calculi without understanding the manner of their formation, and the morbid action resulting in lithiasis? A simple removal of the formed stone will rarely cure, unless it is due to local causes from foreign material, and even then it is not everyone that can conclusively determine whether that is the case or not.

Microscopy is an accomplishment that is closely allied to the last. It is not absolutely necessary that the surgeon should be an *expert*, for that would require constant application, and the consumption of time that can illy be spared from other studies. He should, however, know enough of the science to enable him to differentiate between normal and abnormal tissue, and the more common and constant urinary salts and deposits. Even if his diagnosis must be confirmed by reference to plates, etc., he should be familiar with the mechanical part of the subject, and enabled to use the microscope intelligently.

Added to these qualifications, many of which are purely professional, there are still other requisites, of a mere personal and general character.

He should be *courteous* and gentlemanly, treating his patients in a sympathetic and kind manner. Such practice will inspire confidence, and when we recall how many cases are brought to us from a distance, many of them having been sufferers for years, and the effect of removal from home and home comforts and sympathies, being surrounded by strangers, and expecting a passage through a trying and painful ordeal, must have, we are ready to admit, that harsh treatment, cold attention to the history of the case, and an unfeeling manner will have a deleterious influence, and may not only

retard or jeopardize recovery, but may seriously affect the professional success of the offender. Courtesy and a gentlemanly bearing will not only inspire confidence in the skill of the surgeon, but will calm the fears of the patient, and exercise considerable influence on the result of treatment in the case of the weak and nervous.

Finally, the surgeon should be *cleanly in his person* and habits. It is not meant that he should be foppish, and pay much attention to dress, as that leads many to suspect an ill-regulated mind. He must be cleanly as much to avoid repelling the confidence of the patient, as to guard against conveying infection to him. Too many melancholy instances are on record of infection being carried from one to another, mediately, to excuse carelessness in this respect. Not only must the *person* be clean, but all instruments, whether for operation or diagnosis, must be scrupulously cleansed, and never used twice in succession without undergoing a thorough cleaning. Syphilis, pyæmia, gonorrhœa, erysipelas, etc., have often been communicated by a failure to observe these requirements. Important as this is in the case of all practitioners, it is particularly so in the case of hospital surgeons, who frequently operate upon and examine many patients in succession.

What has been said will amply suffice to make good the statement, occurring earlier, that surgery is the consummation of medicine. It is exceedingly difficult to conceive of any variety of knowledge essential to the general medical practitioner, that does not enter more or less into the requirements of the surgeon. The better physician he is, the better surgeon, as a rule.

In conclusion let us briefly consider the relations the surgeon should sustain to the physician. For many years the

conviction has been gradually forced upon the medical profession, that a division into specialties, within reasonable limit, is an absolute necessity. There are none, no matter how gifted by nature, that can hope to acquire an exhaustive knowledge of medicine. Even surgery has been divided into at least three departments, and perhaps four. Ophthalmology, gynæcology, and orthopedics, are now made distinct departments of surgical practice, and surgical practitioners quite generally concede the necessity for such an arrangement. The necessity being admitted, it becomes the positive duty of the profession to do their utmost to secure the services of those confessedly skilled in the various departments, for their patients who need such special treatment. This is not more for the personal and pecuniary benefit of the special practitioners, than that of the profession at large, and the public as well. It should be the aim of the medical man to contribute not only to the welfare of his immediate client, but to society as well, by fostering everything that is calculated to mitigate suffering, lessen mortality, and prolong life and usefulness. With this enlarged view of the nature of our ministrations, the physician who, for purpose of gain, or jealousy of his colleagues, or a contemptible desire to appear a prodigy in the eyes of his patrons, continues to treat a condition with which he is unfamiliar, when accomplished specialists are available, is unworthy of patronage, or even of professional fellowship. The accumulation of skill and knowledge is directly dependant upon practical experience, and the benefits to the profession, and to society at large, can only be secured by fostering this by the encouragement of those engaged in special practice. What would we have known of physiology without the labors of Sequard, Dalton, Flint, and others? Of

microscopy, without Frey, Beale, etc.? Of surgery, without Billroth, Lister, and Syme, and their many colaborers? And what would their skill have availed had their brethren withheld from them a hearty support? Whilst they themselves, as is right, have been benefitted in a pecuniary way, how much more has the whole profession and the world at large derived benefit. It should be constantly impressed upon the minds of students, and medical men generally, that to encourage special study and special practice, is a positive obligation which none can be suffered to disregard. The accomplished surgeon, as that is the specialty in hand, has a right to expect the cordial support of his non-surgical colleagues, and they who withhold it from him should suffer in the public estimation, for the commission of what might almost be considered a criminal act, inasmuch as they have lessened, as far as they could, an opportunity for adding to the sum of human knowledge, and so far added to the aggregate of human suffering.

I can do no better, in closing this introductory, than to quote from one of the greatest living surgeons, and the paragraph should stand as a constant expression of obligation on the part of all true, earnest, scientific medical men:

Gross, (*System of Surgery*, I., p. 503,) says: "The after-treatment should always, if possible, be superintended by the surgeon himself; his duty is not over with the operation: it ceases only with the cure or death of his patient. 'The practice' remarks an eminent authority, 'of performing a serious operation, and leaving the after treatment to others, has, in my knowlege, repeatedly proved disastrous. The medical treatment, a duty not less responsible than the operation, belongs to the surgeon; and, indeed, to be merely employed as a handicraftsman, conveys an imputation at which the dignity of a scientific mind revolts."

I can add to this, that the physician calling in the surgeon, should always be associated in the treatment, but my own experience has compelled me to imperatively decline to perform an operation under circumstances that forbids my supervision, at least, of the after treatment. It is only lately that an operation was successfully performed, and the patient left in a fair way to recovery, but the inexperience of the attending physician, and his criminal vanity which prevented his reporting the progress of the case to me, led to a disastrous termination. The loss of reputation, in this case, did not attach to the incompetent physician, but to the surgeon, which was partly merited, indeed, by his inexcusable folly.

Part First.

SURGICAL DIAGNOSIS AND SEMIOLOGY.

Cases of accident or disease, coming under the notice of the surgeon, must be subjected to a critical and comparative examination, based upon the history, or anamnesis as it is otherwise called—the nature of the accident, the sex, age, and social condition of the sufferer, and the symptoms. In other words, it is essential that some theory of the case be formed before methods of treatment can be selected, or a prognosis given. This is technically known as *diagnosis*, derived from two Greek words signifying "I know." It can be at once seen that the diagnostic ability of the practitioner is in direct proportion to his scientific knowledge and practical experience, which fact would lead many to place this chapter at the close of a treatise on surgery, rather than the beginning. It is true that a complete treatise on diagnosis would include the whole natural history of disease, and that the limits of a single chapter would be far too restricted to adequately present the subject. Nevertheless, there are certain general principles that underlie what might almost be called a science, that it seems to need attention at the beginning of our studies, and cannot, it is believed be neglected; nor can they find a more appropriate position than in the first chapter of a work on surgery. It is important that the student and young practitioner should know the best and