the Academy of Sciences, was followed by another, made by M. Flourens, the Minister of Foreign Affairs.

They certainly manage these things better in France! Fancy a scientific meeting at Greenwich Observatory, addressed by the head of the English Foreign Office!

What M. Flourens said had better be given in his own words:—

Messieurs,—

J'ai l'honneur de vous souhaiter la bienvenue au nom de la France, qui vous offre ici sa cordiale hospitalité.

Je me félicite que cette mission me soit échue de vous complimenter au nom du gouvernement de la République, de vous remercier d'avoir accepté les invitations qui vous ont été adressées par l'éminent et sympathique directeur de notre Observatoire.

C'est une grande œuvre que celle que vous allez entreprendre, et, grâce aux lumières que vous nous apportez de tous les points du globe, mener à bonne fin. Dans la poursuite de cette œuvre, vous aurez, je n'en doute pas, l'appui de tous les gouvernements, qui sont animés aujourd'hui d'une noble émulation pour le développement de la science. En tout cas, le concours du gouvernement de la République française, au nom de laquelle j'ai l'honneur de parler, vous est dès à présent acquis.

Vous allez, dans une féconde et cordiale entente, jeter les bases de l'exécution d'une carte du ciel dont la précision dépassera de beaucoup non seulement tout ce que l'on avait réalisé, mais encore tout ce que l'on avait osé rêver jusqu'à ce jour. Par une merveilleuse application de la photographie, de cet art si riche en résultats imprévus, vous allez diriger l'œil humain dans des profondeurs où, à l'aide des plus puissants télescopes, on n'avait pas cru possible de le faire pénétrer. Le nombre des étoiles inconnues jusqu'ici, dont l'existence sera ainsi révélée, est incalculable.

Il sera pour votre nom, messieurs, une gloire éternelle d'avoir apporté votre précieuse collaboration à l'inauguration de cette grande entreprise, et le jour de l'ouverture de ce congrès marquera dans les annales de la science humaine.

Une ère nouvelle s'ouvre pour l'astronomie physique comme pour l'astronomie mathématique, qui vont avoir à leur disposition un moyen d'investigation, de contrôle, de précision qui étendra dans une proportion indéfinie la fécondité de leurs recherches. Vous allez écrire la première page authentique des transformations et des modifications de la matière cosmique, c'est-à-dire l'histoire de l'univers lui-même.

Je voudrais complimenter, par leurs noms et par leurs œuvres, chacun des savants illustres qui sont réunis dans cette enceinte. Mais j'abuserais des précieux et trop courts instants de notre réunion. Nos hôtes trouveront bon que je les honore tous en la personne de leur doyen, de l'illustre M. Struve, dont le nom est si sympathique à la France et dont on fêtait naguère le vingt-cinquième anniversaire comme directeur du célèbre observatoire de Poulkova.

Agréez, messieurs, avec mes vœux les plus sincères pour la réussite de vos efforts, la nouvelle assurance du concours du gouvernement de la République.

Prof. O. von Struve replied to this address in a short and impressive speech, and the Conference proceeded to elect officers.

Admiral Mouchez, the Director of the Observatory, was elected Honorary President, and Prof. O. von Struve Acting President. As Vice-Presidents, Messrs. Auwers, Christie, and Fizeau were elected; as Secretaries, Messrs. Tisserand and Bakhuyzen, assisted by Dunér and Trépied.

The Conference then proceeded to pass the following resolutions:—

(1) The progress realised in astronomical photography renders it absolutely necessary that the astronomers of the

present century should undertake a conjoint photographic record of the heavens.

(2) This work shall be undertaken at certain stations to be selected, and with instruments identical in all essential points.

(3) The principal objects sought to be attained shall be:—

(a) To record the general state of the heavens at the present time by obtaining data which will enable us to determine the position and brilliancy of all the stars down to a certain magnitude, to be hereafter agreed on, with the greatest precision possible; the magnitudes to be expressed according to some photographic standard to be hereafter determined.

(b) To fix upon the best means to utilise at the present time the various data furnished by photographic processes.

After these resolutions were passed, the Conference proceeded to appoint a Committee of nineteen members to consider the kind of instrument to be employed, and the lowest magnitude of star it will be necessary to register. The Committee appointed consists of the following astronomers:—MM. Auwers, Bakhuyzen, Christie, Common, Dunér, Fizeau, Gill, Paul Henry, Janssen, Kapteyn, Lœwy, Rayet, Roberts, Peters, O. von Struve, Tacchini, Thiele, Vogel, and Weiss. When this Committee has brought up its Report, the other questions will be considered by a number of Sections, to be appointed to consider and report upon them to the Conference.

