Editorial

COMPLEMENT IN HEALTH AND DISEASE

IN ordinary everday language we speak of the complement of anything as that which completes it. This is a simple definition which, though it may not always be realized, is exactly descriptive in immunology of certain substances in the blood serum which do serve to complete certain processes in the maintenance of health. Elementary as this may appear to some, there are probably a good many practitioners who put aside all consideration of immunological reactions, because of the apparent obscurity of many (and real obscurity of some) of the terms used in connection with them: but who would gladly be given a clear view of the subject. To such we would recommend Professor Cadham's paper on "Complement in Health and Disease," which appears in the present issue. His work has been directed towards the solving of problems which have heretofore been hardly approached. He has determined the degree of complement present in a series of healthy subjects, and has compared his findings with the quantities found in a series of people suffering from various diseases. While it may be at the present difficult to estimate exactly the value of these findings, they must be regarded as extremely suggestive in their bearing on prognosis and treatment. The absence or lowering in amount of the complement and in some cases its absence appears to be of grave prognostic significance justifying attempts to stimulate its production. Professor Cadman raises points of absorbing interest, and this in itself is of value: but in addition, he has contributed original research which may prove of great value in the practice of medicine.

ON EXTRA PLEURAL THORACOPLASTY

IF to a physician of a generation ago, or less, supposing he were a sort of Rip Van Winkle, M.D., suddenly reappearing in a modern operating theatre, it were intimated by a young surgical confrère that the operation about to be performed was the removal of considerable portions of eleven ribs on one side for the relief of advanced chronic pulmonary tuberculosis, can one imagine his feelings of horror, indignation, even condemnation? There is, indeed, still abroad too much of the *omne ignotum pro magnifico* spirit even in circles of the elevated eyebrow, much less worthy of "science" than the decent, if unreasoning, empiricism of the humble practitioner of pre-laboratory days. But that is the counterfoil, for contrast's sake, to the opposite reflexion, that progress is apt to suffer from the ignorant opposition of the school whose congenital or acquired attitude of mind is *omne ignotum pro detestabile.* Too much action, too much reaction! Both, doubtless, are necessary, indeed inevitable. And a true balance is struck only when there are weights on either side and when the weights neutralize each other.

So with the question of the surgical treatment of pulmonary tuberculosis! Through much ill-advised, uncritical enthusiasm, through much ignorant, and equally uncritical obstruction, operation, even bloody operation, has won its assured place as a valuable arm in the general battle with tuberculosis.

These reflexions have been suggested by a reading of several books and numerous articles dealing with this particular subject that have been recently pub-

lished. Alexander's[1] book, of 350 pages, the first comprehensive review written in English; Gravesen's[2] book, of 155 pages, incorporating the large experience of Saugman and his successor, the author, at Vejlefjord Sanatorium, in Denmark, also written in English, though with the help of "Dr. Mary P. Nannetti from Scotland"; Brunner's[3] book of 375 closely printed pages, a monograph from the Munich Clinic of Sauerbruch, which appeared in 1924; and Sauerbruch's own long chapter in his monumental work on Thoracic Surgery of 1922—all testify to the growing importance of this new field of surgery. In the bibliography of Alexander's work, one counts 500 references. The *Canadian Medical Association Journal*[4] has already published an article and an editorial concerning this subject.

Extrapleural thoracoplasty, which means the removal of portions of the first to the eleventh ribs inclusive, is now generally accepted as a standard operation. While the technical difficulties are not great, it is no operation to be done indiscriminately by the average surgeon. As pointed out recently with much emphasis, the proper selection of patients is the most important part of the problem. Only the chronic, chiefly unilateral, cases should be considered. Operation during activity can only do harm. Some evidence of resistance in the form of scar contraction of the lung should be demanded. If the trachea, or the mediastinum and heart, are not deviated towards the side affected by the pull of fibrotic lung, operation is not ordinarily to be considered.

As to the operative procedure itself, growing experience is strongly in favour of two-stages as opposed to the earlier one-stage; and also in favour of a general anæsthetic with nitrous oxide or ethylene helped out by a strictly moderate amount of novocain, as opposed to a local anæsthetic alone.

The results are now surprisingly good, and the mortality ascribable to the operation surprisingly low, and these facts deserve to be more widely known. One finds still current the impression that the operation is not only formidable but also mutilating, deforming, crippling. Two paragraphs from the first chapter of Alexander's book merit quotation.

"At the present time only relatively few cases of far advanced tuberculosis are receiving the benefits of surgery. The majority of these cases have pulmonary cavities, and had been treated without success for months or years with modern sanatorium methods, including artificial pneumothorax. Almost without exception every patient operated upon would have died of tuberculosis if operation had not been performed.

