

HIS MAJESTY THE SUN.

Mrs. May Vivienne writes:—Our great sun consists of several concentric spheres of different sorts of matter, outside all of which is the zodiacal light, which spectrum analysis defines as reflected sunlight. Outside this, but surrounding the sun at a distance about equal to his diameter, with streamers issuing from it to a much greater distance, is a bright glare, called the corona. This silvery halo of light surrounding the eclipsed sun, and sending its radiant streamers far into space, is a rare and remarkable sight of nature, seen only during a total eclipse of the sun. The corona shines mainly with reflected sunlight, but also contains a self-luminous gas. Inside this again, and close round our glorious orb, is a rare colored envelope, called the chromosphere, from which prominences issue to colored envelope, called the chromosphere, with its prominences, consists almost entirely of incandescent hydrogen, though occasionally other gases appear in it. Inside this is the bright surface of the sun, which is ordinarily visible, and which is called the photosphere. Professor Young defines this as an envelope of fiery clouds, formed by the condensation and combination of such of the solar vapors as are sufficiently created by their radiation into space. "On the photosphere are at times seen huge dark spots, which look like caverns opening into unknown depths." On one of my visits to the Observatory Mr. Dodwell showed me some of these snapshots through the great telescope there, so I am not writing from hearsay, but from actual observation. The diameter of this majestic sun of ours is 866,000 miles, his rate of rotation is 25 days, and he is a million times larger than our little earth, with its diameter of 8,000 miles. These measurements are the result of observations taken at the time of the transit of Venus by Halley and other great astronomers, and at a later transit, in 1761, by Emke, also of comet fame, but it is to Sir William Herschel that we owe the wonderful discovery of the Stellar Parallax, or the actual measuring of the heavenly bodies from the earth. Parallax is the apparent displacement of an object due to the real displacement of the observer, so that the former, with reference to the latter, is changed. Sir William Herschel was made King's Astronomer by George III, on his discovery of the seventh planet of the solar system, Uranus.

"MISS ADELAI."

MISS MERLE ROBERTSON ADOPTS A NEW NAME.

Leaving South Australia about seven years ago as a student, Miss Merle Robertson returns next month as a professional pianist with a European reputation.

In the intervening years she has had a wonderfully varied experience in England and on the Continent, such as falls to few girls, even more advantageously placed than was Miss Robertson, who has conferred honor on the State of her birth by "making good," as also on its capital by adopting a professional name which, like the Customs bills, shows her country of origin. She is now, or was, Miss Merle Adelai. When she returns home on October 3 she will, in all probability, resume the name by which she is more



"Miss Adelai."

widely known in this city. That Miss Robertson's success abroad has been something more than ephemeral is beyond question, since she has received a host of favorable press notices from London and Copenhagen, with eulogistic references to her playing by celebrities like Eugen D'Albert, and Olfert Jespersen, the Danish composer and conductor. One remark by the clever Dane may be quoted. Writing of Miss Robertson, he said:—"This name will soon shine over the world like a star in the heavens. I am grateful to have heard her divine pianoforte playing." D'Albert heard her play in Copenhagen, and, according to the Danish newspaper, said:—"Already, at 22 years of age, she is a fully fledged artist." It was after this that Miss Robertson became a pupil of D'Albert.

Of a London recital, a critic says:—"This lady, a pupil of the famous pianist, Eugen d'Albert, gave a recital at Steinway Hall. Miss Merle Adelai is an Australian of Danish extraction, who recently made her first appearance in Europe with the Copenhagen Philharmonic Orchestra. Miss Adelai has many of the characteristics of her master—a forceful personality and a distinctly determined style of playing; indeed, she is somewhat inclined to overdo the masculine side of her nature; still she evidently makes up her mind as to the conception of a piece, and forthwith expresses her opinion in definite manner." Miss Robertson is a daughter of Mr. and Mrs. Arthur Robertson, of Hewitt-avenue, Toorak, and was for several years a pupil in London of Miss Fanny Davies. She expects to return to England next year.

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TEACHING OF ECONOMICS.

From "ECONOMICS":—While I agree with the major portion of the speech by Mr. Whitford in the House of Assembly on August 28 dealing with education, I feel there has been an injustice to the Workers' Educational Association. Mr. Whitford said in reply to an interjection by Mr. Harper, that there was a chair of economics at the University under the cloak of the W.E.A., but the history they taught was of kings, emperors, and other potentates. Mr. Whitford should make sure of his facts. I wonder if he has read Dr. Heaton's book, "Modern Economic History." If he has not, I commend it to him; also the hundreds of other books sold and loaned by the W.E.A. He will find if he cares to take a trip to their library there are all the works he will require for a few years in economics.

