

horizon, nearly vertically below the Pleiades, like the gleam of another moon rising in a haze. It grew out slowly, as we watched it, into a strong beam of white light slanting towards the south, and we stood in wonderment as it lengthened out making straight towards the moon. Presently its tail was disengaged from the cloud, and it stole through the sky like a long luminous nebulous "cigar ship" exactly across the moon, and away down into the west, sinking as slowly as it had risen. In the middle of its course it was, as well as I could estimate, about  $40^\circ$  in length and about  $5^\circ$  in width. The ends were, I think, slightly tapering and hazy; the sides pretty well defined. I did not notice if the moon's crescent was at all blurred during the passage; my wife is under the impression that it was. The time occupied from first appearance to final disappearance was about one minute. You will probably receive many accounts of this strange apparition. It will be interesting to know the position relative to the moon in which it was seen by different observers. Was it clear of the earth's atmosphere or not?

Woodbridge, November 19

HUBERT AIRY

YOU will no doubt have abundant accounts of Friday's aurora. I have received the following from a correspondent in North Devon, dated Friday 6.5 p.m. . . . "As we watched, a brilliant comet (apparently) appeared near Saturn" [which must have been low down, a little N. of E.] "and in a direct line between Saturn and the moon" [at that hour nearly in the meridian and  $28^\circ$  in altitude]. "It was about twice as big as the comet." [Here follows a sketch, which the above 'asides' render it unnecessary to copy.] "It travelled stern foremost towards the moon, and was in sight a full minute. As it disappeared it seemed to leave a black cloud of its own shape which also disappeared in a few seconds (an optical delusion perhaps)." It does not appear to have occurred to the writer that this appearance was itself auroral.

J. HERSCHEL

30, Sackville Street, November 18

I AM unable to explain the following occurrence which I observed this evening at 6h. 5m. p.m. It appeared to be a well-defined spindle-shaped body of a cloudy consistency, having a brilliant white colour. It subtended a visual angle of about  $20^\circ$  degrees. I first observed it due east, and immediately noticed that it was moving with very great rapidity, as in less than one minute it had disappeared below the horizon in the south-south-west. There was a rosy aurora visible at the time in the north, which, however, was in no way connected with it. The atmosphere was perfectly clear in that part of the heavens traversed by the phenomenon, though in other parts of the sky there were a few stationary clouds visible. A friend who was with me at the time will corroborate all my statements. As I am utterly at a loss to explain this phenomenon, I would be much obliged for any suggestions or explanations from your readers.

A. S. P.

Cambridge, November 17

I THOUGHT that many of the readers of NATURE would be interested in a curious phenomenon which appeared during the beautiful coloured aurora on the evening of the 17th. I was watching it from a position commanding a large view of the sky, when, as I was looking south-east, a long patch of white light appeared about  $10^\circ$  above the horizon. This was commonplace at first, but then it quickly developed into a long, gleaming, and well-defined streak. It looked very like two brilliant comets joined end to end by the tip of the tail. This took about a minute to form, and when complete, it started off in the direction of its length in a curved path which gradually rose above the horizon until it culminated at an elevation of  $30^\circ$  on the magnetic meridian; after which the west end inclined downwards, and it continued its journey in inverse order to the south-west, keeping its symmetry and shape like a rigid body all the way, until it reached a position in the south-west, corresponding to its place when forming, and here it halted and dissolved away. The band of light was about  $30^\circ$  long, and beautifully curved along its path. It took about three-quarters of a minute in its transit, which occurred at 6 p.m. It was an extraordinary sight, and I hope some one else has observed it. During the phenomenon, the aurora in the north-east and north-west (magnetic) was very fine, showing rich red and apple-green streamers; these were very steady all the time. I have made a sketch of the band of light, as nearly as I can remember it. It was very bright, even when under the moon. I think this sketch gives a good idea of it, and I inclose it in case it be wanted. The southern sky was quite clear at the time.

H. D. TAYLOR

Haworth, York, November 19

ON Friday, November 17, we had a great auroral display at 4.30 before sunset, and continuing till 5.30, the heavens were aglow with auroral light of a rosy tint, changing occasionally into silver grey. A haze overspread the sky until 10 o'clock, from which hour till 2 a.m. Saturday the sky was brilliant with aurora. The streams of light culminated near the zenith, and at midnight the magnetic storm appeared to reach its maximum. The magnetic disturbance must have been great for several hours, as nearly all telegraphic operations had to be suspended.

