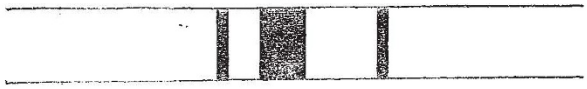
I do not wonder at these omissions, since unfortunately the Italian language is very little understood out of our country.

Rome, February 24 P. R. SECCHI

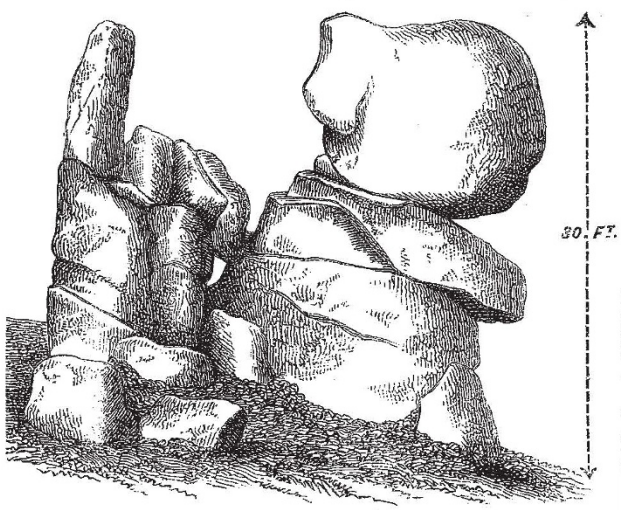
P.S.—On the 15th of this month I obtained a sight of the spectrum of Borelly's Comet. It was composed of a bright line very large in the green, another *more* refrangible in the blue, and another *less* refrangible in the yellow (?) but this was narrow and faint. Their figure was approximately as follows :—



I could not determine them better. The lines, especially the central one, were pretty brilliant.

"Stone Rivers"

THE interesting account of the mode of formation of "Stone Rivers," given in a late number by Sir C. Wyville Thomson, recalls to my mind some apparent moraines which I observed, and somewhat similarly explained, some years ago in the Hartz Mountains. In a paper read before the Geological Society of Dublin in 1872,[1] I thus speak of them : "The first thing that one notices on entering this valley [the 'Ockerthal'] from the north is that the bed of the stream is crowded with granite pebbles and boulders, which become of greater size as we proceed up the valley. The boulders are soon so large—many of them some tons in weight—and are situated so far up the slopes on each side, that the first idea is, we have here the morass of a former great glacier. I looked diligently for ice marks, but could see none ; and I soon found that the causes which have the effect of scattering huge blocks of rock on the slopes and on the bed of the river are now at work and are slowly, but surely, altering the contour of the adjoining granitic mountains. . . . . All over the sides and upon the summits of these mountains are scattered the most fantastic piles of immense boulders. Some of them are over thirty feet in height and form conspicuous objects in the landscape ; others, again, are deep in the forest, away from pathways, and are not to be seen until one climbs quite up to them. . . . . It is quite clear that the contiguous



A pile of granite rocks on a mountain overlooking Ockerthal.

surfaces of the blocks in these piles are undergoing a slow decomposition, that the joints are becoming gradually looser, and in consequence the cohesion of the component pieces less and less. Sooner or later the upper portions must either slip off or topple over, and roll down the mountain side. And this is not mere theory, for I hear that every now and then a boulder does fall and comes crushing down the hill until quietly deposited near the bottom. It would appear that while the surrounding rock has been decomposed and has fallen down in the manner indicated, these heaps have the longer resisted. But they are yet to follow in their turn ; when the atmospheric agencies have sufficiently done their work, gravity will come in and lower the whole."

Instances of the turning over of the edges of slaty strata from the weight of the superincumbent mould and vegetation are common in the Hartz. I find in an old note-book the following entry :—"I was interested at seeing the upper slates on the left wall [of a quarry near Goslar] bent so much over that [their dip has become 75° to the north [the regular cleavage dip of the district is about 40° *south*]. Whether this is due to the weight of the ground above, to a landslip, or to the action of a glacier, I am not quite sure. I incline, however, to the first theory, for, although the slope of the hill is not high, the constant weight of the superincumbent earth and rubbish, bearing downwards for ages, would, it seems to me, be enough to cause such a result."

Scientific Club PHIN. S. ABRAHAM

[1] "Notes on the Geology of the Hartz," by P. S. Abraham, M.A., B.Sc., &c. Plates VIII. to XI. Journ. R. Geol. Soc. of Ireland, vol xiii. Pt. 3, p. 92. 1873.

The Measurement of the Height of Clouds

AMONG the various parallactic methods for determining cloud heights, one of which Mr. Malloch has put in practice (NATURE, vol. xv., p. 313), the use of the cloud shadow as a second station seems worthy of notice, as it requires very simple apparatus and observations.

On any partially cloudy day at the sea-side, an observer with a sextant may, from a cliff, easily determine cloud heights by the following elements :—A. Altitude of a given point of cloud above the horizon, allowing for dip. B. Depression of the shadow of the same point on the surface of the sea. C. Sun's altitude. D. Lineal elevation of observer above sea-level. The measurements should be taken when the cloud, the sun, and the observer all lie in a perpendicular plane ; *i.e.*, when the cloud shadow is seen on the sheen of light reflected from the wavelets ; otherwise azimuth observations, and less simple calculations, must be applied. Full moonlight might also be used at night.

On practically trying this method in September, 1875, the time of day was selected when the sun was in the direction to or from which the wind was blowing ; thus the cloud shadows slowly sailed along the sheen on the sea, and could be followed by successive timed observations for half-an-hour or more, so that their velocity, and any variation in their height, could be ascertained.

The results are of course most accurate when both clouds and sun are at considerable altitudes, and I believe that this method will give results quite as accurate as the photographic process. The rounded forms are the greatest trouble, and measurements of the centres of little isolated masses of cloud are the best. The height of the observer above the sea is of course easily obtained by the angular width of a base measured on the beach.

The same method might be employed with shadows on land, by using a theodolite and a map ; and though it is only applicable to one or two classes of clouds, yet its simplicity may induce some of your sea-side readers to make such observations.

Bromley, Kent W. M. FLINDERS PETRIE

The "Hog-Wallows" of California

MY friend, Mr. Thomas Belt, F.G.S., has kindly sent me the following extract from a paper by Prof. Joseph Le Conte, in the *American Journal of Science* for 1874 (p. 366), in which an explanation is given of the above-named formation (NATURE, vol. xv. p. 274) and of similar mounds farther north. It will be seen that Prof. Le Conte refers them wholly to "surface-erosion," but it is not clear whether he means "pluvial" or "aerial" erosion, or the two combined. More explanation seems required to account for the *removal* of the eroded matter over a surface thirty miles wide without producing any continuous ravines or other water channels :—

"*Prairie Mounds.*—The irregularly ramifying grassy glades or prairies already described as existing at the southern extremity of Puget Sound are studded over as thickly as possible with *mounds* about three to four feet high and thirty or forty feet in diameter at base." . . .

"The whole country between the Dalles and the upper bridge of Des Chutes River, a distance of about thirty miles, is literally covered with these mounds." . . . "The true key to their formation is given here, as it was not at Mound Prairie, by the great variety of forms, sizes, and degrees of regularity which they assume. They vary in *size* from scarcely detectable pimples to mounds five feet high and forty feet in diameter at base, and in *form* from circular through elliptic and long-elliptic to ordinary hill-side erosion-furrows and ridges." . . .