

reservoir sites and the use of the microscope and photomicrography. The latter portion of the book, containing descriptions of various groups of water-organisms, has also been revised, and the plates showing the commoner organisms of water have been printed in colours, making identification easier.

The book is one which should find a place in every bacteriological and public health laboratory and in the office of the water-engineer.

R. T. HEWLETT.

#### LETTERS TO THE EDITOR.

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#### Micromillimetres and Micromicrons.

It is very desirable that men of science should adhere to the conventions which have been established with regard to the use of the terms employed for units in the metric system. It has been generally agreed that the prefixes mega- and micro- should indicate the multiplication and division respectively by a million of the unit expressed by the term they precede. In this way a micrometre usually shortened to *micron*, means a millionth part of a metre, or, in other words, a thousandth of a millimetre; and a *micromillimetre* signifies a millionth part of a millimetre, or, what is the same thing, a thousandth part of a micron. It is, therefore, to be regretted that in the translation, published in Geneva, by L. Duparc and Vera de Dervies, of Nikitin's excellent account of Fedorov's "universal" method of microscopical mineral research we find the term *micromicron* employed in place of micromillimetre. The former term should mean a millionth part of a micron—that is to say, a metre  $\times 10^{-12}$ , a unit that might be usefully employed in expressing intermolecular or interatomic distances in crystals, which we are now at last in a position to determine in many cases.

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September 3.

#### Origin of Species.

In Darwin's great work on this subject he claims that Dean Herbert, in 1822 and 1837, held that "single species of each genus were created in an originally highly plastic condition, and that these have produced, chiefly by intercrossing, but likewise by variation, all our existing species."

Years of study along this line have assured me that he was right. I am now especially interested as I have a few trees on hand which seem to prove this position. They are a cross between *Quercus* and *Juglans*, which bears walnut-like nuts on a tree which bears oak-like leaves: at least a new species and perhaps a new genus. If this tree had been found in the forest it would have caused no remarks, but originating in the garden it has become the wonder of the world. Here is an oak tree in appearance which bears perfect walnuts, all originated in one year and fairly productive and fixed.

This tree gives me further evidence of the fact that all sexual life known to us, both animal and vegetable, has sprung from hybrids.

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#### LECTURES ON THE ANIMAL KINGDOM BY LINNÆUS.<sup>1</sup>

IT is probable that most modern zoologists, when unfamiliar with the Scandinavian tongues, know little of the zoological writings of Linnæus beyond the "Systema Naturæ," and that from this restricted evidence they draw the natural but entirely erroneous conclusion that, considered as a zoologist, Linnæus was little more than a methodical compiler, classifier, and name-giver. If, moreover, the modern zoologist is not so well acquainted with the history of his science as he should be, he is apt to seize rather on the defects, or even absurdities, in the "Systema" as compared with his own knowledge, and to ignore the real advances made by the great Swede over the attempts of his predecessors. There are, as we have hinted, many writings by Linnæus that prove the falsity of such opinions, and now another has just been issued by the University of Uppsala which enables one to read between the lines of the "Systema," and to realise the wide zoological knowledge and still more the philosophy and humanity on which it is based. The volume consists of a complete course of lectures on the animal kingdom, delivered by Linnæus between 1748 and 1752, and collected from the notes made by various pupils, of which more than forty manuscripts are preserved in the university library. The collation of these manuscripts was begun by the late Dr. M. B. Swederus, and has been completed by Dr. Einar Lönnberg, with the help of Miss Greta Ekelöf. The lectures are followed by a detailed commentary and by short accounts of 123 authors quoted by Linnæus; these two parts are by Dr. Lönnberg, who has availed himself of the help of various colleagues, living and dead.

And now of Linnæus as a lecturer, what may we think? Approaching him at second-hand, and without the magic of his enthusiastic presence, we yet see how he infused a living and practical interest into what might so easily have been a dry catalogue of species. An undergraduate's notebook omits much that the writer does not consider essential, the humorous asides, the occasional divagations, the purple patches; but the students of Uppsala realised that they listened to no ordinary man, and it is clear that much has been taken down verbatim. Certainly, that must be the case with the stately Prolegomena, which we should like to have translated in full, but must at least make some attempt to abstract:—

Generation after generation of earthly creatures comes into being only to pass into nothingness. And yet, though fashioned only for vanity, each creature struggles to preserve its life; one preys upon another so that nature is a *bellum omnium perpetuum in omnes*, and of all creatures man is most inhuman. And yet man, with his works of wisdom, his castles and towers, comes only to dust. What is the object of so vain a contrivance? The answer is given by natural history.

<sup>1</sup> Linnés Föreläsningar öfver Djurriket, med understöd af Svenska Staten för Uppsala Universitet utgifna och försedda med förklarande anmärkningar af Einar Lönnberg. (Uppsala, 1913.)