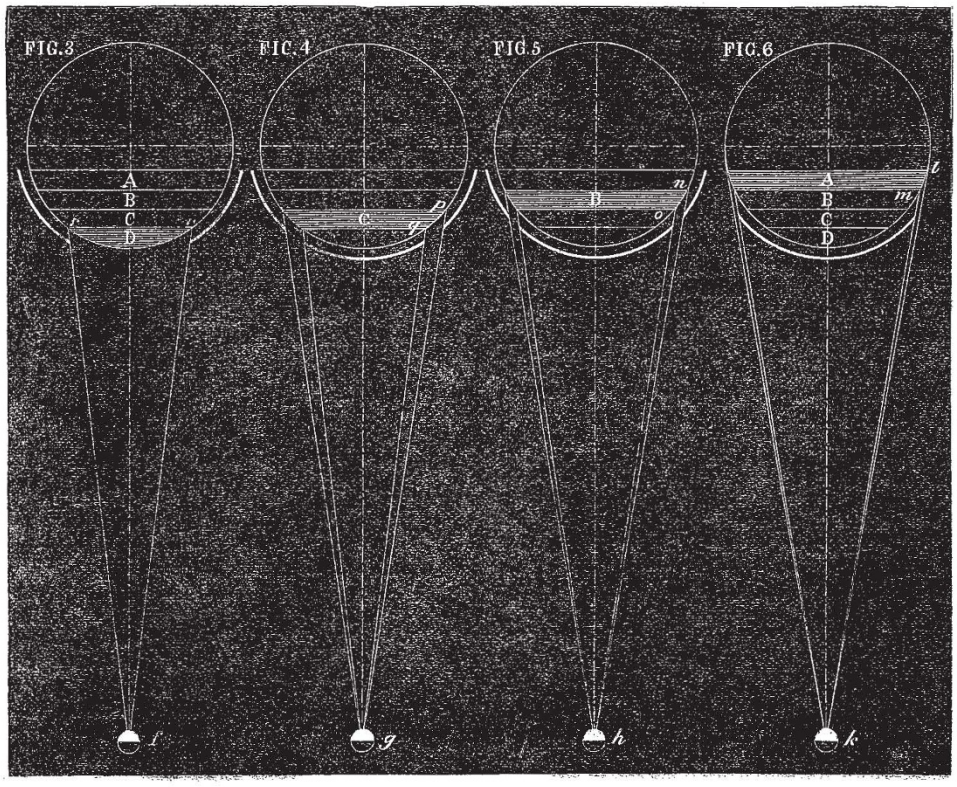
tion, I devised the method described in NATURE (vol. xii. p. 517), showing that the polar and equatorial regions of the solar disc transmit radiant heat of equal intensity to the earth, and that the sun emits heat of equal energy in all directions. Adopting Secchi's doctrine relating to the retardation suffered by calorific rays in passing through atmospheres, viz., that the diminution of energy is as the depth penetrated by the rays, it may also be shown by an easy calculation based on the result of our investigations, that the absorption by the solar atmosphere cannot exceed one-seventh of the radiant energy emanating from the photosphere.

5. Concerning the plan resorted to by the Director of the Roman Observatory, and others, of investigating the sun's image instead of adopting the method of *direct* observations, I will merely observe that the information contained in the several works of the Roman astronomer furnishes the best possible guide in judging of the efficacy of *image investigation*. Let us select his account of the investigations conducted between the



19th and 23rd of March, 1852. Having pointed out that in these experiments it was impossible to approach within a minute of the edge of the sun, and that during a later observation—date not mentioned—he had approached within a minute, the investigator observes: "But at this extreme limit, even making use of the most accurate means of observation, we find difficulties which it is impossible to overcome completely." In addition to this emphatic expression regarding the difficulties encountered, the author adds: "Moreover, it is impossible to study the edge alone, for the unavoidable motions of the image do not admit of its being retained at exactly the same point of the pile; we have therefore been unable to push the exactness as far as we hoped; and we have discontinued the pursuit of these researches, although the results obtained are quite interesting." (See revised edition of "Le Soleil," vol. i. p. 205.) It is needless to institute a comparison between a system of which its founder speaks so despondingly, and one which enables us to push our investigations to the extreme limit of the solar disc, admitting of entire zones being viewed at once, instead of only small isolated spots.