THE SOLAR ECLIPSE OCCURS THIS AFTERNOON AN EVENT OF GREAT INTEREST

All people who provide themselves with pieces of smoked or colored glass sufficiently dark to protect the eyes against the injurious effects of glare will be able to watch in comfort the progress of the partial eclipse of the sun this afternoon. The first phase will begin at 2.2 p.m., and the eclipse will attain its maximum at 3.32 p.m., with three-quarters of the sun's disc obscured. At 4.36 p.m. the shadow of the moon will have completely passed away from the orb of day. The last few mornings have been cloudy, with intervals of sunshine, but the afternoons have been mostly fine and clear, and there are fairly good prospects that the weather this afternoon will be sufficiently bright to enable a good view of the partial eclipse to be obtained. For the rarer phenomenon, the total eclipse, the astronomical expeditions of Wallal, Cordillo Downs, Goondwindie, and other stations along the strip of country where the solar disc will be completely darkened, have had their preparations fully made for some days past, and systematic rehearsals have been taking place, so that the comprehensive programmes drawn up for observation of all the features of the eclipse may be carried out with the utmost efficiency during the limited duration of totality. All who are interested in the advancement of scientific knowledge will extend to these expeditions their best wishes for a fine day and a clear atmosphere in order that the best results may be obtained.

Some days will probably elapse before a definite announcement is made concerning the outcome of the tests for the "Einstein effect." A total solar eclipse affords the possibility of testing Einstein's general theory of relativity, which has revolutionised the ideas of scientific men regarding the nature of space and time. One aspect deals with the action of gravity on a beam of light, and shows that rays of light are attracted, in common with material bodies, towards a heavy gravitating body. In May, 1919, photographs obtained by the British eclipse expeditions to Sobral (Brazil) and Principe (near Africa), compared with photographs of the same region of the sky later, when the sun was in another region, showed that the light of the stars in the vicinity of the eclipsed sun had been deflected by the sun through an angle which was in accordance with Einstein's theory. To-day's eclipse, therefore, is being eagerly awaited by astronomers seeking evidence in confirmation or otherwise of this result. Special attention is being given also to wonderful glowing corona surrounding the eclipsed sun, and sending radiant streamers far into space, which is one of the most rare and remarkable sights in Nature. Details of the many minor observations planned by the scientists have been given in the article published in "The Advertiser" during the past few days. Summarised, the data obtainable during total solar eclipses are:—

- 1. Observation of times of contacts and limits of shadow on the earth's surface.
2. Spectrum of chromosphere—the "flash spectrum."
3. Photographs of (a) inner corona, prominences, and flocculi; (b) outer corona.
4. Drawing of corona, simple and composite.
5. Spectrum of corona, for composition and rate of rotation.
6. Polarisation of coronal light.
7. Photographs of comet or inter-Mercurial planet.
8. "Einstein effect"—the apparent outward displacement of stars whose light passes close to the sun to twice the extent predicted in the Newtonian law of gravity.
9. Variation of actinic value of sun's light.
10. Variation of the total insolation at the earth's surface.
11. Variation of air temperature.
12. Variation of air pressure.

- 13. Variation of humidity of the atmosphere.
14. Variation of wind direction and force. (Eclipse cyclone?).
15. Formation or disappearance of cloud.
16. Rate and direction of movement of "shadow bands" and their dimensions.
17. Variation of magnetic elements.
18. Psychological and phenological results—effects on men, animals, birds, insects, and plants.
19. Coloration of clouds, sky, land, and sea.

In a total eclipse of the sun by the moon the diameter of the moon's shadow cast on the earth averages only about 150 miles, and sweeps across the earth from west to east with great rapidity. Such eclipses have been fruitful in discovery. That of 1868, for example, resulted in the discovery of helium in the sun, 27 years before it was found to be a constituent of one of the rare earths, cerium. The region of the penumbra, or partial eclipse, extends for a distance of about 2,000 miles on both sides of the central line of totality, and it is from within this belt that the majority of South Australians will witness the passing of the shadow. The following is a historical review of solar phenomena from the earliest times, as set out in the interesting brochure issued by the Commonwealth Meteorologist, under authority of the Minister for Home and Territories:—