Hospitality is not lacking to make the labours of the Conference as light as possible. Admiral Mouchez, who gave a *soirée* on the evening of the 19th, gives a banquet on the 24th. The astronomers are to be received by the President of the Republic, and also at the Théâtre Français by the members of the Institute, on Saturday. There is also to be a ball at the Hôtel Continental, given by Le Comité des Amis de Science.

We warmly congratulate French men of science upon the magnificent results obtained by their countrymen the Brothers Henry, which have been among the causes that have brought the Conference together. If all goes well, the work of the Conference will mark an epoch in the history of astronomy.

HOMERIC ASTRONOMY

I.

THE Homeric ideas regarding the heavenly bodies were of the simplest description. They stood, in fact, very much on the same level with those entertained by the North American Indians, when first brought into European contact. What knowledge there was in them was of that "broken" kind which (in Bacon's phrase) is made up of wonder. Fragments of observation had not even begun to be pieced in one with the other, and so fitted, ill or well, into a whole. In other words, there was no faintest dawning of a celestial science.

But surely, it may be urged, a poet is not bound to be an astronomer. Why should it be assumed that the author (or authors) of the "Iliad" and "Odyssey" possessed information co-extensive on all points with that of his fellow-countrymen? His profession was not science, but song. The argument, however, implies a reflecting backward of the present upon the past. Among unsophisticated peoples, specialists, unless in the matter of drugs or spells, do not exist. The scanty stock of gathered knowledge is held, it might be said, in common. The property of one is the property of all.

More especially of the poet. His power over his hearers depends upon his presenting vividly what they already perceive dimly. It was part of the poetical faculty of the Ithacan bard Phemius that he "knew the works of gods and men" ("Od." i. 338). His special function was to render them famous by his song. What he had heard

concerning them he repeated; adding, of his own, the marshalling skill, the vital touch, by which they were perpetuated. He was no inventor: the actual life of men, with its transfiguring traditions and baffled aspirations, was the material he had to work with. But the life of men was very different then from what it is now. It was lived in closer contact with Nature; it was simpler, more typical, consequently more susceptible of artistic treatment.

It was accordingly looked at and portrayed as a whole; and it is this very *wholeness* which is one of the principal charms of primitive poetry. An irrecoverable charm; for civilisation renders existence a labyrinth of which it too often rejects the clue. In olden times, however, its ways were comparatively straight, and its range limited. It was accordingly capable of being embraced with approximate entirety. Hence the encyclopædic character of the early epics. *Humani nihil alienum*. Whatever men thought, and knew, and did, in that morning of the world when they spontaneously arose, found a place in them.

Now, some scheme of the heavens must always accompany and guide human existence. There is literally no choice for man but to observe the movements, real or apparent, of celestial objects, and to regulate his actions by the measure of time they mete out to him. Nor had he at first any other means of directing his wanderings upon the earth save by regarding theirs in the sky. They are thus to him standards of reference and measurement as regards both the fundamental conditions of his being—time and space.

This intimate connexion, and, still more, the idealising influence of the remote and populous skies, has not been lost upon the poets in any age. It might even be possible to construct a tolerably accurate outline-sketch of the history of astronomy in Europe without travelling outside the limits of their works. But our present concern is with Homer.

To begin with his mode of reckoning time. This was by years, months, days, and hours ("Od." x. 469, xi. 294). The week of seven days was unknown to him; but in its place we find (in the "Odyssey," xix. 307) the triplicate division of the month used by Hesiod and the later Attics, implying a month of thirty, and a year of 360 days, corrected, doubtless, by some rude process of intercalation. A corresponding apportionment of the hours of night into three watches (as amongst the Jews before the Captivity), and of the hours of day into three periods or stages, prevails in both the "Iliad" and "Odyssey." The seasons of the year, too, were three—spring, summer, and winter—like those of the ancient Egyptians and of our Anglo-Saxon forefathers;¹ for the Homeric *Opora* was not, properly speaking, an autumnal season, but merely an aggravation of summer heat and drought, heralded by the rising of Sirius towards the close of July. It, in fact, strictly matched our "dog-days," the *dies caniculares* of the Romans. This rising of the dog-star is the only indication in the Homeric poems of the use of a stellar calendar such as we meet full-grown in Hesiod's "Works and Days." The same event was the harbinger of the Nile-flood to the Egyptians, serving to mark the opening of their year as well as to correct the estimates of its length.

