

Locke, Hume, Sir J. Herschel, Mill, and Whewell—the only authors quoted on the subject of induction, will be specially interesting to English readers.

3. The philosophical basis of the conceptions at the root of the natural sciences, with a full treatment of Idealism and Materialism, and a discussion of the differences between matter passive and without force, and matter active, bound up, that is to say, with capacities of change of state.

Professor Karsten's contributions involve an enormous amount of statistical and bibliographical labour. Fifty pages are occupied with a complete catalogue of the literature of general physics. All the encyclopædias, all the scientific periodicals and collections, all the books on the history of science, and all the handbooks and general treatises of all modern nations, are gathered together in one most useful and naturally bewildering list. Germany, Switzerland, England, the United States, France, Belgium, Holland, Denmark, Sweden and Norway, Russia, Italy, Spain and Portugal, are the countries which contribute. The order in which we have given them exhibits the civilised world from the German professor's point of view.

A second treatise by the same author deals with all of what are called the universal properties of matter, and discusses in full the problems of chemical affinity and the newest theories of atoms. Little is really carried lower than the year 1860, but references are given to all books of importance published as late as 1867.

His third treatise gives us the methods of measurement, with full descriptions of the instruments and copious tables of comparison between the units of different countries. Professor G. Weyer finally supplies a separate work on the determinations of space and time. All questions of latitude and longitude, of apparent and real magnitude, are fully discussed, and the astronomical data which affect our estimates of time are exhibited in full.

We have preferred to give our readers a simple statement of what is contained in the closely-printed volume of 900 royal octavo pages before us. Detailed criticism of five separate treatises, in the space at our disposal, is a mere impossibility. It is sufficient to say here that every subject discussed is worked out in all the painstaking and exhaustive detail to which the separate volumes of Karsten's Encyclopædie previously published, have accustomed us. Such works are of the greatest possible service to literature. They are not produced in England. Our scientific men are too busy conquering new worlds, and lecturing on the exciting incidents of every fresh conquest. There is not a man too many thus engaged, but we confess that we sometimes turn with desire to our two great mediæval universities, where the liberality of our forefathers has established hundreds of fellowships, expressly that men might have leisure to devote themselves to life-long studies. How is it that Oxford and Cambridge leave us to sigh for impossible translations of laborious books like this, which has been sent us principally by the University of Kiel?

W. J.

De l'abus des boissons alcooliques. Par L. F. E. Bergeret. (Paris: Baillière et fils.)

THE author, who is the senior physician of the Hospital D'Arbois (Jura), has for the last thirty years devoted special attention to the effects produced by the excessive use of alcoholic liquors. Though denying that alcohol is in any form a necessary of life, he fully admits that the moderate use of alcoholic liquors has its advantages, and the work has been written chiefly with the object of affording a popular illustration of their physiological action, and of exciting a wholesome fear of their abuse. The volume contains a large amount of very interesting information, and the results of much personal observation relating to the consequences of habitual intoxication.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his Correspondents. No notice is taken of anonymous communications.]

The Cretaceous Epoch

THE President of the Linnean Society having been good enough to credit me, in the interesting address which has just appeared in NATURE, with the doctrine that the formation of chalk has been going on continuously over some part of the North Atlantic sea-bed from the Cretaceous epoch to the present time, I feel it due to my friend and colleague, Prof. Wyville Thomson, to disclaim most explicitly the merit of having originated this doctrine, which entirely belongs to him. I regret that the form in which it was promulgated in my report of the *Lightning* expedition should have led to this misapprehension; but that form was adopted at my friend's express desire; and I have on every occasion (as in my recent lecture at the Royal Institution) spoken of the idea as exclusively *his*. Whilst myself fully accepting and advocating it, I am the more anxious that there should be no mistake in this matter, as it seems to me that the idea is one which must exert so important an influence on the future course of geological inquiry that its introduction will be one of the landmarks in the history of the science.

The *similarity* of the globigerina-mud, at present in process of formation, to the mesozoic chalk, had been recognised by various microscopists who had studied both—as Ehrenberg, Bailey, Williamson, Huxley, Wallich, and Sorby. But no one, so far as I am aware, had ventured to advocate the *unbroken continuity* of the chalk formation throughout the Tertiary and Quaternary periods, until it was pointed out by Prof. Wyville Thomson that there is no adequate evidence of its ever having ceased, though its locality has changed.

This doctrine has received most striking confirmation from the discovery of the persistence of numerous cretaceous types, more or less modified, not merely in our own explorations, but in those carried on by the United States Coast Survey in the Gulf of Mexico. That we could not expect to find the cretaceous fauna *as a whole* in our modern chalk is evident from the considerations so admirably set forth in Mr. Bentham's address; and if the cretaceous epoch is to be limited by the duration of that particular *ensemble*, it may, of course, be affirmed to have closed long since. But if there has been a continuous production of globigerina-mud from the time when the cretaceous area of Europe was a deep-sea-bed, the elevation of that sea-bed, so as to bring a large part of it above the surface, being probably coincident with the depression of what is now the North Atlantic Basin, to which the globigerinæ then migrated, and if there be found in the newly-formed chalk so large a number of representatives of the types most characteristic of the old, as indicates the continued prevalence of the same general, physical, and biological conditions, there is, I submit, a fair justification of the assertion (the pregnant words of which are Professor Wyville Thomson's) that "we may be said to be still living in the cretaceous epoch." And, as I ventured to put forth in the lecture referred to, the *onus probandi* now seems to me to rest on those who assert that this continuity has been interrupted, and that the chalk formation now in progress is anything else than a continuation of that of which Dover Cliff is composed.

Whilst "on my legs," I would venture to call the attention of geologists to the question which has been much considered by Professor Wyville Thomson and myself, whether we are not justified, by the probabilities of the case, in carrying *backwards* the continuity of the accumulation of Foraminiferal mud on the deep-sea bed, into geological epochs far more remote; since there must have been deep seas in all periods, and the changes which modified the climate and depth of the sea-bottom must have been for the most part sufficiently gradual to admit of the migration of animals to whose continued existence in the same locality those conditions were no longer favourable. It is a most interesting confirmation of the view we are disposed to entertain on this point, that, as I have recently learned from Sir William Logan, coccoliths and coccospheres have been discovered in some of the most ancient Palæozoic limestones of North America.

WILLIAM B. CARPENTER

[See also Prof. Gümbel's letter to Prof. Huxley on this subject in NATURE, vol. I. p. 657.—*Ed.*]