- 2012. First recorded total eclipse of the sun in the Brahmin Surya Siddhanta.
2310. First total solar eclipse recorded by the Babylonians.
2335. First total solar eclipse recorded by the Chinese.
2352. Partial eclipse, for the failure to predict which 10 and 10, the Chinese astronomers Royal lost their lives.
1099. Total eclipse recorded in Babylon by the Chaldeans.
1062 and 762. Total eclipses recorded in Babylon by the Chaldeans, the earliest account of which was used by Dr. Cowell to correct modern lunar tables.
550. Eclipse predicted by Thales of Miletus; apparently first application of the "Saros" by the Greek astronomers.
A.D.
71. Apparently first reference to corona, but winged images of the sun occur on Egyptian, Hittite, Assyrian, Babylonian, and Persian monuments.
131. Firmicus alluded to the prominences.
418. Comet first noted near eclipsed sun.
788. First total eclipse recorded in Britain.—("Anglo-Saxon Chronicle").
1140. Last total solar eclipse in Britain for several centuries, only two, in 1715 and 1724, having occurred since.
1698. Janssen's remarks on the corona.
1695. Red flames of the chromosphere recorded by Kepler.
1698. First refracting telescope made in Holland.
1609. Galileo constructed a telescope and noted the rotation of the sun as indicated by the sunspots.
1612. First eclipse (partial) viewed through a telescope.
1632. First detailed account of the corona, by Dr. Wobbold.
1666. Newton's observation of prismatic refraction laid the foundation of spectroscopy (see 1672). Newton made the first reflecting telescope.
1700. Chromosphere recorded by Captain Stanuon at Berne, and described by de Duiller at Geneva.
1715. Halley published in advance a map of the eclipse track over England, and observed the corona, chromosphere, and "Baily's Beads."
1724. Last total eclipse in Great Britain (the next will be 1927).
1802. Absorption lines in the solar spectrum were noted by Wollaston, but incorrectly interpreted as arbitrary boundaries of the colors.
1817. Fraunhofer used the absorption lines as landmarks in the solar spectrum.
1820. Goldschmidt recorded the observation of the "shadow-bands."
1821. Fraunhofer made his first wire diffraction grating.
1836. Baily described the beads (Baily's Beads), due to irregularities on the moon's limb.
1842. First total eclipse to stimulate modern scientific investigation. The track crossed Southern Europe. Spectrum of helium was detected by Magrini. Doppler proved the shift of the spectral lines towards the red for recession and towards the violet for advance of the source of light (see 1868, 1873, 1893, 1896).
1845. First daguerrotype of the sun taken by Foucault. Faraday observed the magnetic rotation of the plane of polarisation (1846, 1898).
1851. Eclipsed sun first photographed by Berzoulet at Konigsberg.
1857. Photo-heliograph erected at Kew Observatory by De la Rue. Kirchhoff demonstrated the Fraunhofer lines to be due to absorption.
1860. First systematic photography of an eclipse by De la Rue and Secor. De la Rue

FIFTY YEARS AGO.

Proposed University

From The Register, Wednesday, September 18, 1872.

A preliminary meeting of gentlemen favourable to the establishment of a University in Adelaide was held in the classroom of the Union College on Tuesday afternoon. The meeting was attended by the Lord Bishop of Adelaide, the Ven. Archdeacon Marryat, the Very Rev. Dean Russell, Revs. Canon Farr, J. Jefferis, J. Davidson, Henry Read, W. P. Wells, J. Henderson, J. C. Woods, W. W. Ewbank, and A. T. Boas, Dr. Whittell, Messrs. J. A. Hartley, J. Howard Clark, T. Magarey, Alexander Hay, David Fowler, and George Young. His Lordship the Bishop, invited to preside, briefly explained the objects of the meeting, and the desirableness of promoting such a movement. Moved by Rev. J. Jefferis, seconded by Rev. Henry Read, "That this meeting considers it desirable that for the purpose of furthering liberal education in South Australia, a University be founded to furnish instruction in all and every of the liberal arts and sciences, and to confer degrees in arts, law, and physic." Moved by Mr. Alexander Hay, seconded by Dr. Whittell—"That it is desirable that the said University shall have power to make statutes for the affiliation of any collegiate institutions, irrespective of religious belief." Moved by Rev. J. Davidson, seconded by Mr. J. Howard Clark, "That the gentlemen present be appointed a committee to give effect to the foregoing resolutions, with power to add to their number, so as to secure a fair representation of all classes in the province." A number of gentlemen were then named, whose consent to act on the committee it was considered desirable to obtain, and a sub-committee was appointed to make arrangements for bringing the scheme properly before the public.