J. ERICSSON

The Glow-worm in Scotland

THE Glow-worm is not uncommon on the Island of Cumbrae, Buteshire. I have seen it there occasionally for the last thirty years (see vol. xiii. pp. 188, 208). DAVID ROBERTSON

Millport, Island of Cumbrae, Jan. 18

OUR ASTRONOMICAL COLUMN

STAR WITH SUSPECTED LARGE PROPER MOTION.—It would appear by a communication from Prof. Winnecke, Director of the Imperial Observatory at Strasburg, that the large proper motion exhibited by a comparison of Argelander's positions of the ninth magnitude star, No. 11237-8 of Oeltzen's catalogue (southern zones) with Taylor's observations at Madras in 1838 or 1839, to which reference was lately made in this column, does not really exist, there being evidently an error in Taylor's mean place for 1840 given at p. clxiii. of vol. v. of the Madras Observations. Prof. Winnecke finds that the differences of right ascension and declination between this star and Oeltzen 11226, are sensibly the same as at the time of Argelander's observations (1851), and the latter star is known to have but very small, if any, proper motion. Taylor's star must therefore be struck off the list of cases of great proper motion lately given.

ATLAS — 27 *f* PLEIADUM.—A very interesting observation was made at Strasburg on the occasion of the occultation of this star—a Struve's *difficillima*—on the 7th of the present month. As we recently stated, this star does not appear to have been seen double since the last Dorpat observation in 1830. On the 7th inst., however, Herr Hartwig observing at Strasburg with an excellent Fraunhofer, of 42 lines aperture, power 159, remarked that the star did not disappear instantaneously; after the principal mass of light had vanished there remained a luminous point for about six-tenths of a second, a circumstance which favours the duplicity of the object, notwithstanding the failure of recent efforts to divide it. It brings to our recollection Burg's observation of the

occultation of Antares 1819, April 13, when at emersion the star appeared to suddenly increase from one of the sixth or seventh magnitude to one of the first, a phenomenon no doubt attributable to the existence of the small companion on the parallel, preceding the principal star (NATURE, vol. xii. p. 308).—The next occultation of Atlas-Pleiadum, on February 3, will not be visible in this country, but may be well observed in the United States. The American Ephemeris gives the time of immersion for Washington; at the Observatory of Hamilton College, Clinton, N.Y., so actively conducted by Prof. Peters, the immersion takes place at 11h. 13m., and the emersion at 12h. 4m., Clinton M.T.

VARIABLE STARS.—In No. 2071 Dr. Julius Schmidt, of the Observatory, Athens, continues his elaborate researches on the three short-period variables U, W, and X Sagittarii, the periods of which are now given thus :—

	d.	h.	m.	s.
U Sagittarii	6	17	53	1·4
W = γ′ Sagittarii	7	14	15	34·1
X = 3 Flam.	7	0	17	42·5

So assiduously have these stars been watched by their discoverer, Dr. Schmidt, in the fine skies of his locality (little success could be expected to attend their observation in England), that he believes he has detected perturbations of the light curve or period in each instance, though not quite ten years' observations are yet upon record.

The following are Greenwich times of geocentric minima of Algol, according to Prof. Schönfeld's elements :—

		h. m.			h. m
1876.	Feb. 2	18 37	1876.	Feb. 25	17 11
	5	15 26		28	14 0
	8	12 15		March 2	10 49
	11	9 4		5	7 39
	14	5 54			

Similar times of geocentric minima of S Cancri, according to Prof. Schönfeld, are :—

		h. m.			h. m.
1876.	Jan. 29	13 46	1876.	April 14	10 54
	Feb. 17	13 2		May 3	10 12
	March 7	12 19		22	9 31
	26	11 36			

RECENTLY-DISCOVERED MINOR PLANETS.—No. 152, discovered at Paris by M. Paul Henry on Nov. 2, has been named *Atala*, and for No. 157, the small planet, detected by M. Borrelly at Marseilles on Dec. 1, the name of *Dejanira* is proposed; elements of this planet have been calculated by M. Stephan. The following are first approximations to the positions of the ascending node, inclination, and periods of the newer minors, with dates of discovery :—

