satisfactory. We have now however a paper before us, by Dr. A. Mayr, read at the Bombay Medical Union, April 21, 1900, dealing with more recent trials, in which there were 38·2 per cent. of recoveries in 403 patients treated, the recoveries of patients under ordinary treatment being 19·5 per cent.

Whether the nucleo-proteid be used as a prophylactic to inoculate persons or to immunise horses to prepare a curative serum, it is evident that the antitoxin given rise to in the person or the horse is an antitoxin against the poisonous nucleo-proteid; the stakes in the race for recovery are all placed on the nucleo-proteid.

But it is not improbable that the metabolic products formed by the plague microbe in the medium it grows on—be it the body or an artificial medium—require to be immunised against, and herein lies the distinction between Haffkine's prophylactic and Lustig's nucleo-proteid used as a prophylactic. Haffkine uses the bodies of the bacilli together with the broth they have grown in, for he considers the broth acted upon by their growth to be useful if not essential. This has been shown to be the case in experiments on animals by Dr. Balfour Stewart (*British Medical Journal*, March 3, 1900).

Lustig's nucleo-proteid prophylactic has some technical advantages in its preparation over Haffkine's, but for the reasons pointed out above it is not likely to be as efficacious. C. B. S.

A Monograph of the Erysiphaceae. By Ernest S. Salmon, F.L.S. "Memoirs" of the Torrey Botanical Club. Vol ix., Pp. 292. (New York: 1900).

THE Torrey Botanical Club has performed a valuable service to mycologists in the publication of this excellent monograph of the Erysiphaceæ, a group of parasitic fungi causing the diseases known as white mildew, powdery mildew, blight, *Mehlthau*, *blanc*, &c. In their conidial or "oidium" stage they are common throughout the summer on various host-plants, such as roses, hops, vines, peas, maples, and many wild plants, giving a mealy appearance to the part infected; while in the later summer or autumn the perfect ascigerous form is produced in the form of dark brown or black spots, consisting of peritheces containing ascospores, and usually provided with characteristic appendages.

The number of known species of this well differentiated group of fungi is not large; the author describes forty-nine, including a very few new ones, in addition to a number of well-marked varieties. These are arranged in six genera, Podosphæra, Sphærotheca, Uncinula, Microsphæra, Erysiphe, and Phyllactinia. Great confusion exists in the nomenclature of the European species, and the author corrects several prevalent errors. He regards the ascus as the result of a true sexual process, and does not support Dangeard's view that the fusion of the nuclei in the young ascus is of sexual signification.

The monograph is illustrated by nine plates, and is supplemented by a very copious bibliography, in which no less than 400 distinct works or papers are referred to, and a host-index of the plants attacked by these fungi. A. W. B.

An Old Man's Holidays. By The Amateur Angler. Pp. xii+140. (London: Sampson Low, Marston and Co., 1900.)

"AN AMATEUR ANGLER" is an observer of nature as well as an enthusiastic Waltonian, the result being that these holiday sketches contain here and there an observation of interest to naturalists. Referring to the growing scarcity of kingfishers he says, "This is partly owing to the fact that they have the credit of being destructive enemies of young trout; the fact is, they do feed on little fishes, but not so much on trout as on minnows, dace, sticklebacks, miller's thumbs, and even leeches" The book contains several illustrations of rural scenes.

LETTERS TO THE EDITOR.

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Buchner's Zymase.

THE most recently issued number of the *Proceedings* of the Royal Society (No. 438) contains a paper by Dr. McFadyen, Dr. Morris and Mr. Rowland on the subject of Buchner's zymase, which is held by many observers to be the alcohol-producing enzyme of yeast.

The authors describe a long series of experiments which they have carried out, partly on Buchner's lines, and partly by new methods of their own. They find, as Buchner and other investigators have done, that yeast will, under proper conditions, yield up an extract which can set up alcoholic fermentation in a solution of cane sugar. Many very interesting points have come out during the progress of their work, the explanation of which is not at present very obvious; their conclusion, however, seems to call for a very careful scrutiny of the operations, especially as it has been advanced by other writers also. They state at the end of their paper that their experiments cause them to doubt the existence of an enzyme, and lead them rather "in the direction of a theory which refers the phenomenon to the vital activity of the yeast-cell protoplasm" (p. 265).

In reviewing their experiments it is noticeable that, in their preparation, the yeast was mixed with a certain proportion of kieselguhr, and subjected in this condition to the enormous pressure of 200–300 atmospheres (p. 252). The liquid thus expressed was capable of filtration under pressure through a Chamberland or Berkefeld filter (p. 259) without losing its properties, though the process decreased its power. It was miscible with, or soluble in, a small quantity of water or solution of cane-sugar without being altogether destroyed, though too much of the solvent inhibited its action (p. 262). The experiments were conducted throughout in the presence of antiseptics, such as 1 per cent. of sodium arsenite, thymol, or toluol (p. 254).

It will be difficult for physiologists to accept a conception of a protoplasm which is not destroyed by such a pressure as was used, and which afterwards becomes to some extent soluble in water, or, at any rate, miscible with it, which can be filtered through a porcelain filter without destruction, and which can carry on an anabolic and subsequently a katabolic process (p. 265) in the presence of such antiseptics as were used.

The authors say in an earlier part of the paper (p. 253) that such a kieselguhr "sponge" as they obtained during the extraction of the yeast was capable of retaining almost entirely the globulins of eggs, and, to a large extent, albumin and serum proteids. It seems strange after this to find them holding the view that protoplasm itself was not retained by such a "sponge."

It is a little difficult to reconcile their concluding theory of a fluid protoplasm with their statement (p. 253) that the juice they obtained and used was in every case far removed in nature from the condition in which it existed when alive in the yeast cell, even if one were to admit that the *juice* was ever living at all. Is it possible, in their opinion, for the anabolic and katabolic aclivities of protoplasm to be manifested in such a juice as they describe in those words? Yet their final hypothesis is that the yeast juice exhibits the "vital activity of the yeast-cell protoplasm."

I venture to disagree with their conclusion. In my own experiments, which were published in the *Annals of Botany*, vol. xii (1898), p. 491, I found that an active preparation could be obtained by grinding the yeast with kieselguhr in such proportion that a perfectly dry impalpable powder resulted, and then extracting the latter with a solution of cane-sugar. It is hardly credible that protoplasm without the protection of cell-walls, can resist desiccation. The action of the extract in my experiments, as in theirs, was considerable in the presence of antiseptics which, in the proportions used, were inevitably and rapidly fatal to the life of protoplasm.

Cambridge, November 19. J. REYNOLDS GREEN.

Euclid i. 32 Corr.

MR. TUCKER is right (p. 58) in his conjecture that Clavius was not the first to publish these corollaries.

References:—P. Ramus (ob. 1572), "Scholar$^{m.}$ Math$^{m.}$ Libri unus et triginta. *A Lazaro Schonero recogniti et emendati*,"