

include density, change of state, viscosity, capillarity, indices of refraction, calorimetry, and photometry. For each of these constants, the author briefly describes the most exact and convenient methods of determining them, and gives in tabular form the results of observations made on various substances. In the descriptions of methods of experimentation, preference is given to those which are actually used in practice outside the physical laboratory, so the book will be a real aid in technical work. Physicists and physical chemists will find the volume a handy epitome of methods and results.

By Roadside and River: Gleanings from Nature's Fields. By H. Mead Briggs. Pp. 204. (London: Elliot Stock, 1897.)

"THE hand of destiny has scattered broadcast through the land the seeds of hope, and yet how many of them all have reached the harvest of ambition." If we rightly understand the purport of these opening words of the preface, the author is expressing some anxiety as to the fate of his literary efforts, and wondering whether his work will be appreciated. We wonder also what becomes of the host of books like this one, well printed and daintily produced, but amorphous in structure, and having no particular aim. There are, we suppose, people who enjoy reading insipid remarks based upon casual observations of nature, and to their kind attention we commend this book. A scientific mind soon wearies of trying to pick out the slender threads of fact which meander through the mass of sentiment.

LETTERS TO THE EDITOR

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The Dugong.

IN the Hakluyt Society's last book, "The Christian Topography of Cosmas, an Egyptian Monk" (London, 1897), there are some interesting notices of "Indian Animals" with figures, copies of those in "the Florentine Codex"; which, in their turn, may have been "drawn by Cosmas himself (or under his direction)," according to an excellent modern critic.

In one passage Cosmas says "the flesh of the turtle, like mutton, is dark-coloured; that of the dolphin is like pork, but dark-coloured and rank; and that of the seal is, like pork, white and free from smell."

For reasons too long to give here, I suppose Cosmas' "seal" (phoke) to be the dugong; (halicore), which is generally described as very eatable; but I cannot anywhere find its colour, as meat, described.

"Potted dugong" from Queensland was on the London market not long ago; and I tried it, once. It was much of the colour of potted tongue.

The figure is more like a conventional sea-horse than anything else, and cannot be relied on much. It is, perhaps, a little less unlike to a dugong than to a seal.

The confusion of dugongs with seals still exists amongst seamen; though, of course, dying out amongst officers.

W. F. SINCLAIR.

Potato-Disease.

IN the "Life and Letters of Charles Darwin," Darwin writes as follows:—

"Mr. Torbitt's plan of overcoming the potato-disease seems to me by far the best which has ever been suggested. It consists, as you know from his printed letter, of rearing a vast number of seedlings from cross-fertilised parents, exposing them to infection, ruthlessly destroying all that suffer, saving those which resist best, and repeating the process in successive seminal generations" (vol. iii. p. 348).

Can any of your readers inform me whether the plan was ever carried out, and if so with what amount of success?

Newcastle-on-Tyne, December 11.

G. W. BULMAN.

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THE PREVENTION AND CURE OF RINDERPEST.

IN the second fortnightly number for October of the *Agricultural Journal* of the Cape of Good Hope is given a long report of a Conference between the Hon. Mr. Faure, Minister for Agriculture, Mr. Hutcheon (C.V.S.), Dr. Turner, Dr. Edington and Dr. Kolle on the question of inoculation against rinderpest. This account is followed by the Resolution of Conference, by a letter from Dr. Edington and by one from Mr. Hutcheon, in the latter of which is given a review of the different methods of inoculation now used for the purpose of obtaining a certain degree of immunity against rinderpest in the cattle of South Africa. As so many different statements concerning the exact methods used at the Cape by Koch, by Edington, and by Turner and Kolle, and also by Messrs. Danyz and Bordet, have been promulgated, a summary of these various methods may be of interest.

In Koch's method of using the gall obtained from sick animals as a protection against rinderpest, the bile is taken from animals that have contracted the disease by natural infection. It was at first recommended that only green bile and bile free from blood should be used; later this recommendation was modified by Drs. Turner and Kolle, who say "that the difficulty of obtaining good bile has been much exaggerated. If the animals destined to produce immunising gall are injected with a small dose of really virulent blood, say 1 c.c., and are killed at the end of the sixth day of the fever, at least four out of five will give typically good galls, and the gall of the fifth will, in all probability, be fit for use. As a matter of fact, all galls which do not smell, and which are not absolutely red from the presence of a large quantity of blood, can be used without danger by Koch's process"; it is afterwards stated that those galls which have the highest specific gravity appear to possess the highest immunising power. It would appear, however, that the gall-produced immunity is only temporary, and that before long the animals again become susceptible to infection by rinderpest. Another of the great drawbacks to this method of inoculation is the fact that in certain cases the galls appear to contain septic organisms, which not only diminish the immunising power of the gall, but also in some instances seem to have set up a septic condition in the cattle injected.

Applying the method now in vogue in connection with the preservation of vaccine lymph, Dr. Edington added a quantity of glycerine to the gall with the object, first, of preserving for some time the gall in a pure condition, and, secondly, of killing any septic germs which might be present in the gall before it was drawn off from the gall-bladder of the infected animal. Of course it was necessary to use a somewhat larger quantity of this mixture in order to produce immunity. Dr. Edington injected from 15 to 25 c.c. into the subcutaneous tissue of the dewlap. Animals so protected when injected with small quantities of virulent blood, certainly appeared to take the disease in a milder form; in some cases this was accompanied by local reaction and by a rise in temperature, and wherever this occurred there was a marked degree of active and more lasting immunity conferred on the animal. When $\frac{1}{4}$ th of a c.c. of virulent blood—that is, blood taken from an animal suffering from an acute attack of rinderpest—was injected, a local reaction was, in most instances, obtained, but in certain cases the preliminary temporary immunity was so slight, that the animal succumbed to the disease set up by the second injection. If, on the other hand, only $\frac{1}{10}$ th of a c.c. was used, the local and constitutional reaction was not always obtained, and although a much smaller number of animals succumbed to the contracted disease, a much larger proportion remained susceptible to natural infection. In connection with this bile method, also, it