

of which marks it as one of exceptional interest. He describes it as a new variable star or nova, and its positions for two epochs were (1855), R.A. 22h. 56.3m., dec. $+58^{\circ} 52'$; (1900), 22h. 58.1+59 $^{\circ}$ 6.3'. The long period of brightness of the star and rapid decline suggest, as he says, that "we may be dealing with the later stages in the history of a nova." Two charts taken on September 3, 1911, and August 25, 1913, exhibit marked changes in its magnitude. The same writer directs attention to some new nebulae in the region of I Cassiopeiæ. Dr. R. Furuhielm, of the Helsingfors Observatory, describes two new variables, both of which have amplitudes of at least three magnitudes. He proposes to continue to observe these objects to secure correct determinations of their periods.

WATTS'S INDEX OF SPECTRA.—Yet another series of appendices to this most valuable compilation of wavelength data has been commenced by the publication of Appendix V. This part begins with the spectrum of the electric spark in air and extends to that of chlorine. The additions include measures of the spectra of the elements Aldebaranium, Cassiopeiium, and Beryllium (band spectrum). Among spectra of compounds Olmsted's data for calcium hydride and Fowler's carbon oxide spectra find a place. Perhaps it is not too late to make the suggestion that the policy of giving, in the briefest possible manner, an indication of the contents of the papers referred to be extended to include all references in forthcoming appendices.

SECULAR DESICCATION OF THE EARTH.

ON Monday, December 8, Prof. J. W. Gregory read a paper before the Royal Geographical Society, entitled "Is the Earth Drying Up?" The question is naturally one to which a definite affirmative or negative answer cannot be given owing to the relatively short period during which exact scientific measurements of precipitation have been made. The evidence is principally archæological, botanical, and geological, supplemented for some countries by historic records of population. Prof. Gregory put before the society the views of different investigators, and subjected them to a critical examination, confining himself to changes in historical times, and making no pretence at dealing with the great changes of climate of geological epochs, other than to indicate the glaciers of north-west Europe as the probable cause of the moister Mediterranean climate of prehistoric times.

There are, roughly speaking, three forms of the desiccation theory. Prince Kropotkin maintains that there is a world-wide tendency towards drought. Prof. Ellsworth Huntington believes that the most important changes are pulsatory, the climate being now drier, now moister, but in the long run becoming generally drier. Mr. R. Thirlmere holds that the climate varies in great cycles, each of which may extend over 2000 years or more, and that we are at present in a cooling world. Prof. Gregory examined the evidence from different countries in its bearing on these theories, and showed the results of his examination on a map, from which it appears that there has probably been desiccation in historic times in Central Asia, Arabia, Mexico, and South America; increased precipitation in the United States of America, Greenland, Sweden, Roumania, and Nigeria, and no appreciable change in Palestine, northern Africa, China, Australia, and by the Caspian Sea. He deduces that, though there may be local variations, there is no progressive world-wide change to support the theory of a universal drought. *A priori* it might be affirmed that no appreciable universal change could occur without a corresponding considerable change in the dis-

tribution of land and water, or in the intensity of solar radiation. The changes in the former have been small in historic times, and though no direct evidence of solar intensity is available, the records of temperature and of plant life indicate that its fluctuations are probably confined to the short period variations found by the observers of the Smithsonian Astrophysical Observatory.

The strongest support for the desiccation theory is derived from Central Asia, where the evidence, though not conclusive, largely owing to the alternative explanation of blown sand, is sufficiently convincing to have won over the majority of the travellers who have visited that region.

E. G.

ASTRONOMY IN SOUTH AFRICA.

A VERY interesting address was given by Dr. A. W. Roberts, as president of the South African Association for the Advancement of Science, at Lourenço Marques on July 7. Dr. Roberts dwelt for the main part on the progress made in astronomy by South African workers during the past century, but he claims pardon for omissions when such a large scope of work has to be considered. He sums up the work of astronomical science in late years as circling round three great problems, namely the distance of the stars, the movements of the stars, and the structure and evolution of the stars. These three lines, he points out, all converge in one great question, namely the constitution, history, and cosmography of the universe as a whole. In reading his address, which is published in *The South African Journal of Science* (vol. x., No. 2, October) one is struck by the great part that has been played by astronomers in South Africa. To use the president's own words:—"It was at the Cape that a sounding line was first thrown across the stellar space. It was at the Cape that the idea of stellar photography was born, grew up, and reached maturity. It was at the Cape, or perhaps by the results obtained at the Cape, that the first vision was got of those wonderful streams of stars that sweep majestically through our universe. It was at the Cape that the classical distance of the sun was reached . . . that the first accurate parallax of the moon, and, later on, its weight, was determined . . . that the most refined measures of stellar distance have been secured." Dr. Roberts tells the story of how—twenty years ago—he had in purpose the determination of the position of the solar apex from the proper motions in Stone's catalogue. "I went," he said, "over my postulates with Gill, and was vehemently assured I was basing my equations on wrong premises. 'How do you know that the stars move haphazard?' he demanded. I did not know! 'They may be moving in streams; the whole universe may be a big whirlpool!'" The record of the past work of South Africa in astronomy is great, and a high standard has been set for the present and future astronomers there.

THE ORIGIN OF ARGENTINE HORSES.

IN the *Anales* of the Buenos Aires Museum for 1912 (vol. xii.) Señor Cardoso adduced evidence to show that the story of the origin of Argentine horses from Spanish horses imported by Don Pedro de Mendoza in 1535 or 1536 is a myth, and that the former are really descended from the Pleistocene *Equus rectidens* and *E. curvidens*, and existed in the interior of the country at the time of the Spanish conquest. This opinion is disputed in the *Revue générale des Sciences* of October 15 by Dr. Trouessart, who points out that the statement of wild horses having been seen by Sebastian Cabot in 1531 is based on the figure of a