

No.	57	...	R.A.			N.P.D.	
			h.	m.	s.	h.	m.
	57	...	0	21	43	...	147 37'7
	1423	...	6	25	6	...	121 12'3
	1655	...	8	16	27	...	125 50'9
	2181	...	10	37	27	...	125 45'0

- No. 57.—Pretty bright, small, round, much brighter in the middle.  
 ,, 1423.—Pretty bright; considerably large, round, very little gradually brighter in the middle; 4'.  
 ,, 1655.—A double star = *h.* 4023 in a pretty small nebula, among some seventy stars.  
 ,, 2181.—Pretty faint, small, much extended in  $0^\circ \pm$ ; very suddenly, very much brighter in the middle; the first of three.

The photo-heliograph was used on every fine day possible, and 217 pictures were obtained in the year.

The necessary funds have been voted for a new transit-circle more in accordance with the modern requirements of astronomy, and its construction has been intrusted to Messrs. Troughton and Simms. Mr. Christie, the Astronomer-Royal, was invited to modify the specification sent to England, if he found reason to do so.

THE SUPPOSED VARIABLE  $\mu$  DORADUS—A SPURIOUS STAR.—Dr. B. A. Gould has made a very unexpected discovery, from which it appears that  $\mu$  Doradus of our catalogues, long supposed to be a variable star, was never observed by Lacaille in the position he assigns it in the Catalogue of the *Celum Australe Stelliferum*, and further, that by similar error, five other stars observed by Lacaille on the same day, which are found in the reduced catalogue published by the British Association, have no existence in the positions given. The case is a curious one, and as the *Celum Australe* of Lacaille is now a scarce work, we may be excused for transcribing the observations in question as they stand. They were made in Zone XI., 1751, December 16, *in parte inferiore* of Lacaille's rhomboid; the numerals are our own:—

No.	mag.	h.	m.	s.	No.	mag.	h.	m.	s.
No. 1	...	6	...	4 17 38	No. 6	...	6'7	...	4 46 27
				24 2					53 34
,, 2	...	7	...	4 39 51	,, 7	...	7	...	4 51 5
				47 9					54 33
,, 3	...	7	...	4 25 23	,, 8	...	5	...	4 59 22
				31 0					5 8 28
,, 4	...	6'7	...	4 30 16	,, 9	...	7	...	6 5 53
				32 38					9 8
,, 5	...	7	...	4 41 33					
				43 41					

Lacaille appears to have entered correctly the times of beginning and ending of describing the chord of his rhomboid for Nos. 1 and 2, but instead of 4h. 25m. 23s. for the third star, the time was really 5h. 25m. 23s., and this error of 1h. runs on up to No. 8 inclusive; No. 9 is correct. This will be readily seen by inspecting the above times. The star entered in the Catalogue as  $\mu$  Doradus is No. 8, called 5m. in the observations but 6m. in the Catalogue, which gives its place for 1750°0, R.A. 76° 11' 17", Decl. -62° 7' 4". The place given by the B.A. reductions is R.A. 5h. 4m. 44'3s., N.P.D. 152° 6' 57", which is correctly deduced from the transits as printed. With the correction of +1h. to the times, the position for 1750 becomes R.A. 6h. 4m. 44'2s., N.P.D. 152° 6' 49", and the star " $\mu$  Doradus" is seen to be identical with Brisbane 1172 = B.A.C. 2000 = Stone 2836, in Pictor. The other spurious stars introduced in the Catalogue by the error which Dr. Gould has brought to light are Nos. 1542, 1554, 1633, 1680, and 1706. The following identifications of the stars really observed may be useful:—

Spurious stars of the reduced Catalogue.		Stars really observed by Lacaille.	
No. 1542	Reticulum	7m. =	Stone 2497, Dorado 7'6m.
,, 1554	,,	6'7 =	,, 2532, ,, 6
,, 1633	Dorado	7 =	,, 2630, ,, 6'7
,, 1680	,,	6'7 =	,, 2707, ,, 6'7
,, 1706	,,	7 =	Brisb. 1109, Taylor V. 516
,, 1766	( $\mu$ Doradus)	5 =	Stone 2836, Pictor 5m.

