used, accomplishes all that is required. Hence the fine "new formula" lenses, dry (also provided with fronts to be used as immersion lenses), are as yet an unsurpassed boon for this special class of work. And certainly it is one which, in relation to biology, has a most important future. I know of course, that the optician has irresistible limitations to deal with; but the "new formula" dry lenses I have referred to, prove, in comparison with the preceding lenses, made by the same firm, that the dry lens was capable of most serviceable improvement. The same applies to a 1 th-inch lens, made recently at my request by the same skilful The advectory of the second process of the same second process of the same second process of magnifying power over the $\frac{1}{25}$ th-inch objective, by the same makers; and equally so in relation to their $\frac{1}{25}$ the size vector second process of the latter is years ago, when the superior magnifying power of the latter is considered. And yet the $\frac{1}{25}$ th inch and the $\frac{1}{55}$ th inch to which I refer, were admirable glasses, and have done excellent service. What is important, therefore, is that the larger demand for lenses that will "resolve" readily, difficult lined and beaded objects, which can certainly be best done, all things being equal, with "immersion" lenses; and to the improved manufacture of which Carl Zeiss' oil immersion gives apparently a new departure : should not lead the best opticians in England, the Continent, and America to abandon efforts for the still greater improvement of their dry lenses. They are of the greatest value to the practical biologist, working amidst the minutest living things in Nature, and from the study of which so much may be anticipated.

There is another feature in the use of this lens which is a drawback. The essential oil is a solvent of most of the varnishes and gums used in mounting, and "finishing," micro-scopical "slides;" and consequently some of our cherished "tests "--placed near the edge of the cover, and which we have have been in the habit of using for years, will not serve us. And this, of course, has a wider application. But this may be overcome by coating the edge with shellac-varnish, which the oil does not dissolve; only this is extremely brittle, and is not to be depended on.

But it is further necessary, in using this lens, that the objects should be mounted in balsam, or some other fluid with an equal refractive index. The majority of "dry" mounted objects are by no means better shown by this lens than by an ordinary im-mersion lens. But this may be overcome if the objects, such as frustules of diatoms, be "burnt" on to the cover. This inti-mately unites the crown glass cover and the object, making them practically one. If this be not done the ray coming from the object has to enter air before passing into the lens, so neu-tralising the special perpetting of the glage. But here again the tralising the special properties of the glass. But here again the *special* objects—used, for example, as "tests"—and obtained as the result of years of careful selection, are of no avail.

But this glass will be of great value in the study of rock structures, &c., because the oil will render them transparent without special polishing; and its great working distance will in such work be a great boon. It may perhaps be right to note that this lens, although not provided with the complex arrangement of "screw-collar adjustment," and although only "immersion," is higher in price than the most costly it by any English maker although the

than the most costly is the screw collar correction, and be both latter lens may have the screw collar correction, and be both "immersion" and dry. W. H. DALLINGER

St. James's Parsonage, Woolton, Liverpool, May 1

Science for Artists

IN NATURE, vol. xviii, p. 29, there is an article upon "Physical Science for Artists," in which one of my pictures is thus described : "No. 309. The Sunrise Gun, Castle Cornet, Guernsey—Tristram Ellis. Sky colour good ; impossible colour of unstanded and an article and a statement of the statem

of water under sky conditions given." It is not usual for an artist to answer a criticism, but in this instance I do so purely upon scientific grounds. The water shown is slightly ruffled with a breeze blowing *towards* the spec-The water angle above the horizon than the reflection makes below it. The entral part of the sea would reflect that portion of the sky which is at the very top of the picture, and if the critic will kindly re-examine, he will find the colours of those parts almost identical. As the sky gets greener towards the zenith with the given kind of sunrise, the sea appears greener than the portion of the sky shown, and this effect is heightened by the strong green local

colour of the water in the shadows. The sea was painted after careful consideration and study direct from nature, and remembering the breeze is nearly parallel with the line of vision, is, I think, correct. If the wind had been at right angles to this line the colour would have been quite different, and perhaps this is a matter which the writer of the article did not at the moment take into consideration. TRISTRAM ELLIS

Kensington, May 10

Time and Longitude

THERE is a practical answer to the problem put by Mr. Latimer Clark (NATURE, vol. xviii. p. 40). As a matter of fact the day begins, or rather the day is first named at the 180° meridian east or west from Greenwich; but this initial line, if I may call it so, diverges in the South Pacific to about 170° west from Greenwich, bringing many of the islands, as Fiji, Friendly, Sunday, Chatham, &c., into the same date with the nearest civilisation, Australia and New Zealand, Asia, &c. Without notes I cannot trace this line accurately between the Isles, but to take certain cases. Fiji counts its day east from Greenwich, Hawaii and Society west from Greenwich. At this moment I forget which division the Navigators enter, so to answer the problem, Where did last Monday begin?—At about 170° west longitude. Where did it end?—At 180° west in North Pacific. How long did it exist?—At any one place twenty-four hours, but taking adjacent places on either side of the initial line, Monday will have been a date during forty-eight hours; or if a vessel should be just on the eastern side of the 180° meridian, and keeping, as she should, Greenwich time through Ame-rican route, Monday will have been a date during very nearly forty-nine hours.

The case proposed by Mr. Latimer Clark is no hypothetical one. During the war of 1855 the squadron in the Pacific was sent across to co-operate with the fleet in China. It found itself a day behind the China fleet as it had entered the Pacific round Cape Horn, whilst the China fleet had passed round the Cape of Good Hope, and for a short time the two fleets side by side kept different days. Again the steamers from San Francisco to Japan alter their dates temporarily whilst in Japan to suit the local reckoning, and enter both dates in the log. J. P. MACLEAR

May 13

Menziesia Cærulea

I AM rather surprised to see it stated by the Rev. M. J. Berkeley in NATURE (vol. xviii. p. 15) that the late "Dr. Thomas Thomson was so fortunate, after three times ascending the Sow of Atholl, as to *rediscover the long lost Menziesia carulea.*" I doubt if it was ever lost, cer-tainly it has not been long lost. I find, on looking over my Harbarium, that my specimen was collected Augure 6 1865 Herbarium, that my specimen was collected August 6, 1867; since then I have heard of it having been found by others. I saw several plants which I left, and I have little doubt that some of them are there still. Fortunately the preservation of the plant is due to the following circumstances — 1st. That it flowers in May; few botanists visit the Highlands till later in the year. 2nd. The plant has a considerable general resemblance to Empetrum nigrum. I have seen them growing in the same to Emperation more than a case it requires a very sharp eye to distinguish one from the other even at a short distance. 3. The plants are widely scattered over the hill, so that it would require days to enable any one to say that it was lost; indeed no plant is likely to be lost so long as the natural conditions remain unchanged. It may be stolen but not lost. I take for granted, of course, that every true botanist will be merciful in such a case. ALEX. CRAIG CHRISTIE

Edinburgh, May 6

"Hermetically Sealed"

WHAT is hermetic scaling? I have been under the belief that it means scaling with the material composing the object to be scaled; as in the case of scaling a glass tube in the spirit-lamp. M. Bordier's charming paper on the Greenland Eskimo (NATURE, vol. xviii, p. 16), says that an aperture in a hut is hermetically scaled with goldbeater's skin; and that a fisherman is hermeti-cally enveloped round the loins by a leathern bag. You may, perhaps think it worth while in the interest of accurate cally enveloped round the joins of a builder and a curate perhaps, think it worth while, in the interest of accurate the point. W. T. scientific terminology, to settle the point. May 10