No.	Ascending Node. ° ′	Inclination. ° ′	Period in years.	Date of discovery, 1875.
150	207 55	2 2	5·16	Oct. 18
151	40 2	7 52	4·15	Nov. 1
152 (Atala)	41 29	12 10	5·54	Nov. 2
153 (Hilda)	228 20	7 45	7·84	Nov. 2
154	37 35	20 49	5·78	Nov. 4
155	40 16	8 52	Circular elements	Nov. 8
156	246 11	7 29	5·29	Nov. 22
157 (Dejanira)	62 25	11 50	4·16	Dec. 1

[Since the above was in type No. 158 is announced in the *Berlin Circular* and Leverrier's *Bulletin International*, as having been discovered at the Observatory of Berlin, by Herr V. Knorre, on the morning of the 5th inst., in R.A. 7h. 19m. 58s., and N.P.D. 67° 58′. Magnitude 11-12.]

THE NEW MUSEUM OF THE GEOLOGICAL SOCIETY

WHEN it was first announced to the Council of the Geological Society that the Government proposed to offer a suite of rooms in Burlington House in lieu of the apartments the Society occupied in Somerset House, it was at once seen that the most formidable work the change involved would be the removal of the collections of minerals and fossils. The transference of the library, though an extensive one, would be a comparatively easy matter, but there is always the danger in the mere handling of fossils that they may be damaged. Besides this, the collection had gradually grown to such a size that it was evident the cost of the removal would be considerable. So far as the preparation of the rooms at Burlington House was concerned, the Government showed every desire to conform as far as possible to the wishes of the Council.

Some of the Fellows counselled that the whole collection should be offered to the British Museum or to the School of Mines Museum in Jermyn Street, on the ground that though in the early days of the Society it was of high value when it was the only museum that existed, it was now so far surpassed in magnitude by the national collections that it was practically of small value. Fortunately wiser counsels prevailed. There were in the museum, it was urged, many typical collections formed by the early leaders of geological science, which were bequeathed in illustration of papers they had read and work they had done. These collections, obtained by their own personal labour in the field, arranged and named in their own handwriting, were of historical value and had a European reputation, and ought to be religiously preserved by the Society. It was true that the integrity of some of the collections had been destroyed in the endeavour at one time to make one general collection illustrating the whole of England, and arranged in stratigraphical order; but in most cases the original labels and references to catalogues were preserved, and it was hoped it might be possible in the new buildings to regroup the specimens much as they were at first. It was therefore determined that the museum should be maintained, not as a general geological collection, but mainly as a repository of specimens referred to in papers, and that before the removal commenced it should be carefully weeded, so that in all cases where, through the accidental removal of a label or other causes, the history of any specimen had been lost, it should be discarded, but not until every effort had been made to try to ascertain any possible clue. This work has been carried out by Prof. Rupert Jones, aided by Mr. Woodward, the assistant curator. The accumulation of specimens had caused much crowding in the museum, and in such a case a certain amount of damage and loss of labels was almost inevitable. As a consequence of this weeding, many specimens have been omitted in the new arrangement, and the result has been to leave greater space for those that have a real historic value.

Like many other institutions of gradual growth, the history of this museum has never been written, and very few people, few even of the Fellows of the Society, know what it contains, for there never has been a printed catalogue. As the collections are the private property of the Society and are not open to the public, this perhaps has not been thought requisite.

Among the principal collections preserved which have now historic value, first in point of general interest should perhaps be mentioned the extensive series of fossils presented by Sir Roderick Murchison, from which were drawn the figures in his world-renowned "Siluria." The fossils figured in the papers by Murchison and Sedgwick in describing the structure of Wales and the Lake district are also there, so are the fossils that illustrated Murchison's description of Brora. The fossils connected with Webster's well-known paper of 1814, the first paper on the Tertiaries of Hampshire; most of those illustrating Fitton's celebrated paper on the "Strata below the Chalk" (1827); those belonging to Buckland and Conybeare's comprehensive paper "On the South-west of England" (1824) are all there. Large additions to the general col-