

portions which depend on the metal used and the temperature and concentration of the acid. The complete analysis of such a mixture is both difficult and tedious. In the case of iron, however, the last three of the gaseous products just mentioned have not been detected, and the chief products requiring estimation are nitrogen peroxide, nitric oxide, nitrogen, and ammonia.

The authors describe a method of collecting and analysing the gases yielded by a 0.30 gram sample dissolved at 100° C. Under these conditions they assume that the whole of the iron is ultimately converted into ferric nitrate. They discuss the primary and secondary reactions which they consider occur; and, in particular, the interchangeability of nitrogen and ammonia with nitric oxide and nitrogen peroxide is shown. They find that the reaction of pure iron undergoes an almost discontinuous change at a certain acid strength (about 24 grams per 100 c.c.), and that much of the nitrogen and ammonia is replaced by nitric oxide and nitric peroxide as the acid strength increases from 23 to 25. These are the two main groups of products, and they find that the ratio between the iron equivalents given by the two groups is approximately independent of the secondary reaction between the members of each group. By plotting as ordinate the weight of iron consumed in forming nitrogen and ammonia, and as abscissa the acid strength in grams per 100 c.c., a characteristic curve is obtained which they term "the reaction curve," and this expresses the principal feature of the reaction.

In the second part of their investigation the authors examined in several typical cases the relation between the reaction curve and the degree of strain in the sample, and found that the curves are always shifted to the right with increase in strain. Wires deformed by twisting yielded progressively advancing reaction curves, and measurable changes in the gas analyses were found to be produced by an amount of energy which, if developed as heat, would not raise the temperature of the material 1° C. Similar curves were obtained with drawn wires. The results are interpreted by the authors as indicating that cold working takes place in two stages: (1) The elastically stressed crystals are brought into an interlocked condition; and (2) the crystal structure is then progressively broken up with the production of amorphous material.

The method has been used by the authors to investigate the removal of cold work from iron by heat treatment, and in the case of the sample used it was found to be complete at 520° C. The results described are of considerable interest, and the method appears to be one of decided promise. H. C. H. C.

THE MINISTRY OF HEALTH BILL.

THE text of the Ministry of Health Bill, already noted as having been presented to the House of Commons on February 17, has since been published. As foreshadowed by Dr. Addison in his speech to the members of the Medical Parliamentary Committee, prior to its introduction, the Bill differs little from the measure originally presented to the last Parliament. That it does differ to some extent, however, particularly in bearing signs of having been worked at and polished, is worthy of mention. The new Bill carries the stamp of finality, and suggests that most of the State Departments performing health functions—the Local Government Board, the Board of Education, and the Insurance Commissioners especially—have arrived at arrangements more or less agreeable to all parties. The position as between the two first-named, for example, is shown to

be fairly easy. Even as regards the place to be taken by the Insurance Commissioners, there is less reason for dissatisfaction, and concessions no doubt have been made by the various bodies and individuals concerned. Speaking generally, the measure is a hopeful one, and inspires the feeling that we are well on the way to the establishment of the Ministry. The tone adopted by Dr. Addison is significant of this also, as is the translation of Sir George Newman to the Local Government Board, and the granting to him of the title of "Chief Medical Officer," with the status of a Secretary of the Board.

One part of the Bill which has been carried over unaltered from its predecessor is that relating to the appointment of consultative committees, and Dr. Addison, by his utterances, has shown himself to be firmly wedded to this idea, and expectant of results of great value from the work to be done by these bodies. Doubtless he has every right to be hopeful. The Consumers' Council at the Ministry of Food, which may be regarded as more or less analogous, though it was occasionally sneered at, must have assisted the Food Controller considerably. There is no reason to suppose that the Ministry of Health consultative committees will be any less helpful. Indeed, since they are to consist of carefully selected experts on matters having a bearing on national health, they are almost bound to be more valuable. In any event, the consultative committee idea has this to recommend it: that it will popularise health work. The committees will serve as a most effective link between the Department doing the work and those for whose benefit the work is done. The Department and the workers will be less cloistered; the workers and those who are worked for will be more intimately associated. The public will see and hear of what is being done, and will come to recognise the necessity for assisting in, and taking advantage of, the efforts made. So far there have been remarkably few comments on the Bill, but on the whole the reception has been entirely favourable.

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ANTHROPOLOGY AND ARCHÆOLOGY.

John Murray.—Travels in Egypt and Mesopotamia in Search of Antiquities, 1886-1913, Dr. E. A. Wallis Budge, 2 vols., illustrated.

BIOLOGY.

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