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following day, when it became conspicuous along the Atlantic coast. Careful inquiry develops the fact that the telegraph lines were disturbed by earth currents westward from Chicago exclusively on February 22; such disturbance not extending eastward until the day following, when the aurora did likewise. This localization of the aurora in longitude is most interesting, and is being actively investigated in connection with the system of concerted observations of the aurora undertaken in co-operation with the expedition of Lieutenant PEARY. The officials of the Western Union Telegraph Company have been interested, and more complete memoranda of the distribution of earth currents on their lines are being made.

“The relations to characteristic solar conditions which I have pointed out in notes and articles heretofore, are being verified most completely. Yours truly, M. A. VEEDER.”

LYONS, N. Y., April 30, 1894.

ROTATION OF THE PLANET SATURN.

“The latest important results on this question are due to Mr. STANLEY WILLIAMS,* who has taken every pains for the determination of an accurate value, and to free the results from any possibility of their being influenced by preconceived ideas. With regard to the method of observation employed, and the details of the observations themselves, we must refer the reader to the publication mentioned [in the foot note], but a brief summary of the results may not be out of place.

“The observations were made in 1893, and two kinds of spots were observed: (1) dark spots upon a conspicuous double belt in the northern hemisphere; and (2) bright spots in the equatorial zone.

“In the case of the former, the period was obtained from numerous spots, but eleven of them have been used as giving well-ascertained values, a table of these figures showing that they can be arranged into two classes, the means of which are $10^h 14^m 29^s.07$ and $10^h 15^m 0^s.74$. Between these values there is a difference of over half a minute, a quantity too large, judging from the way sets of observations agree *inter se*, to be due to errors of observations.

“With the bright spots a similar result is noticed, only here

* *Monthly Notices of R. A. Society*, Vol. LIV, No. 5, March, 1894, page 297.

the difference is not the same. Out of the five series of deduced values four may be coupled well together, giving a mean value of $10^h 12^m 59^s.36$. The fifth or outstanding value is 13 seconds shorter than this.

“ These different values for the periods of rotation point out pretty distinctly that the spots that have been observed are by no means fixed relatively to the planet’s surface, but are endowed with a proper motion of their own. In the case of the dark spots the surface material must have rotated over half a minute more quickly in the same latitude upon one side of *Saturn* than upon the other. Mr. STANLEY WILLIAMS summarizes the results of his discussion in the following words:

“ ‘ Between north kronocentric latitudes 17° and 37° the surface material of *Saturn* rotated in 1893 at the rate of $10^h 14^m 29^s.07 \pm 0^s.27$ between longitudes 45° and 140° , and at the rate of $10^h 15^m 0^s.74 \pm 0^s.56$ between longitudes 175° and 340° , whilst between longitudes 340° and 45° there was a region in which the surface material rotated at a rate intermediate between the above values.

“ ‘ Between north kronocentric latitude 6° and about 2° south latitude, the surface material of *Saturn* rotated in 1893 at the rate of $10^h 27^m 59^s.36 \pm 0^s.27$ between longitudes 0° and 140° , whilst between longitudes 140° and 360° the rate of rotation was rather quicker, the average period of rotation here being well represented by $10^h 12^m 45^s.8$.

“ The importance of such results as those stated above will help considerably to unravel the mystery surrounding the circulation of the envelope of this great planet; but, for the observations to be made comparable, they must be accurate, systematically made, and extend continuously over moderately long periods. For the years 1891–93 Mr. STANLEY WILLIAMS points out that the acceleration in the motion of the bright equatorial spots can be clearly deduced from the different periods of rotation.

“ They are for—

	h	m	s
1891	10	14	21.8
1892	10	13	38.4
1893	10	12	59.4”

—Extract from a paper by W. J. L., in *Nature*, May 10, 1894.