

use "acidosis" and "alkalosis" in Dr. Haldane's sense, can he supply us with a short expression for "diminished alkaline reserve"? It would be as well if some authoritative body gave us a lead. I am sure we should all be prepared to follow it.—I am, etc.,

Woldingham, Surrey, March 19th,

E. P. POULTON.

GLANDULAR FEVER.

SIR,—Drs. Letheby Tidy and Morley are to be congratulated on the timely appearance of their article on this disease. I think it will be found to appeal to a large number of practitioners in this district (West Riding), and possibly in many other places, by enabling them to label definitely what I think has been a large—possibly very large—number of examples of the disease.

In consulting practice naturally one does not see many of these cases, but I have been interested in them for the past two years, during which period I have seen at least a dozen, mostly the children of doctors or cases in which, from the characteristic debility and tardiness of convalescence, the slow involution of the (often considerable) glandular enlargement, and the marked tendency to relapse, the question of tuberculous adenitis has been raised. But I have made a point of comparing notes with a large number of practitioners, from which I derive the impression, amounting to a practical certainty, that we have had in the towns of this district not inconsiderable epidemics of the disease. I hope very much that some of those who have had this experience will send a brief note to the JOURNAL, for only in this way can we get a really complete view of the disease. General practitioners are as a rule too busy to make many contributions to medical literature (to our great loss), but I shall be very much surprised if many do not confirm what I have stated, and say that an "unusual epidemic of sore throat with tedious and considerable glandular enlargement" has been a recent feature of their practice.

I am personally satisfied that the disease is one *sui generis*, and, in typical cases, presents no difficulty in diagnosis. I should be inclined to emphasize the frequency of some complaint of "sore throat," referred either to tonsils or pharynx, but in which the local changes, as revealed by inspection, are slight. The proportional affection of adults is also another interesting point.—I am, etc.,

Leeds, March 28th.

W. H. MAXWELL TELLING.

SIR,—I was very interested to read in the JOURNAL of March 26th the article on glandular fever by Drs. Tidy and Morley. The authors state that there is some reason to believe that a considerable number of cases are occurring at the present time, so it may be of interest to state that recently (from mid-February to mid-March) I have seen in this district nine cases of this nature. All of these patients were between the ages of 4 and 13 years; seven were in separate houses (most of them were isolated at once), and the remaining two were in the same house, one of these occurring six days after the first. I heard later that the mother in this house was ill nine days after the commencement of the first child's illness, and was in bed for two days with feverishness and swellings behind her ears. Seven of the cases were mild and the remaining two severe; one of the latter was complicated by nephritis, and there was definite oedema of ankles (Drs. Tidy and Morley state that there is no previous record of the occurrence of oedema). In this case all signs of nephritis had disappeared twenty-five days after the onset of the disease. The glands affected were the cervical beneath the sternomastoid muscles, and I found no other glandular enlargement. In eight of the nine cases the enlargement was bilateral; the glandular swelling was generally rather larger than a walnut, and there was comparatively slight tenderness. In every case the throat appeared normal. In one case a slight macular eruption appeared on the trunk on the sixth day; it caused some irritation and lasted two days. The temperature in no case exceeded 103° F.—I am, etc.,

Tunbridge Wells, March 28th.

R. D. AYLWARD, M.R.C.S.

X-RAY RADIATIONS AND CANCER.

SIR,—X-rays and radium are undoubtedly powerful therapeutic agents, but at present we fail to make full use of them, owing to the fact that we are as yet not masters of the technique necessary to get their full beneficial effect. Consequently most of our failures may be said to be due not so much to the fault of the agent as to the fault of the technique.

Our results are bound to be erratic until we know what are the conditions and dose necessary to produce a lethal effect on pathological cells, and at present they are to a great extent dependent on luck—that is, whether the particular dose administered happens to be the most effective one; and, secondly, on the practical experience of the radiologist himself. It ought to be possible not only to administer x-ray radiations with the same degree of accuracy as drugs, but to have some idea as to what prescription is required for the case in hand.

Dr. Reginald Morton has recently described a Continental method for deep therapy, and I have lately heard of yet another. Many of us can recall similar reports which before the war periodically found their way to this country from the same source, each in turn giving way to some newer idea. Consequently radiologists have become cautious about accepting without careful investigations these methods of "mushroom" growth. We must know on what foundation they are based—for instance, there is nothing to be gained by inventing ingenious apparatus for the production of large quantities of very penetrating rays unless we have some sound reason for thinking that this is the type of ray required.

Radiologists are divided into two schools—one striving for full cell absorption and the other for extreme penetration. The second class are endeavouring to obtain x rays as penetrating as radium, but I have yet to be persuaded that radium is of a greater therapeutic value than x rays properly applied, except, of course, in inaccessible positions; and I suggest the possibility that the therapeutic effect of radium may be due to something besides penetration. If we set out to produce skin reaction we use a medium or low type of ray without a filter, as this gives the greatest skin absorption in the shortest time. It is possible to get the reaction, however, even if we use a high-penetrating type of ray through a thick filter, but the exposure will be unnecessarily prolonged and nothing will be gained.

The same argument may be logically applied to deep-seated tissues—that to get our effect full cell absorption is necessary, and that by over-filtration we probably cut out the very rays that would have been absorbed by the pathological cells, and although to a certain extent this can be made up by prolonged exposure, the net result is the same. Until physicists alter their dictum that "x rays have no effect upon the medium unless absorbed by the medium," and this is backed up by the effect on the skin, it is wiser, I think, to work on the cell-absorption basis.

A large percentage of the cases of mammary carcinoma that pass through the x-ray department of the London Hospital die from metastases in the thorax or elsewhere in the body, while subcutaneous recurrences are controlled.

I have devised the duplex method of treatment installed in temporary quarters at the London Hospital with the idea of controlling general metastases in the same way as the more superficial. Any method devised for this purpose must fulfil two conditions: (1) It must be possible to administer a lethal dose to the pathological cells lying at various depths and in unknown positions; (2) the radiated area must be large.

The duplex method consists of two separate installations—one operating a tube in front and the other a tube at the back of the patient, both running at the same time. After the first full dose has been given, the direction is changed so that the radiation is now from side to side, the arms being forward and raised. In this way the deepest parts of the body are subjected to radiations from four points of the compass, and the resulting cell absorption must be much greater than with our present method. A large radiation field is used, including practically the whole trunk, this being attained by using the standard lead glass shield reversed. The duplex method, therefore, may be described as an elaborated method of cross-firing, differing, however, in two essentials from our present idea: (1) Both tubes are working at the same time from both sides of the body; (2) a very large area is covered.