Newcastle-on-Tyne, November 19

T. P. BARKAS

ABOUT 5.20 p.m. on Friday last I witnessed the most remarkable auroral display I have ever seen, and as it only lasted a few minutes, may have escaped the attention of many. My attention was first attracted by a broad crimson band stretching quite across the sky, and almost coinciding with the Milky Way. Some of the bright stars could be seen through it, but gradually it became opaque at the zenith and appeared to concentrate around an opening, forming a complete corona, out of which the rays seemed to boil over and dart out in every direction, but chiefly northwards. It was a most weird-looking sight, and reminded me of "The Glory," as shown in pictures of Saints. Overhead it rapidly faded away, but bright streamers were visible up till 9 p.m., when a thick fog came on.

W. MAKEIG JONES

Wath-on-Dearne, Rotherham, November 20

IN connection with the recent appearance of the aurora borealis, a remarkably large sun-spot was visible to-day, occupying a position in about the middle of the disc. The spot might be called an aggregation of spots, from its area. Several minor spots were also visible, which were discrete.

Rugby, November 19

GEORGE RAYLEIGH VICARS

THERE was visible here on Friday, the 17th, between 5.30 and 6 p.m., a display of aurora. My attention was called to it by the ruddiness of the sky towards the north, and I continued watching it till near 6 o'clock. The sky was clouded with cumulo stratus, and the stars only visible here and there through the intervals of these clouds. The centre of the ruddiness or glow appeared to be over Auriga, the most brilliant star of which group was just visible. It extended to the east so as to cover Gemini, and about an equal distance west. It shifted and varied very rapidly, maintaining its ruddy colour, and this very rapidity of shift assured me that it was really an aurora. After 6 o'clock p.m. the clouds nearly completely covered the sky, and neither at 7 o'clock nor at 8 o'clock did I see any further sign of the appearance. I could not distinguish any beams whatever.

J. P. O'REILLY

Royal College of Science for Ireland, Stephen's Green,  
Dublin, November 18

P.S.—I was informed that on the evening of Thursday a similar display had been noticed.

AT about 6.5 p.m. on Friday a bright, white, cloud-like object, in shape like a fish-torpedo or a weaver's shuttle, was observed to cross the heavens from east to west. Its length was roughly about  $30^\circ$ , and its breadth about  $4^\circ$ . I noted it first shoot up, like a strong electric ray in a fog, a little south of Aldebaran, and slowly, as it were, slide along at the same N.P.D. across the face of the moon (which was shining brightly at the time), and disappear in the west under Atair. Its surface had a mottled appearance; its colour white; its motion was slow, being visible, from horizon to horizon, upwards of 50 seconds; its brightness was strong, and did not seem to fade, even when crossing the moon, and it seemed preceded and followed by a strong black margin; though this I suppose was the effect of contrast and subjective only. The aurora was noted here from 4.30 on Friday till about 5 a.m. on Saturday.

JOHN L. DOBSON

Beaumont College, Old Windsor, November 21

### THE CHLOROPHYLL CORPUSCLES OF HYDRA

IN the last number of the *Zeitschrift für wiss. Zoologie* is an article by Mr. Hamann, assistant in the Zoological Institute of Jena, on the "Origin and Development of the Green Cells in Hydra." I cannot allow

this article to pass in silence, and think that the pages of NATURE, in which already there has appeared a good deal relative to the supposed infection of animal tissues by green unicellular Algæ, offer the most fitting place in which to lodge a protest against the reception of Mr. Hamann's conclusions as reasonable.

In the first place, Mr. Hamann has not made himself acquainted with previous writings on this subject. He briefly states that "R. Lankester disputes" the algal nature of the green corpuscles suggested by Brandt, and the existence of a cell-nucleus in them, and refers the reader to a paper by me on "Symbiosis of Animals with Plants," which has no existence. Mr. Hamann has not read the article to which he refers, which appeared in the *Quart. Journ. Microsc. Sci.* April, 1882, and was entitled "On the Chlorophyll Corpuscles and Amyloid Deposits of Spongilla and Hydra." Mr. Hamann has accordingly failed altogether to take up the points of importance in the discussion. These seem to me to stand somewhat as follows: It had already been urged (1) that the green corpuscles of Hydra multiply by fission; (2) that they possess each one or more cell-nuclei; (3) that they possess a cell-wall comparable to the cellulose wall of a unicellular Alga; (4) that starch is developed within them even after their removal from the living Hydra. It had been inferred (by Semper, and later by Brandt) that consequently these corpuscles must be considered as unicellular Algæ.

To these considerations I had replied in the article above named, by describing carefully the nature of the "fragmentation," or division of the chlorophyll corpuscles of both Hydra and Spongilla. I cited the notorious fact with regard to the chlorophyll corpuscles of plants, namely, that they multiply by fission. I showed further, by description and figures, that *there is not any structure present in the chlorophyll corpuscles of either Hydra or Spongilla which is comparable to a cell-nucleus or to a cell-wall*, and that the ascribing of such parts to the chlorophyll corpuscles of Hydra is *totally erroneous*.

