

Only when the sun is nearly obscured is there anything of more than ordinary interest to note, although before then the lights and shadows begin to look peculiar. About a quarter of an hour before totality begins the darkness becomes very evident, the birds cease to twitter, fowls go to roost, flowers close up, animals go to rest, the temperature falls, and the larger stars and planets shine out and, during totality, a very peculiar gloom seems to have settled over the face of nature. The darkness is quite unlike the darkness of night, but rather as though a veil of neutral tint had covered everything.

During totality the Moon's disc appears to be surrounded by fringe or crown of silvery light (called the corona) rising to a height of from one to three hundred thousand miles and out of which shoot tongues of pale, rosy-coloured flames of varying shape, and called protuberances, or prominences. Astronomers direct their attention to the study of these phenomena, both by use of the camera, to register the shape, and by use of the spectroscope, to analyse and determine the constituents.

None of the instruments which were fed by auxiliary mirrors gave any results, the clouds were too thick, the light from the main reflecting instrument was only faint, and this faint light being again reflected by the auxiliary mirror became too feeble to impress an image on the photographic plate.

Of the instruments fed by the coelostat (or siderostat) direct, Mr. McClean's 31½-ft. spectrograph did not produce a single result, whilst Dr. Lockyer's 4 prism camera only gave two faint pictures. The 16-foot coronagraph produced one faint and one fair image, whilst the 8-foot gave a faint picture, in each case, of the end of the eclipse.

Mr. McKeon, of Father Cortie's party, got several faint pictures, but the details have not yet been made public.



NO. 6.—FATHER CORTIE SUPERVISING THE ERECTION OF HIS COELOSTAT.

—Winkelmann, Photo.

Mr. Worthington and Dr. Stefanik seem to have been much more fortunate in their selection of a site than the British parties, the former getting pictures which both Mr McClean and Father Cortie describe as "really magnificent," and the latter (Dr. Stefanik) told the writer that his results were quite satisfactory.

It is understood that the Australian party was fairly successful, although no official report is yet available.

The Photographs.

No. 1 is a picture of the total solar eclipse of January, 1908, and was taken at Flint Island.

No. 2.—At an eclipse it is necessary to know the local time very exactly, amongst other reasons, so that the observers shall not be taken by surprise. Photo. No. 2 shows the instrument which determines time by indicating the passage of a star across the meridian.



NO. 5.—F. K. MCCLEAN'S SIDEROSTAT (21-INCH MIRROR) DRILL PICTURE.

—Winkelmann, Photo.

No. 3 shows the chronograph. On the drum is wrapped a sheet of paper and, by means of electricity, the indicated passage of the star across the meridian is recorded on that sheet of paper, at the same time that a chronometer is recording the time, second by second.

No. 4 shows a camera which is pointed straight at the sun and driven by clock work so as to travel just as fast as the

Astronomical Notes for October

(Hon. Director Wangani Observatory.)

The Sun is in the constellation Virgo during the whole of this month; he passes in Libra just as it ends. His declination is now south of the Equator, increasing from 3deg. on the 1st to 14deg. on the last of the month. His altitude

will therefore show an increase of about 11deg. at noon for the same period. Sunspots have not entirely disappeared, but from the smallness of the areas disturbed, and the rapid merging of the same, into the bright conditions surrounding them, we consider our luminary to be well within "the minimum stage."

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Eclipse.—An annual eclipse of the Sun will take place on the 22nd. The line of central contact passes nearly 30deg. to the north of our position, but Wellington and places to the north may be favoured with a glimpse of part of the phenomenon. For New Zealand time it will begin 5h. 21m., and will end 5h. 35m. p.m., lengthening for places to the north.

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The Moon, in her monthly circuit of the heavens, comes into the vicinity of the planets and some of the brighter stars, and serves as a convenient pointer to them. She will be near Saturn on the morning of the 11th, Mars on the following evening, Venus on the morning of the 19th, Mercury on the 22nd, Jupiter on the 24th. Her path through the constellations, visible in our evening skies at about 8 o'clock, is as follows:—In Sagittarius on the 1st and 2nd, Capricornus on the 3rd and 4th, Aquarius on the 5th and 6th, Pisces on the 7th and 8th, Aries on the 9th and 10th, Taurus on the 11th and 12th, and nearest the bright star Aldebaran, in the Hyades, on the 12, Gemini on the 13th, 14 and 15th, and nearest the two bright stars, Castor and Pollux, on the latter date. She will appear again as a crescent in the Scorpion on the 25th and 26th, Sagittarius on the 27th, 28th and 29th, and in Capricornus at the end of the month.

sun, thus keeping the Sun's image exactly in the same place on the photographic plate.

No. 5 shows the 21in. siderostat, the mirror being almost in front of Mr. McClean—the third figure from the left. At the time when the photograph was taken the mirror was reflecting a coconut palm leaf to Mr. Winkelmann's camera.

No. 6 shows Father Cortie and his men adjusting a coelostat.