

of the original pebble. The operator had first broken the pebble into two halves, and then chipped two-thirds of one half away in flakes, of which I found thirteen; the remainder of that half he threw down as useless. Of the other half I have nine flakes, and one is missing; the unbroken remainder is also gone. Perhaps the workman threw it away to a distance in disgust, as he does not seem to have got a single satisfactory flake out of the whole flint. The appearance of the half which I have almost complete is extremely like the illustration of the core made up out of a modern flint-knapper's flakes in Evans' "Stone Implement," except that the crowns of the flakes are triangular instead of quadrangular. There are the same small interstices between the crowns of the flakes, showing that the blow splinters off on each side of the bulb of percussion a small fragment, as well as the flake itself. This explains why the average concavity on the core is slightly less than the average convexity of the flake at the top of the bulb of percussion.

Crosby, Liverpool

F. ARCHER

Climate of Atacama

SOME practical evidence as to climate has come forward at the shareholders' meetings of the northern Railways of Chile, the Coquimbo, Tongoy, and Carrizal and Cerro Blanco. In each of these districts torrential rains have occurred, which are all reported as unexampled. Long residents state that rain was formerly little known, and such was my observation in connection with the district. One reason why the weather is deserving of attention is that no change has taken place in the water-surface or vegetation. A similar change to rain in the Suez and Cairo district is attributed to the Suez Canal, but it is a matter worthy of consideration whether we are not really entering on a cycle of change. So far as Atacama is concerned, if at any former period there were rains, the conditions of habitation must have been different from those which have been so long considered to apply to the rainless district.

HYDE CLARKE

PHYLLOXERA CONGRESS.—Dr. E. R. F. wishes to know where he can obtain a full report of the recent Phylloxera Congress at Bordeaux.

SCIENTIFIC INSTRUMENTS (J. S. MARSTON).—We cannot undertake to commend any particular instrument maker; you should get the lists of the leading makers, whose addresses you will find in our advertising columns.

HOLLOWAY COLLEGE.—So far as we understand this is not a charitable institution: Miss S. should write to the authorities at the College, Staines.

EFFECTS OF COLOURED GLASS (E. M.).—It is owing to the law you refer to.

THE AUTUMN SKY

I.

MANY and varied must ever be the regrets that attend the departure of summer days and summer pleasures; and their remembrance casts a lingering sadness even over the bright and beautiful hours that often alleviate the approach of sterner and gloomier seasons. Such impressions however are not shared alike by all. Few perhaps altogether escape their influence; but in some classes they are softened or even obliterated by the development of interests and pleasures of a very different description. Such is especially the case with the astronomical observer. The shortening of the twilight hours is to him as the withdrawing of a veil that obscured the minuter, yet not least interesting, features of the glorious scenes that he loves to explore; and he views with fresh pleasure the deepening tone of the background of unfathomable space, as the atmospheric illumination fades steadily away. We cannot indeed in our latitudes rival the transparent purity of the south, that gives such a magnificent depth to the aspect of the firmament, and throws out in such radiant brilliancy the host of heaven; yet even our autumnal skies are so great an advance upon

the misty softness of the summer's night that the observer cannot but rejoice in their return.

These remarks are very obvious, not to say somewhat late in their application, when the sun has already advanced so far upon his downward way: yet they may not be entirely inappropriate when we are about to draw attention to some of the present characteristics of the sky. Much now in every direction invites the inquiring gaze, and an early hour challenges the opening of the observatory, or the arrangement of the telescope. Eye-pieces should be cleaned, adjustments rectified. Instruments of all kinds and sizes may be called into profitable and pleasant requisition—let the possessors only make the best of what they have. If we do not see more than we anticipate, though that may sometimes happen among the uncertainties of the English climate, yet we shall surely see enough to amaze us at the greatness of the Creator.

From its pre-eminent brightness, the planet Jupiter will naturally be the first object of attention. Belts we shall expect to find traversing his great broad disk, for they are very seldom absent; but there also we shall encounter a more unusual object, the ruddy patch, which has been sometimes described as vermilion, possibly from "personal equation," but which to most eyes exhibits a cinnamon or brick-red hue. There it has been, with scarcely any appreciable change, for the last three years—a degree of permanence equalled, and even surpassed, by some dark spots in ancient days, but singularly contrasted with the general mutability of the markings of the disk. What is that spot? and where is it situated with regard to the real surface of the planet? Is it mere superficial colouring? but if so, of what material? Or is it an opening in the great mass of clouds—or what we call such—that is thought to envelope this colossal globe? But if so, how strange that its outline should have remained so steadily permanent. And in that case, as it is difficult to suppose it at the same level with those dark grey bands which have been ascribed to a similar absence of vapour, shall we place it above or below them? We might infer the former, if it is the case, as has been said, that it is more easily traced up to the limb than the dark belts; but the observation is delicate, and the effacing of the grey bands in that situation is not matter of universal consent. We might possibly conceive, on other grounds, admitting that the dark belts do indicate a deep clearing of vapour, that ruddy tints are caused by something at a higher level, because these are occasionally suffused over the whole equatorial zone and its markings, so as sometimes even to affect the general colour of the planet to the naked eye. The interposition of trees has prevented the writer hitherto from observation this year, but the accompanying sketch, taken 1879, November 12, with my $9\frac{1}{2}$ -inch

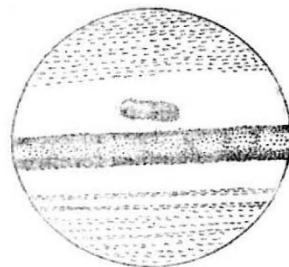


FIG. 1.

"With" mirror, may perhaps be of some interest in comparison with the observations of the present season.

The image, it will be noted, is telescopic, *i.e.* inverted.

¹ Traces of it may be detected in the Earl of Rosse's observations in 1873; but it seems to have been unnoticed in the interval.