

LETTERS TO THE EDITOR.

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Origin of Dun Horses.

IN discussing the colours and stripes of horses in "Animals and Plants under Domestication," Mr. Darwin says:—"I have endeavoured, but with poor success, to discover whether duns, which are so much more oftener striped than other coloured horses, are ever produced from the crossing of two horses, neither of which are duns. . . . One case, however, has fallen under my own observation of a foal from a black mare by a bay horse, which when fully grown was a dark yellow-dun and had a narrow but a plain spinal stripe."¹

In a recent number (October 15) of the *Veterinary Record* Mr. J. B. Robertson gives the following instances of reversion to dun from the last eleven and first four volumes of the General Stud Book:—

- (1) Bay-dun filly (1907), by Ash (chestnut), out of Unexpected (bay).
- (2) Dun filly, Sarah Curran (1892), by Robert Emmett (bay or brown), out of Cellulites (black).
- (3) Dun colt (1897), by Sir Frederick (bay), out of Lobelia (bay or brown).
- (4) Light dun filly (1886), by Lord Gough (bay), out of Danseuse (brown).
- (5) Dun or chestnut filly, Sancta (1884), by Exminster (bay), out of Halloween (chestnut).
- (6) Dun filly (1763), by Young Cade (bay), out of Miss Thigh (grey).
- (7) Dun colt (1730), by King George II.'s one-eyed grey Arabian, out of Young Kitty Burdett (bay).
- (8) Dun filly (1829), by Lottery (brown), out of Octavia (bay).

Mr. Robertson also mentions (1) that a half-bred yellow-dun filly was obtained out of a liver-chestnut Welsh cob by a bay thoroughbred with a dorsal band—this filly "during early foalhood was profusely striped on the face, neck, and quarters"; and (2) that of 45 duns given in the tables included in his paper, 39 cannot be traced to an original dun ancestor. They sprang from the union of Silverlocks (chestnut) and the Godolphin Arabian (brown), "and hence afford incontrovertible evidence that a gametic line of duns—which in this case extended to four generations—may spring from parents neither of which are dun."

The University, Edinburgh. J. C. EWART.

Markings of Mars.

I HAVE recently returned by way of Tasmania from a series of visits to the chief observatories in the United States, which included a month's stay at the Lowell Observatory during the past opposition of Mars. This visit was made with the express object of testing by my own observation the reality of the data on which Dr. Lowell has based his speculations.

I find on my return that so much scepticism has been raised by the observations and arguments of M. Antoniadi and others that a record of my own experience may be of some value.

When I first looked at Mars at Flagstaff (September 27, 1909) I saw with great difficulty three streaks, presumably canals. The seeing was bad, and the general faintness of the planet's markings at that time is admitted by all. I continued to observe Mars on every possible night (which was nearly every night) until October 25, and as my eye became accustomed to the work I saw more and more. The canals were seen repeatedly better—this with the 24-inch refractor generally stopped down to about 18 inches. I found that with more than 20 inches the air was nearly always too unsteady, and with less than 15 inches too much separating power was lost. The canals were seen best with a power of 390 diameters.

Clearer they became each night until, on October 25,

"Animals and Plants under Domestication," vol. i., p. 62. (1872.)

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the seeing being the best I ever experienced, the canals came out with amazing clearness and steadiness, sharp and clean, like telegraph wires against the sky, the oases also being exquisitely defined. Whereas on previous nights the canals could be held only by short glimpses of perhaps half a second at a time, they were now steadily visible for three or four seconds together, when a short flicker would sweep over them, during the lucid intervals the limb also of the planet was perfectly steady, as I have never seen it before or since. Of the objective existence of these markings in the image at the focus of the telescope there could be no manner of doubt, and Lowell's representations of them are nearer the actual appearance than any I have seen, though even in his drawings the lines seem hardly fine enough. The effect produced on my mind by this remarkable definition, which lasted for upwards of one and a half hours (from about 8.30 until after 10 p.m.), was staggering and ineffaceable. Soon after ten the definition went to pieces.

It may be relevant to mention that a few evenings previously I had obtained a fair and convincing view of the canals with the 40-inch reflector (full aperture and a power of about 700), when they had appeared hazy and broader, but the image had been very unsteady, and only obtained in very short flashes; but nothing that I had hitherto seen had prepared me for the astonishing steadiness and fineness of the details visible on this superb night.

There is in my mind no sort of doubt that the revelation of this night was due both to the perfection of the instrument (which its maker long ago pronounced to be the best that the firm of Alvan Clark ever turned out) and the atmospheric conditions which are found at Flagstaff. With respect to these I would mention, as pointing to the freedom from water vapour, that I have seen the thermometer fall from more than 70° F. at 3 p.m. to below the freezing point at 3 a.m. without a trace of hoarfrost, and the general clearness of the air was such that I could see Uranus with the naked eye within 5° of the horizon, and could nearly every night count nine stars in the Pleiades and separate ϵ and 5 Lyræ.

The telescope also afforded on other nights ample evidence of the extraordinary clearness of the air. On many occasions both satellites of Mars, when not very near the limb, could be seen, without screening the planet, with 18 inches of aperture; and on one occasion with this aperture I picked up one of them unawares while looking for canals with a yellow screen. (N.B.—The importance of colour screens in rendering the canals visible does not seem to be sufficiently appreciated.)

In the face of all this positive evidence, and in the absence of any evidence that the observing conditions at Meudon, just outside Paris, ever approach these best conditions at Flagstaff, I find it impossible myself to attach any serious weight to the ingenious and plausible contentions of M. Antoniadi, which seem to have been much too hastily accepted in this country.

As to the deductions which Dr. Lowell has drawn from his observations I have nothing to say except that the startlingly artificial and geometrical appearance of the markings did force itself upon me.

JAMES H. WORTHINGTON.

Wycombe Court, High Wycombe, October 31.

November Meteors.

THE moon is full about the time when the Leonids become due in the present year, but that is no reason why these meteors should elude observation, for the Sicke has furnished some notable displays of shooting stars. With the moon in opposition in mid-November, as, for instance, in 1799 and 1867, though the coming apparition cannot be expected to vie as regards brilliancy with either of these historic events, yet in its way it may not prove unimportant nor be allowed to pass unobserved. Besides the Leonid epoch, there are also some other meteoric events that occur in November, of which the following particulars have been computed by the writer:—

Epoch, November 11, 9h. (G.M.T.), approximately second order of magnitude. Principal maximum.