dyne. I use *vis* (pl. *vires*) to express the absolute unit of force in the F. P. S. system of units, with the multiples *decemvires*, *centivires*, *millivires*. Thus nine *centivires* is very closely equal to the weight of twenty-eight pounds in this country.

I should add that the distinction between "weight" and "mass," generally recognised, but not uniformly insisted on in practice, is clearly pointed out in Prof. Everett's useful tables.

University Hall, March 18 J. J. WALKER

The Dry River-beds of the Riviera

THOSE who have visited the Riviera of Piedmont will remember as one of its most remarkable features the broad stony river-beds, sometimes with a meagre rill trickling down a narrow channel in the middle, sometimes entirely dry, but never with any body of water sufficient to account for the immense bed; the Paglione at Nice, with its bed spanned by a bridge of three broad arches, and with a stream never more than four or five feet wide and a few inches deep, is a specimen of what I mean. Can any of your scientific readers tell me what and when was the change of climate which caused what must once have been large rivers to shrink into mere rivulets? To all appearance it must have been within historical times, as the river-beds are distinct and still bare, without any encroachment of vegetation. Probably the simplest way of accounting for the phenomenon would be, by showing that there has been a great diminution in the snow lying on the Alpes Maritimes, which are drained by these rivers. It is remarkable, too, that in many of the narrow valleys running up into the hills, now quite dry, there are evident traces of torrents and waterfalls apparently in recent times. R. E. BARTLETT

Nice, March 7

The Ocelli in Insects

AT vol. xiii, p. 168, H. Müller calls the attention of entomologists to a subject which has interested other entomologists before—the function of the ocelli in insects. With due deference to a suggestion made by such an authority, it seems to me that the size of the ocelli in hymenopterous insects is not dependent on their nocturnal habits. Why in hymenoptera more than in other orders? Indeed, it may be doubted whether in some insects the ocelli are organs of vision at all, or at least whether they are of any practical use as such in the imago. Their number, as well as size, differs in different species of the same order, seemingly without regard to their habits, whether diurnal or nocturnal, and in many moths they are so completely concealed by the scales that it is necessary to divide the head to ascertain whether they are present or absent, so that it is difficult to understand how they can be of any service as organs of vision. May they not in the imago, in such cases, be merely functional remnants of larval organisations. C.

Colorado, Feb. 15

The Recent Storm

YOUR meteorological readers will probably guess that I have made an error of an inch inadvertently in the barometer readings of Sunday week. Also the last line should contain "nine hours" in place of seven. T. S. USBORNE

Staplehurst, Kent, March 21

OUR ASTRONOMICAL COLUMN

STRUVE'S COMPANION OF PROCYON.—Mr. Otto Struve, in his remarks at the Royal Astronomical Society, in May, 1874, upon the later Pulkowa observations of the faint companion to Procyon, which he discovered on March 19, 1873, and which has been supposed to account for the anomalous motion of the latter, established by the researches of Prof. Auwers, referred to the circumstance of the small star not having been up to that time perceived with the 26-inch refractor of the Washington Observatory. Admiral Davis, the present superintendent of this establishment, has communicated to the *Astronomische Nachrichten*, the particulars of observations principally instituted for the purpose of confirming the existence of Struve's companion. The observations were commenced in November 1873, and have been continued to the beginning of the present year. On no single occasion have Professors Newcomb and Holden, the usual observers, or any one who has examined the star with the 26-inch refractor, been able to detect a companion in the position assigned by the Pulkowa measures. Close faint stars have, however, been remarked in other position-angles, about three of which it is stated no doubt is entertained:—

1.	Position about 10°	Distance	6″
2.	„ 36°	„	8″·8
3.	„ about 50°	„ less than	10″

And it is said to be quite possible there may be one or two more. No. 2 is the most readily visible.

Mr. O. Struve's measures gave the following mean results:—

1873, March 28	Position 90°·24	Distance 12″·49
1874, April 10	„ 99°·60	„ 11″·67

How then is the contradictory character of the Pulkowa and Washington observations to be accounted for? It can hardly be, as suggested by Mr. Struve, that "the surpassing brilliancy of the principal star may have hindered the recognition of the small companion in its neighbourhood," since notwithstanding it does not appear that a smaller aperture than 22 inches was employed during the Washington observations, three closer companions were considered to be certainly in existence. There remains the supposition of variability of light of the Pulkowa companion, if difference of atmospheric circumstances be ignored as inadequate to explain the want of success of other observers in detecting it.

Nothing more is heard of the Smythian *orange-tinged* eighth magnitude distant from Procyon in 1833, 145″ on an angle of 85°. As is well known, the only observation confirmatory of the existence of this star is that by Mr. Isaac Fletcher, M.P., early in March, 1850, which gave for the position 84° 19′; most unfortunately the distance was not measured, because there is a star of similar brightness on very nearly the same angle but at a distance of about 330″ measured by Capt. Jacob, Mr. Powell, and the late Lord Wrottesley. Anyone, however, who reads Mr. Fletcher's letter to Admiral Smyth, printed in "Sidereal Chromatics," p. 69, will see that there is little doubt the object observed in 1850 was the same that was measured, or rather estimated, as to position in 1833, the difference of distance not admitting of a mistake on the part of an experienced and careful astrometer. The more distant star was judged to be blue by Mr. Powell; the orange-tinge recorded in "the Cycle" is a characteristic of a large number of the known variable stars.

THE TOTAL SOLAR ECLIPSE OF 1883, May 6.—In this eclipse, in which the duration of totality where the sun is near the meridian will exceed five minutes, the course of the central line appears to be a most unfavourable one for observation, being almost entirely a sea-track. The elements are very approximately as follows:—

Conjunction in R.A., May 6, at 9h. 44m. 42s. G.M.T.

R.A.	43° 30′ 52″
Moon's hourly motion in R.A.	38 23
Sun's „ „ „	2 25
Moon's declination	16 11 32 N.
Sun's „	16 37 53 N.
Moon's hourly motion in decl.	7 26 N.
Sun's „ „ „	0 42 N.
Moon's horizontal parallax	60 52
Sun's „ „	0 9
Moon's true semi-diameter	16 35
Sun's „ „	15 51

Hence the central and total eclipse begins upon the earth in longitude 156° 1′ E. of Greenwich, and latitude 34° 43′ S., and ends in longitude 86° 44′ W., and latitude 13° 41′ S.; the eclipse is central with the sun on the meridian in 147° 4′ W., and 9° 11′ S. The following are also points upon the central line:—

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