

ACCOUNT OF A "GLORY" SEEN ON MORVEN.

BY W. M. ALEXANDER.

THE following is an account of a glory which I saw along with a companion one afternoon on Morven five years ago. The phenomenon, which is so called when the colours are really bright, is one of the most curious spectacles which the hills have to offer; and it appears that a really good show of bright colours is a definitely rare occurrence.

We stood one afternoon in early summer about two hours before sunset upon the projecting rocks which those who know Morven will remember, not far from the top looking down on the Howe of Cromar. It was a day of broken clouds and cold showers with intermittent sunshine. The mist, where we stood, being blown away for the time, each of us saw his own shadow on the bank of mist to the eastward, with a beautiful display of rainbow colours around it. These colours were in circles, centred in the head of the shadow. There are two main features of this spectacle which stand out in one's recollection. For one thing, there was the brilliant show of concentric rainbows round the shadow. For another, the very striking fact that there was nothing on the cloud except your own shadow and glory; that of your companion, although he stood within easy speaking distance on the hill, say 10 to 20 yards off, was not visible. He, in turn, saw his own shadow and glory but not yours. In the absence of those notes which I should have made at the time and didn't, I make a rough drawing of the glory as we saw it. As a matter of fact, the sketch is untrue. The person depicted is to be imagined as having a private view of his own glory; it is invisible to every one else. The centre of the rings of prismatic colours is the head of the shadow. The first prominent red band we saw was, I think, in a circle with radius head to waist; from there outwards the colours formed a series of successive rainbows, or spectra, which became rapidly fainter the farther out they were from the figure. It is these rainbow circles which make

the glory; without them, I take it, the shadow is a Brocken spectre.



A description of a Brocken spectre seen on Brimmond was written a few years ago in these pages (*C.C.J.*, IX., 94). J. A. Parker, the writer of that account, says that the shadow was circled by colours; indeed, one would suppose that the shadow must always be accompanied by some sort of halo, however faint, because it is only on a plane surface, like a wall, that a plain shadow could be seen; a cloud surface can never be like that. It would seem to follow that the brightness and distribution of the colour rings must depend upon the position of the masses of small drops which are between the eye of the observer and the solid parts of the cloud which takes the shadow. As I remember it, the shadow appears to be behind the colours.

How often do glories occur, and what are the chances of seeing them? Every one would wish to see so notable a spectacle, and if seen once there is still greater wish to see it again. Upon this point, the chances of seeing it in the Scottish hills, there are definite data available in the records of the Ben Nevis Observatory made during the time when

that institution was working. During the years 1883 to 1898 the observers on Ben Nevis top recorded in their log-book 172 glories, of which 8 were lunar. This gives an average of about 12 per annum; or taking the year round, gives a 1 in 30 chance to hill-climbers of seeing it on any given day. As at least half the possible displays are within an hour or two of sunrise, the chance is, for the ordinary hill climber, less than 1 in 60. Moreover, as it appears that ice crystals give definitely better effects than rain-water crystals, there would seem to be better chances of seeing it well in the colder months of the year.

Ben Nevis Observatory recorded one case where there were no fewer than five separate spectra in the glory. This seems to be the maximum on record. The red of the spectrum is at the outside of the ring. Here are the particulars of a four-ringed glory seen in 1887 on Ben Nevis. (1) (Centre of shadow) yellowish red. (2) Bad blue, white, yellow, red. (3) Dark blue, green, yellow, red. (4) Faint green, faint red. Some attempts have been made to photograph glories which have been moderately successful. In these cases the camera takes the place of the observer's head and photographs its own glory.

When you start to look into the literature on this subject you find to begin with that it is beset with a perfect thicket of loose terminology, mostly drawn from literary, artistic, and quasi-religious quarters. Thus you will find a series of words like aura, aureole, corona, nimbus, and, lastly, glory; all of these refer to one or many of phenomena of this kind. Modern meteorologists separate these terms and use them as labels for distinct things. The word glory, now used for the spectacle here referred to, seems to be French in origin. At least, the "New English Dictionary" quotes Sir T. Browne: "Radiant halos, which, after the French expression, are usually termed the glory"; but this refers to the light round a saint's head.

