able us to foretell some of the course of human behaviour. The war brings the chance of testing the truth of this suggestion. It is becoming, obviously, more and more a war of moral forces; and an understanding of the nature and sources of national *moral* must be as important a source of strength as the knowledge of the military engineer.

The author proceeds to discuss the various forms of gregariousness, and finds the British form typified by the bee, the German form by the wolf. The difference is so great that the war is not so much a war between nations as a war between different species. Nature is making one of her great experiments; is setting herself to try out the strength of the socialised and the aggressive types. To the socialised peoples she has entrusted the task of proving that her old faith in cruelty and blood is at last an anachronism. To try them, she has given substance to the creation of a nightmare, and they must destroy this werewolf or die. And a calm consideration of the German and the British mind leaves us in no doubt where the strength lies. In Britain there has been no Hymn of Hate, no "God punish Germany!", no gospel of bluster and frightfulness. These are symptoms of lupine rage. But Britain, fighting for existence and for honour, has quieter and deeper vision; and she will not sheathe the sword until her task is done and a peaceful Europe once more possible, freed from the terror of imminent wanton attack by an aggressive Power.

British Fungi and How to Identify Them. By J. H. Crabtree. Pp. 62. (London: C. H. Kelly, n.d.) Price 1s. net.

OUR native fungi afford beautiful objects for the photographer, and have been well illustrated in the many popular and scientific works which deal with them. In the little book before us Mr. Crabtree illustrates some forty different species of well-known fungi by means of very good photographs, and each photograph is accompanied by a page of useful descriptive text. By the aid of both text and illustration a particular fungus should be able to be identified without much difficulty. In the case of the somewhat small differences between certain edible and poisonous fungi the ordinary photographic reproduction is not sufficiently clear to show the distinguishing features, and a few good colour prints would have been of value.

In a short introduction of four pages the author gives a concise account of the larger fungi in general—with which only this little book is concerned—details as to the spore-arrangement, etc., and a simple classification. It is unfortunate that Mr. Crabtree's frontispiece, "An unnamed fungoid growth found upon a tree," is not a fungus at all, but is what is known as a "wood flower." This hollow woody growth has been gradually formed about the suctorial portion of some parasitic plant, probably a Loranthus, which has become detached and has left a large tulip-shaped woody scar resembling a fungus on the branch of its host plant.

LETTERS TO THE EDITOR.

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The Primary Sugar of Photosynthesis.

MICROCHEMICAL tests on the assimilating cells of several plants indicate a considerable concentration of hexoses in the chloroplasts, or in the protoplasm immediately surrounding them. Other lines of experiment suggest that while sucrose is concentrated in the large vacuoles, invertase is held apart from it in the protoplasm.

These facts force upon one the possibility that the pioneer analytical work of Brown and Morris established and extended by Parkin and by Davis and his collaborators, does not after all necessitate the conclusion that the formation of sucrose is a preliminary step to the production of hexoses in the leaf.

It seems more probable that the hexoses are formed from formaldehyde in the chloroplast, and, when their concentration reaches a certain limit, condensation into sucrose due to invertase, or some saccharogenic enzyme, takes place. The sucrose thus formed is passed into, and stored in the vacuole. As the volume of the protoplasm available for the hexoses is small compared to the space allotted to the sucrose, the increase of the total percentage of hexoses will be small when the leaf is exposed to light, while that of the sucrose will be large. Consequently the rise of sucrose on illumination shown in analyses of leaves is not a cogent argument for regarding it as the primary sugar.

The recognition of the localisation of various substances in the cell also supplies an explanation as to how the sucrose-hexose ratio of the cell is maintained in presence of invertase. The absence of invertase from, and the storage of sucrose in the vacuole may be compared to the conditions obtaining in the root of the sugar beet. Only there, of course, the source of sucrose is secondary hexoses. In photosynthesis the condensation of the sugars is probably determined by the fact that for the same rise of osmotic pressure in the vacuole twice the amount of the disaccharide may be stored. When the limiting pressure is reached in this way the condensation of hexoses to starch may give extended elasticity to the economy of the cell.

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Isle of Wight Disease in Bees.

DRASTIC recommendations regarding the disinfection or destruction of combs, hives, and appliances which have come in contact with bees infected by Isle of Wight disease have been made by the Board of Agriculture, and were repeated in an article in NATURE of March 2 (p. 7). The recommendations are founded upon the idea of the infectiousness of the disease, and are intimately connected with the recognition of the protozoon *Nosema apis* as the cause of the disease, and with the knowledge of the ease by which this parasite can be disseminated by infected bees. On account of the practical importance of the subject, I would direct attention to the results of experiments bearing upon these points, carried out by Mr. J. Anderson and Dr. J. Rennie, of the North of Scotland College of Agriculture and University of Aberdeen respectively, and communicated at a recent meeting