The annual risings of stars had formerly, in the absence of more accurate means of observation, an importance they no longer possess. Mariners and husbandmen, accustomed to watch, because at the mercy of the heavens, could hardly fail no less to be struck with the successive effacements by, and re-emergences from, the solar beams, of certain well-known stars, as the sun pursued his yearly course amongst them, than to note the epochs of such events. Four stages in these periodical fluctuations of visibility were especially marked by primitive observers. The first perceptible appearance of a star in the dawn was

known as its "heliacal rising." This brief glimpse extended gradually as the star increased its seeming distance from the sun, the interval of precedence in rising lengthening by nearly four minutes each morning. At the end of close upon six months occurred its "acronychal rising," or last visible ascent from the eastern horizon after sunset. Its conspicuousness was then at the maximum, the whole of the dark hours being available for its shining. To these two epochs of rising succeeded and corresponded two epochs of setting—the "cosmical" and the "heliacal." A star set cosmically when, for the first time each year, it reached the horizon long enough before break of day to be still distinguishable; it set heliacally on the last evening when its rays still detached themselves from the background of illuminated western sky, before getting finally immersed in twilight. The round began again when the star had arrived sufficiently far on the other side of the sun to show in the morning—in other words, to rise heliacally.

Wide plains and clear skies gave opportunities for closely and continually observing these successive moments in the revolving relations of sun and stars, which were soon found to afford a very accurate index to the changes of the seasons. By them, for the most part, Hesiod's prescriptions for navigation and agriculture are timed; and although Homer, in conformity with the nature of his subject, is less precise, he was still fully aware of the association.

His sun is a god—Helios—as yet unidentified with Apollo, who wears his solar attributes unconsciously. Helios is also known as Hyperion, "he who walks on high," and Elector, the "shining one." Voluntarily he pursues his daily course in the sky, and voluntarily he sinks to rest in the ocean-stream. Subject, however, at times to a higher compulsion. For, just after the rescue of the body of Patroclus, Here favours her Achaian clients by precipitating at a critical juncture the descent of a still unwearied and unwilling luminary ("Iliad," xviii. 239). On another occasion, however, Helios memorably asserts his independence, when, incensed at the slaughter of his sacred cattle by the self-doomed companions of Ulysses, he threatens to "descend into Hades, and shine among the dead" ("Od." xii. 383). And Zeus, in promising the required satisfaction, virtually admits his power to abdicate his office as illuminator of gods and men.

Once only, the solstice is alluded to in Homeric verse. The swineherd Eumæus, in describing the situation of his native place, the Island of Syrie, states that it is over against Ortygia (Delos), "where are the turning-places of the sun" ("Od." xv. 404). The phrase probably indicates the direction in which Delos lay from Ithaca, being just so much south of east as the sun lies at rising on the shortest day of winter. To those early students of Nature, the travelling to and fro of the points of sunrise and sunset, furnished the most obvious clue to the yearly solar revolution; so that an expression, to us somewhat recondite, conveyed a direct and unmistakable meaning to hearers whose narrow acquaintance with the phenomena of the heavens was vivified by immediate personal experience of them.

Selene first takes rank as a divine personage in the Homeric hymns. No moon-goddess is recognised in the "Iliad" or "Odyssey." Nor does the orbéd ruler of "ambrosial night," regarded as a mere light-giver or time-measurer, receive all the attention that might have been expected. A full moon is, however, represented with the other "heavenly signs" on the shield of Achilles, and figures somewhat superfluously in the magnificent passage where the Trojan watch-fires are compared to the stars in a cloudless sky:

"Even as when in heaven the stars about the bright moon shine clear to see, when the air is windless, and all the peaks appear and the tall headlands and glades, and

¹ Lewis, "Astr. of the Ancients," p. 11. Tacitus says of the Germans: "Autumni perinde nomen ac bona ignorantur" ("Germania," cap. xxvi.).

from heaven breaketh open the infinite air, and all stars are seen, and the shepherd's heart is glad; even in like multitude between the ships and the streams of Xanthos appeared the watch-fires that the Trojans kindled in front of Ilios."¹

