

*The Fishes of Great Britain and Ireland.* By Dr. Francis Day, F.L.S., &c. (London: Williams and Norgate, 1880.)

THIS work is to be issued in nine parts, of which the first, containing sixty-four pages of text and twenty-seven plates, is now published. Waiting until the completion of the work for a more extended notice, we may for the present mention that in it the author purposes to give a natural history of the fishes known to inhabit the seas and fresh waters of the British Isles, with remarks on their economic uses and on the various modes of their capture, and that an introduction to the study of fishes in general is promised.

The synonymic lists of the species are given in great detail; the descriptive diagnoses treat of internal peculiarities as well as of external form; a good many interesting details appear under the headings of Habits, Means of Capture, Baits, Uses. The plates are from drawings by the author, and are very excellent.

*A Manual of the Infusoria.* By W. Saville Kent, F.L.S. (London: David Bogue, 1880.)

THIS sometime promised work has now advanced so far in its publication as the third part; when completed it will merit a somewhat lengthened notice, as the most important work on the subject which has issued from the British press. It is intended to include a description of all known flagellate, ciliate, and tentaculiferous Protozoa, British and foreign, and an account of the organisation and affinities of the Sponges. Each part (roy. 8vo in size) contains over 140 pages and eight plates. The general get-up of the work is magnificent, rather too much so for the poor student, already weighed down by the burden of the parts of Stein's "Infusionsthier," but very pleasant for the book fancier, and forming an imposing shrine wherein to inclose the records of these early-life forms.

The first five chapters (pp. 1-194) are introductory, treating of the general history of the group: on the sub-kingdom Protozoa, on the nature and organisation of the Infusoria, on spontaneous generation, on the nature and affinities of the sponges. The sixth chapter treats of the systems of classifications of the Infusoria, adopted by various authorities, from the time of O. F. Müller to the present date. The seventh chapter commences the systematic description of the Flagellata. The third part, just published, carries the work as far as the 432nd page and to the twenty-fourth plate.

*A Complete Course of Problems in Practical Plane Geometry . . . with an Introduction to Elementary Solid Geometry.* A New, Revised, and Enlarged Edition. By J. W. Palliser. (London: Simpkin, Marshall, and Co., 1881.)

THIS is a cheap manual, the cost of which can be easily met by any artisan desirous of studying the subject, while at the same time its contents enable it to fully satisfy the wants of all examinees in first, second, and third grade and similar papers of the Science and Art Department Examinations. The figures are very clearly drawn, well showing given, constructional and required lines; the form of the page enables four propositions to be fully treated of with the accompanying figures in four spaces on each page. In the constructions we do not look for novelty, but we have conciseness and great clearness generally prevailing. Here and there elegance of expression is sacrificed to brevity ("for all the Government examinations, the requirements of which this is a textbook, the same rules will apply, with exception of Nos. 1 and 6"). We have detected only three points which call for our notice: in Prop. 12 it strikes us as being simpler to use the same radius throughout, thus doing away with the necessity of taking two cases, as Mr. Palliser does; in Prop. 37, note, it is necessary to add *how* the point is

obtained; in Prop. 212 the letter E is made to do double duty in the proof. We can confidently recommend the book.

*Bericht über die Thätigkeit der Botanischen Section der Schlesischen Gesellschaft im Jahr 1877.* Erstattet von Prof. Dr. Ferdinand Cohn.

MOST of the papers in this part are in abstract; a few however are given at some length, and are of considerable interest. The additions to the phanerogamous Flora of Silesia and the record of new localities for rare plants occupy a considerable part of the pamphlet. Perhaps the most interesting paper is that on the Date-palm and Palm-forest at Elche in Spain, by General von Schweinitz. The palms there grow to a height of from seventy-five to eighty feet. The plants grow for about 100 years, then become stationary, and next decay. Each tree bears from the fifth year two to five bunches of fruit, each with from 500 to 600 dates, the weight of dates yielded by one tree being sometimes three centners. Many of the papers in this part are contributed by Goeppert and Cohn, and deal with all departments of botany. Dr. Thalheim describes a series of models of diatoms made in paraffin and glycerine soap, which exhibited the structure of all the chief groups of this order of plants.

#### LETTERS TO THE EDITOR

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The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

#### Dr. Carnelley's Hot Ice

THE remarkable observation made by Dr. Carnelley that ice in a vacuum is very permanent, even though surrounded by and apparently in contact with very hot bodies, has caused him to suppose and maintain that the ice itself is at a high temperature; a supposition which has been apparently confirmed by preliminary calorimetric determinations. This proposition has naturally met with a good deal of scepticism, and certainly requires ample and cautious verification; but I venture to think that there is nothing in it contradictory to our present knowledge of the properties of matter, though if verified (as, for the reasons to be stated, I fully believe it will be) it constitutes an important addition to that knowledge.

The notions which have occurred to me have made the essential part of the phenomenon so much clearer to myself that I fancy they will not be uninteresting to your readers.

By the term "vapour-tension" at a given temperature I mean, as I believe is usual, the pressure at which a liquid and a vapour can exist permanently together at that temperature, or the maximum pressure which the vapour is able to exert at that temperature, or the vapour pressure under which a liquid ceases to evaporate, or the total pressure at which it begins to boil. By the term "boiling-point" I mean the temperature of a liquid under a total pressure equal to its vapour-tension.

Now in order that a solid may sublime or pass directly into the vaporous condition without melting, it must be either at a temperature below the melting-point, so that no liquid attempts to form, or else at such a temperature that any liquid formed shall instantly evaporate; which it would certainly do if it were above the boiling-point, that is if the total pressure on it were less than the vapour tension.

A solid, under either of these circumstances, gives off vapour from its free surface at a rate depending on, but not necessarily proportional to, the supply of heat; for there is no definite subliming point for a solid, any more than there is a definite evaporating point for a liquid, so that the temperature of the solid need not remain constant. When a liquid is evaporating, the more you heat it the faster it evaporates, but not at a compensating rate, and the temperature rises as well: if this be true for a liquid, much more will it be true for a solid, whose