"Thirty-seven per cent of the surgically treated cases in all countries in recent years have actually been cured and another twenty-four per cent decidedly improved. Five per cent were unimproved or became worse; the immediate or direct operative mortality was approximately 1.5 per cent and the additional mortality during the first six weeks from causes indirectly connected with operation, only twelve per cent. The remaining nineteen per cent include the deaths that had no connection with operation; most of them were caused by progression of the tuberculous disease in the unoperated lung or other causes."

These figures are based upon a review of over 1,100 reported cases. In Canada, the latest report covers sixty-five cases of extrapleural thoracoplasty, exclusive of tuberculous pyopneumothorax. Of these, none died from operative shock; four died as a direct consequence of the operation from the eighth day on to the end of the second month, that is about six per cent; *thirty-four per cent were "practical cures," living, working, without cough or positive sputum, reckoned only after the lapse of one to eight years subsequent to operation*; and approximately twenty-nine per cent died from the progress of the disease, usually, indeed, from a relapse following a temporary improvement due to the operation. Of the balance, a considerable proportion were greatly improved; a smaller number moderately improved, or unchanged. It appears that one can count in properly selected cases upon seventy per cent of encouraging results, while in thirty per

cent the operation fails to stay the natural course of the disease, and in six to twelve per cent actually hastens death. These remarks apply to the standard operation, which is applicable to the great majority of the candidates. It fulfills the accepted requirements of the general treatment of the tuberculous lung—rest primarily, and compression if possible. But there have arisen many other operations, variants of the standard thoracoplasty, or new methods for particular circumstances. Thus, Alexander warmly recommends a change in the usual order of rib removal as recommended by Sauerbruch, which is, lower ribs first and upper ribs two weeks or so later, on the ground that pneumonia is a grave danger because of interference with cough after the first stage. He says one should remove the upper ribs first, and the lower ribs last, expecting, thereby, to reduce the operative mortality from that cause. This is a matter of fundamental importance, but has yet to be tried out. The newer work also devotes considerable attention to Jacobæus's method of cauterizing, through a thorascope, single or several adhesions in the shape of bands, which may be restraining the otherwise good effect of an artificial pneumothorax. Recent literature, particularly Gekler's[5] article, reports the opening and antiseptic treatment of tuberculous cavities in the lung, with results that are moderately encouraging. The argument as to the relative advantages of operation and artificial pneumothorax goes on, and the tide seems to be turning, at any rate in debatable cases, in favour of thoracoplasty. Space fails us to refer to many other aspects of this question, which is becoming almost daily of greater importance to the large army of the tuberculous, and to those who care for them. It is safe to say that surgery has put forward nothing for many years past of greater credit to its science—nothing certainly which brings a brighter ray of hope to so many otherwise hopeless sufferers. E. Archibald

References

(1) Alexander, John, The Surgery of Pulmonary Tuberculosis, Lea and Febiger, 1925. (2) Gravesen, Surgical Treatment of Pulmonary and Pleural Tuberculosis, John Bale, Sons & Danielsson, Ltd., 1925. (3) Brunner, *Die Chirurgische Behandlung der Lungentuberkulose*, Barth, Leipzig, 1924. (4) Archibald, Thoracic Surgery, *Can. Med. Assn. Journ.*, 1924, xiv, 237 and 240. (5) Gekler, *Jour. Am. Med. Assn.*, 1924, 82, 456.

ON THE STANDARDIZATION OF IMPORTANT DRUGS

Attention is directed to the article in the present issue in which a report is presented by Dr. Ward of the Dominion Research Laboratories, on the great variation in strength of the preparation of two important articles in the pharmacopœia, as presented for sale in the various pharmacies of the Dominion. No drug in our pharmacopœia is more important than digitalis, and it is a matter of consequence that every physician in prescribing this drug should know exactly the strength of the preparation with which he deals. Thus far only two out of our many drugs have been examined, but we trust that when the result of this limited examination is presented to the profession an emphatic demand will be made that all important drugs be standardized by the government. The necessity for this standardization is being recognized in every civilized country. In the United States, standardization was demanded for many drugs in their pharmacopœia of 1914. In the one just issued the number for which standardization is demanded is greatly increased. Last year, the Therapeutic Substances Act passed into law in Great Britain, and in a recent article in the *British Medical Journal*, the passing of this law is spoken of as a notable event in the year, and of the greatest importance to the progress of medical science, and to the success of medical practice in many cases of sickness; in the case of not a few drugs, the safety of the public is also involved. The Medical Research Council in Great Britain for many years has appealed to the government for