Here, as elsewhere, the simile no sooner presents itself than the poet's imagination seizes upon and develops it without overmuch regard to the illustrative fitness of its details. The multitudinous effect of a thousand fires blazing together on the plain inevitably suggested the stars. But with the stars came the complete nocturnal scene in its profound and breathless tranquillity. The "rejoicing shepherd," meantime, who was part of it, would have been ill-pleased with the darkness required for the innumerable stellar display first thought of. And since, to the untutored sense, landscape is delightful only so far as it gives promise of utility, brilliant moonlight was added, for his satisfaction and the safety of his flock, as well as for the perfecting of that scenic beauty felt to be deficient where human needs were left uncared for. Just in proportion, however, as rocks, and peaks, and wooded glens appeared distinct, the lesser lights of heaven, and with them the fundamental idea of the comparison, must have become effaced; and the poet, accordingly, as if with a misgiving that the fervour of his fancy had led him to stray from the rigid line of his purpose, volunteered the assurance that "all the stars were visible"—as, to his mind and eye, they doubtless were.

Of the "vivid planets" thrown in by Pope there is no trace in the original. Nor could there be; since Homer was totally ignorant that such a class of bodies existed. This curious fact affords (if it were needed) conclusive proof of the high antiquity of the Homeric poems. Not the faintest suspicion manifests itself in them that Hesperus, "fairest of all stars set in heaven," is but another aspect of Phosphorus, herald of light upon the earth, "the star that saffron-mantled Dawn cometh after, and spreadeth over the salt sea" ("Iliad," xxiii. 226-27). The identification is said by Diogenes Laertius to have been first made by Pythagoras; and it may at any rate be assumed with some confidence that this elementary piece of astronomical knowledge came to the Greeks from the East, with others of a like nature, in the course of the sixth or seventh century B.C. Astonishing as it seems that they should not have made the discovery for themselves, there is no evidence that they did so. Hesiod appears equally unconscious with Homer of the distinction between "fixed" and "wandering" stars. According to his genealogical information, Phosphorus, like the rest of the stellar multitude, sprang from the union of Astræus with the Dawn ("Theogony," 381), but no hint is given of any generic difference between them.

There is a single passage in the "Iliad," and a parallel one in the "Odyssey," in which the constellations are formally enumerated by name. Hephæstus, we are told, made for the son of Thetis a shield great and strong, whereon, by his exceeding skill, a multitude of objects were figured.

"There wrought he the earth, and the heavens, and the sea, and the unwearying sun, and the moon waxing to the full, and the signs every one wherewith the heavens are crowned, Pleiads, and Hyads, and Orion's might, and the Bear that men call also the Wain, her that turneth in her place, and watcheth Orion, and alone hath no part in the baths of Ocean" ("Iliad," xviii. 483-89).

The corresponding lines in the "Odyssey" occur in the course of describing Ulysses' voyage from the isle of Calypso to the land of the Phæacians. Alone, on the raft he had constructed of Ogygian pine-wood, he sat during seventeen days, "and cunningly guided the craft

with the helm; nor did sleep fall upon his eyelids, as he viewed the Pleiads and Boötes, that setteth late, and the Bear, which they likewise call the Wain, which turneth ever in one place, and keepeth watch upon Orion, and alone hath no part in the baths of Ocean" ("Odyssey," v 271-75).

The sailing-directions of the goddess were to keep the Bear always on the left—that is, to steer due east.

It is clear that one of these passages is an adaptation from the other; nor is there reason for hesitation in deciding which was the model. Independently of extrinsic evidence, the verses in the "Iliad" have the strong spontaneous ring of originality, while the Odyssean lines betray excision and interpolation. The "Hyads and Orion's might" are suppressed for the sake of introducing Boötes. Variety was doubtless aimed at in the change; and the conjecture is at least a plausible one, that the added constellation may have been known to the poet of the "Odyssey" (admitting the hypothesis of a divided authorship), though not to the poet of the "Iliad." Known, that is, in the sense that the stars comprising the figure of the celestial Husbandman had not yet, at the time and place of origin of the "Iliad," become separated from the anonymous throng circling in the "murk of night."