Now the latter, the saint's halo, calls for a passing remark. In its standard form it is a ridiculous thing like a soup plate poised on nothing above the person's head. But that thing surely is only a late and highly conventionalised form of something more genuine. And if one remembers the

primitive Italian paintings correctly, there was an earlier kind of halo for the saints and one which very closely resembled the glory as seen on Morven or anywhere else. These paintings show a big affair like a Japanese umbrella behind the holy man, with circles of bright colours centred in the man's head and reaching down to the back of his waist. In fact, they show a design which could only have been copied from the glory as seen in Nature. After their time the painter of religious subjects went indoors and cultivated a fertile imagination. Hence it came about that words like aureole, nimbus, halo, and glory all came to refer most usually to the thing above a saint's head. Meteorologists, having to do with practical things—although cloud images are, after all, rather less substantial than holy pictures—classify the glory, the natural one, as a form of corona; the latter in turn is one of the anthelia, the phenomena occurring at the opposite side from the sun.

It so happens that we have an account of a glory seen on Ben Macdhui a hundred years ago. It is an account which gives a very accurate description of the spectacle, and it was written by Professor Robert Jameson of Edinburgh University, who visited Braemar in 1830. It is as follows:—

We had turned towards the east and the sun shone on our backs, when we saw a very bright rainbow described on the mist before us. The bow, of beautiful distinct prismatic colours, formed about two-thirds of a circle, the extremities of which appeared to rest on a lower portion of the mountain. In the centre of this incomplete circle there was described a luminous disc, surrounded by the prismatic colours displayed in concentric rings. On the disc itself each of the party (three in number), as they stood at about fifty yards apart, saw his own figure most distinctly delineated, although those of the other two were invisible to him. The representation appeared of the natural size, and the outline of the whole person of the spectator was most correctly portrayed. To prove that the shadow seen by each individual was that of himself, we resorted to various gestures such as waving our hats, flapping our plaids, etc., all which motions were exactly followed by the airy figure. We then collected together and stood as close to one another as possible, when each could see three shadows on the disc; his own, as distinctly as before, while those of his two companions were but faintly discernible. As the autumnal day was fast declining, and we had a long walk before us to Braemar, we were forced to hurry down the rugged sides of Loch Etichan, and, being consequently soon enveloped in the mist, we lost

sight of the atmospheric phenomenon, but not until it had been distinctly visible to us for about a quarter of an hour.

There speaks the good old nineteenth-century scientist. He may not have known so much about things as people do now, but he had a zest for the open air which his scientific successors largely lack. Thus if you look up some of the modern books about light, optics, or meteorology in the hope of finding some information about glories and other phenomena of that kind you will be disappointed. You will find that the modern scientific writer is not interested in these spectacles as such. His interests are mainly in mathematics, which he hands out in large helpings to those who want it.

About the only serviceable book which I have found on the subject of these optical phenoma is by an Austrian named Pernter; and from him I learn what follows. We are to regard the shadow as a normal shadow on a cloud and the prismatic colours as arising from the light reflected from the cloud, or rather from the refraction of the light so reflected. The fact that an observer sees his own image, and its glory, and no other person's image or glory, is explained, according to that writer, by the absence of a reflecting surface that is common to more than one observer, the cloud surface which makes the reflection being a different one for each. Theoretically, if the cloud were far enough away, it should be possible for all shadows to be seen on it—that is, if it formed a flat surface like a sheet. Pernter's book says that the first instance of the glory to be recorded was observed in Peru in 1735 by a French explorer. That record tells of the astonishment with which each member of the party saw himself adorned with coloured rings upon a cloud from which all his companions were excluded. And that French explorer was the first to establish what is now accepted, that, in the case of glories, it is icedrops rather than raindrops which produce the prismatic colours.

REFERENCES.

- Log-Book of Ben Nevis Observatory, in *Transactions of the Royal Society of Edinburgh*, Vols. 34, 42, 43.
Pernter, *Meteorologische Optik*, 1910.
Professor Jameson; quoted in *Spalding Club. Misc.*, Vol. II., pref.