I further insisted that we are not acquainted with any unicellular Algæ at all resembling the chlorophyll corpuscles of Hydra, whilst the chlorophyll corpuscles of plants closely resemble them,—and finally I pointed out that there is as much reason to regard the chlorophyll corpuscles in the leaf of a buttercup as unicellular Algæ as there is so to regard those of *Hydra viridis*.

Mr. Hamann does not in any way deal with these observations, but naïvely remarks, after describing his observation of the already-known multiplication by division of the chlorophyll corpuscles of Hydra, "after these observations the nature of our green corpuscles as Algæ seems to me to be firmly established." This seeming can only arise from the fact that Mr. Hamann is not acquainted with the characteristics either of Algæ or of the chlorophyll corpuscles of plants.

A simple assertion that a nucleus and a cell-wall are present in the chlorophyll corpuscles of Hydra is all that Mr. Hamann gives us on this head; although his paper is illustrated by a plate, no nucleus and no cell-wall are figured by him. Were he able to adduce good evidence of the existence of either of these structures, the view which he has advocated would be materially advanced. But this he is unable to do, because such structures do not exist.

Mr. Hamann offers some observations on the occurrence of chlorophyll-corpuscles in the egg-cell of Hydra which lead him to assume that these corpuscles enter the egg-cell by "wandering" from the endoderm-cells. The figures and statements which he makes do not, in my opinion, tend necessarily to that conclusion.

Lastly, I would point out that the exceedingly variable form of the chlorophyll-corpuscles of Hydra and Spongilla which I have illustrated by figures in my memoir above cited, is not noticed by Mr. Hamann. This variability is quite inconsistent with the view that they are parasitic

Algæ. So also is the fact that these corpuscles are represented by colourless corpuscles in the colourless varieties of Spongilla and Hydra which turn green when treated with sulphuric acid.

It should be distinctly borne in mind that it is by no means necessary, supposing that the green corpuscles of Hydra are parasitic Algæ, that a nucleus should be present in them, nor indeed a well defined cell wall. But when the presence of such structures is asserted as evidence that these corpuscles are different in nature from the otherwise closely similar corpuscles formed in the protoplasm of green plants, the question of the actual presence or absence of the nucleus and cell-wall becomes important, and must be definitely decided upon thorough histological evidence.

So far it appears to me, as I have previously maintained, that there is no more and no less evidence for considering the green corpuscles of *Hydra viridis* as parasitic Algæ, than there is for taking a similar view with regard to the green corpuscles in the leaf of an ordinary green plant.

E. RAY LANKESTER

#### NOTES

WE regret to notice that in Tuesday's papers the death of Prof. Henry Draper of New York is telegraphed. We hope to be able to refer to his work in an early issue.

THE Council of the British Association have nominated Mr. A. G. Vernon Harcourt, M.A., F.R.S., to the office of General Secretary of the Association, in the room of the late Prof. F. M. Balfour.

MARINO PALMIERI, whose death we announced a fortnight ago, must not be confounded with his father, Luigi, the eminent director of the Vesuvius Observatory, who we are glad to be able to say is alive and well.

THE death is announced, on November 11, of Dr. Franz Ritter von Kobell, Professor of Mineralogy and keeper of the mineralogical State collections at Munich, well known through his numerous mineralogical publications. He died at the age of seventy-nine years.

M. JANSSEN has been sent to Oran to observe the transit of Venus from a physical point of view.

WE have received a circular in reference to the visit of the British Association in Montreal, containing the results of the recent meeting in that city, to which we have already referred. It is evident that the Canadians are determined to do all in their power to make the visit of the Association a success. "The city of Montreal, which has a population of about 150,000 souls has," the circular states, "twice entertained the American Association for the Advancement of Science; for the second time in August, 1882, when an attendance of more than 900 members and Associates was registered, and the Association, with its nine sections, found ample accommodation in the buildings of McGill University. The ordinary summer-passage is made in eight or nine days from Liverpool to Quebec, which city is connected with Montreal by two lines of rail, making the journey in six hours, and by river-steamers. From Montreal to Ottawa, the capital of the Dominion, is four hours by rail; from Montreal to Toronto, thirteen hours; and to Niagara Falls, sixteen hours by rail. Montreal is in direct connection with Boston by two lines of rail, by which the journey is made in ten hours. There are also two lines connecting Montreal with New York city in thirteen hours, and one with New Haven in sixteen hours. It is expected that the American Association for the Advancement of Science will hold its meeting in 1884 in New Haven, or some other eastern city of the United States, at such a time