The constellation Boötes was invented to drive the Wain, as Arctophylax to guard the Bear, the same group in each case going by a double name. For the brightest of the stars thus designated we still preserve the appellation Arcturus (from *arktos*, bear, *oîros*, guardian), first used by Hesiod, who fixed upon its acronychal rising, sixty days after the winter solstice, as the signal for pruning the vines ("Works and Days," 564-70). It is not unlikely that the star received its name long before the constellation was thought of, forming the nucleus of a subsequently formed group. This was undoubtedly the course of events elsewhere; the Great and Little Dogs, for instance, the Twins, and the Eagle (the last with two minute companions) having been individualised as stars previous to their recognition as asterisms.

There is reason to believe that the stars enumerated in the "Iliad" and "Odyssey" constituted the whole of those known by name to the early Greeks. This view is strongly favoured by the identity of the Homeric and Hesiodic stars. It is difficult to believe that, had there been room for choice, the same list *precisely* would have been picked out for presentation in poems so widely diverse in scope and origin as the "Iliad" and "Odyssey" on the one side, and the "Works and Days" on the other. As regards the polar constellations, we have positive proof that none besides Ursa Major had been distinguished. For the statement repeated in both the Homeric epics, that the Bear *alone* was without part in the baths of Ocean, implies, not that the poet veritably ignored the unnumbered stars revolving within the circle traced out round the pole by the seven of the Plough, but that they still remained a nameless crowd, unassociated with any terrestrial object, and therefore attracting no popular observation.

The Greeks, according to a well-attested tradition, made acquaintance with the Lesser Bear through Phœnician communication, of which Thales was the medium. Hence the designation of the group as *Phoinike*. Aratus (who versified the prose of Eudoxus) has accordingly two Bears, lying (in sailors' phrase) "heads and points" on the sphere; while he expressly states that the Greeks still (about 270 B.C.) continued to steer by *Helike* (the Twister, Ursa Major), while the expert Phœnicians directed their course by the less mobile *Kynosoura* (Ursa Minor). The absence of any mention of a Pole-star seems at first sight surprising. Even the Iroquois Indians directed their wanderings from of old by the one celestial luminary of which the position remained sensibly invariable (Lafitau, "Mœurs des Sauvages Américains,"

¹ "Iliad," viii. 551-57. Mr. Andrew Lang's admirable prose-versions are employed throughout this article.

p. 240). Yet not the gods themselves, in Homer's time, were aware of such a guide. It must be remembered, however, that the axis of the earth's rotation pointed, 2800 years ago, towards a considerably different part of the heavens from that now met by its imaginary prolongation. The precession of the equinoxes has been at work in the interval, slowly but unremittently shifting the situation of this point among the stars. Some 600 years before the Great Pyramid was built, it was marked by the close vicinity of the brightest star in the Dragon. But this in the course of ages was left behind by the onward-travelling pole, and further ages elapsed before the star at the tip of the Little Bear's tail approached its present position. Thus the entire millennium before the Christian era may count for an interregnum as regards Pole-stars. Alpha Draconis had ceased to exercise that office; Al-rucabah had not yet assumed it.

The most ancient of all the constellations is probably that which Homer distinguishes as never-setting (it then lay much nearer to the pole than it now does). In his time, as in ours, it went by two appellations—the Bear and the Wain. Homer's Bear, however, included the same seven bright stars constituting the Wain, and no more; whereas our Great Bear stretches over a sky-space of which the Wain is only a small part, three of the striding monster's far-apart paws being marked by the three pairs of stars known to the Arabs as the "gazelle's springs." How this extension came about, we can only conjecture; but there is evidence that it was fairly well established when Aratus wrote his description of the constellations. Aratus, however, copied Eudoxus, and Eudoxus used observations made—doubtless by Accad or Chaldean astrologers—above 2000 B.C.¹ We infer, then, that the Babylonian Bear was no other than the modern Ursa Major.

But the primitive asterism—the Seven Rishis of the old Hindus, the Septem Triones of the Latins, the Arktois of Homer—included no more than seven stars. And this is important as regards the origin of the name. For it is impossible to suppose a likeness to any animal suggested by the more restricted group. Scarcely the acquiescent fancy of Polonius could find it "backed like a weasel," or "very like a whale." Yet a weasel or a whale would match the figure equally well with, or better than, a bear. Probably the growing sense of incongruity between the name and the object it signified may have induced the attempt to soften it down by gathering a number of additional stars into a group presenting a distant resemblance to a four-legged monster.