Brisbane observed a star close upon Lacaille's erroneous position of his  $\mu$  Doradus, and according to his general custom gave it Lacaille's magnitude. Moesta (*Astron. Nach.*, No. 1545) stated that he had observed this star at Santiago de Chile from February, 1860, to January, 1865, and had found it  $8\frac{1}{2}$  or 9 of

Argelander's scale; he therefore considered it to be variable, and thought the period of variation would prove to be of long duration.

THE COMET OF 1812.—MM. Schulhof and Bossert's sweeping ephemerides for this comet are continued in No. 2489 of the *Astronomische Nachrichten*.

INSECTS VISITING FLOWERS

THE interest arising out of the writings of Darwin, Lubbock, and Hermann Müller relative to the part played by insects in their oft-recurring visits to flowers has of late years attracted much attention. The subject, in fact, has created a taste for observation, and an incentive has been given to watch the frequency of visits of various species to certain flowers, and especially to the insects' choice of colours of flower. While the mere registering of visits may seem a comparatively simple one, the reason why insects should show a preference to alight upon flowers of a certain colour, or choose certain species of plants, is a much more complicated problem than at first sight it would appear. Sir John Lubbock has shown by experiment that blue is the bees' favourite colour; H. Müller avers that in the Alps bees are attracted to the yellow rather than the white flowers. However this may be, certain it is that a much larger number of observations are yet needed before a positive law can be deduced. Two papers read at the last meeting of the Linnean Society (March 1): one by Mr. Alf. W. Bennett, "On the Constancy of Insects in their Visits to Flowers," and the other by Mr. R. M. Christy, "On the Methodic Habits of Insects when Visiting Flowers"—point out that a strict watch and ward is being kept on the movements of the busy bee and its kindred. Mr. Bennett states that butterflies show but little constancy in their visits, citing only a few instances to the contrary; but according to him, to some extent they seem to have a choice of colour. The Diptera exhibit greater constancy, though by no means absolute. The Apidae, especially the hive-bee, manifest still greater constancy. From these data he infers that the ratio of increase is in proportion to the part performed by the insects in their carrying pollen from flower to flower. As respects preference for particular colours, in a series of observations Mr. Bennett has noted among the Lepidoptera that 70 visits were made to red or pink flowers, 5 to blue, 15 to yellow, and 5 to white; the Diptera paid 9 visits to red or pink, 8 to yellow, and 20 to white; Hymenoptera alighted 303 times on red and pink flowers, 126 on blue, 11 on yellow, and 17 on white flowers. Mr. Christy records in detail the movements of 76 insects, chiefly bees, when engaged in visiting 2400 flowers. He tabulates the same, and concludes therefrom that insects, notably the bees, decidedly and with intent confine their successive visits to the same species of flower. According to him, also, butterflies generally wander aimlessly in their flight: yet some species, including the Fritillaries, are fairly methodical in their habit. He believes that it is not by colour alone that insects are guided from one flower to another of the same species, and he suggests that the sense of smell may be brought into play. Bees, he avers, have but poor sight for long distances, but see well at short distances. Of 55 humble-bees watched, 26 visited blue flowers: of these 12 were methodic in their visits, 9 only irregularly so, and 5 not at all; 13 visited white flowers, whereof 5 were methodic and 8 the reverse; 11 visited yellow flowers, of which 5 were methodic and 6 not; 28 visited red flowers, 7 appearing methodic, 9 nearly so, while 12 were the contrary.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—In the last local examination 17 per cent. of those Juniors who sent up papers in Trigonometry obtained no marks, although some questions were of the very simplest nature. Among the Seniors Hydrostatics produced unsatisfactory answers. Many candidates had no ideas worth the name about pressure at a point, density, specific gravity, and weight. This is due partly to corresponding imperfections in some current text-books, and partly to the habit of teaching Hydrostatics apart from general physics or practical applications. The answers in Statics were the least satisfactory; yet according to the examiner there are few subjects in which good teaching tells more quickly than in elementary mechanics. Thus many who passed did very good papers.