The name of the Bear, this initial difficulty notwithstanding, is prehistoric and quasi-universal. It was traditional among the American-Indian tribes, who, however, sensible of the absurdity of attributing a conspicuous protruding tail to an animal almost destitute of such an appendage, turned the three stars composing it into three pursuing hunters.

The same constellation figures, under a divinified aspect, with the title *Otawá*, in the great Finnish epic, the "Kalevala." Now, although there is no certainty as to the original meaning of this word, which has no longer a current application to any terrestrial object, it is impossible not to be struck with its resemblance to the Iroquois term *Okowari*, signifying "bear," both zoologically and astronomically (Lafitau, *op. cit.*, p. 236). The inference seems justified that *Otawá* held the same two meanings, and that the Finns knew the great northern constellation by the name of the old Teutonic king of beasts.

It was (as we have seen) similarly designated on the banks of the Euphrates; and a celestial she-bear, doubtfully referred to in the Rîg-Veda, becomes the starting-point of an explanatory legend in the Râmâyana (De Gubernatis, "Zoological Mythology," vol. ii. p. 109).

¹ According to Mr. Proctor's calculation. See R. Brown, "Eridanus: River and Constellation," p. 3.

Thus, circling the globe from the valley of the Ganges to the great lakes of the New World, we find ourselves confronted with the same sign in the northern skies, the relic of some primæval association of ideas, long since extinct.

Extinct even in Homer's time. For the myth of Calisto (first recorded in a lost work by Hesiod) was a subsequent invention—an effect, not a cause—a mere embroidery of Hellenic fancy over a linguistic fact, the true origin of which was lost in the mists of antiquity.

There is, on the other hand, no difficulty in understanding how the Seven Stars obtained their second title of the Wain, or Plough, or Bier. Here we have a plain case of imitative name-giving—a suggestion by resemblance almost as direct as that which established in our skies a Triangle and a Northern Crown. Curiously enough, the individual appellations still current for the stars of the Plough, include a reminiscence of each system of nomenclature—the legendary and the imitative. The brightest of the seven, α Ursæ Majoris, the Pointer nearest the Pole, is designated *Dubhe*, signifying, in Arabic, "bear"; while the title *Benetnasch*—equivalent to *Benêt-en-Nasch*, "daughters of the bier"—of the furthest star in the plough-handle, perpetuates the lugubrious fancy, native in Arabia, by which the group figures as a corpse attended by three mourners.

A. M. CLERKE

(To be continued.)

RAINBAND OBSERVATIONS AT THE BEN NEVIS OBSERVATORY

RAINBAND spectroscopy is one of the extra subjects taken up at the Ben Nevis Observatory, along with the usual meteorological routine. At every hour, when there is sufficient light, the intensity of the rainband is observed and recorded, and now, the mean daily rainband forms one of the items in the Ben Nevis weather report in the daily newspapers. The scale in use is practically the same as that used by Dr. Mill, of the Granton Marine Station, and described by him in a paper to the Royal Society of Edinburgh (Proc. R.S.E., 1882-84). This scale is in the spectrum itself—a great convenience—being the Fraunhofer lines E, δ , and F of the solar spectrum. After a preliminary set of observations had been made, in various types of weather, for the purpose of determining the relative intensity of these lines, a numerical value was given to each, namely, to E, 2; to δ , 4; and to F, 7. After a little practice, it is quite easy to estimate the values less than 2, which often occur, and the values above 7, which very seldom occur. With this scale, the intensity or darkness of the rainband and D line taken together is compared, and the numerical value of its scale-equivalent entered in the register. The instrument used is one of Hilger's rainband pocket spectroscopes, and the part of the sky always observed is between 30° and 40° above the south-western horizon.

The results obtained in 1885 were communicated to the Scottish Meteorological Society, and are published in their Journal for 1886 (see NATURE, vol. xxxiii. p. 622). In 1886, over 3000 observations were made, and the relative frequency with which each number of the scale was observed will convey an idea of the intensity of the rainband on Ben Nevis. The percentage of observations of each number is as follows:—

Rainband	0	1	2	3	4	5	6	7
Percentage	24	31	27	8	7	1	1	1

The mean of all the observations gives a rainband of 1.7. Now at sea-level, according to Dr. Mill, the rainband is seldom or never less than E, that is, than 2 on our scale. Hence the mean rainband on the Ben is about equal to the minimum at sea-level. About 80 per cent. of these observations were made when the Ben was enveloped in fog or mist. The only effect fog or mist has upon the