

regions are said to be under marked cyclonic control. The northern States are more cloudy than the southern, and the Pacific coast as a whole is less cloudy than the Atlantic. July and August are the least cloudy months, whilst in the southern States the minimum cloudiness is in autumn. In Florida the cloudiest season occurs during the summer months.

THE report of the National Physical Laboratory for 1920 (the first year of the directorship of Sir J. E. Petavel) records an unusually large number of staff changes. Sir A. Schuster has become chairman of the executive committee; Mr. F. E. Smith has left to become Director of Research at the Admiralty; and Messrs. C. C. Paterson, A. Campbell, A. Kinnes, B. P. Dudding, E. A. Coad-Pryor, and Dr. N. Campbell have resigned, and some of these posts have not been filled. Mr. R. V. Southwell has been appointed superintendent of the aerodynamics department. The fees for tests have been increased, and the number of instruments sent for test has decreased as compared with 1913, notably in the case of optical and electrical instruments. A large amount of work has been done for industrial research associations and for Government Departments, but in future Admiralty

work will be independent of the Laboratory. The programme of work for the present year includes the measurement of physical constants required in industry and in the medical profession, the improvement of the tests for photographic lenses, the study of the characteristics of three-electrode valves for wireless telegraphy, the manufacture of length standards of high accuracy, investigations on lubrication, tests of models of aeroplanes with air-screws running, light alloys research, and investigation of the interaction of ships.

THE Bureau of Standards, Washington, has issued a pamphlet on "The Spectrophotoelectrical Sensitivity of Proustite," by W. W. Coblenz, which is now ready for distribution, and may be obtained by anyone interested by addressing his request to the Bureau. This investigation is a continuation of previous work on various substances. At 20° C. the spectrophotoelectrical sensitivity curve of proustite has a wide maximum in the ultra-violet, with a weak, ill-defined band at 0.6 μ . By cooling with liquid air the intrinsic sensitiveness is greatly increased, and there is a very large development of this band, which now shows a maximum at 0.578 μ .

Our Astronomical Column.

THE AUGUST METEORS.—Mr. W. F. Denning writes:—This annual shower returns to a maximum on about August 11, and the circumstances are rather favourable this year, the moon being near her first quarter and setting at 11h. 10m. G.M.T. There is no reason to expect an unusually abundant display, but it will be sure to provide an interesting shower of bright, streaking meteors. The larger objects should be carefully recorded, so that their real paths may be computed. The position of the radiant point and its change of place ought to be determined on each night when the atmosphere is clear enough for the purpose, for the shower is already fairly rich at the end of July, and is well maintained until the middle of August. This date, however, does not limit its duration, for occasional meteors are seen towards the end of the month. The morning hours are usually best, for the radiant is at a greater altitude after midnight than at an earlier period. Though this system of meteors has been sedulously observed during a great number of years, there is still much to be learnt concerning its annual variations, date of maximum, changes in the position and character of the radiant point, and in the relative strength of the numerous contemporary showers which are visible."

SEARCH FOR METEORS FROM THE PONS-WINNECKE RADIANT.—Prof. Barnard reports that he watched for meteors all night on June 24, 25, 26, and 27; although the search was fruitless it has considerable negative value as showing that the dense part of the meteor swarm did not intersect the orbit of the earth, so that it would appear probable that the shower of June, 1916, will remain the sole example of a shower from the Pons-Winnecke radiant.

Mr. R. G. Chandra, of Jessore, India, also reports a fruitless search for meteors on the night of June 25. He states that Prof. Ray, of Bolpore, saw two meteors radiating from the neighbourhood of θ Boötis.

Prof. Barnard mentions a telephonic report of a shower lasting ten minutes on the night of June 27. No further particulars were available.

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STATISTICS OF PROPER MOTIONS.—No. 30 of the Publications of the Astronomical Laboratory at Groningen, by Prof. J. C. Kapteyn and Dr. P. J. Van Rhijn, is a continuation of the valuable studies in stellar statistics that have appeared in this series. It commences with a *résumé* of recent catalogues and other sources of our knowledge of proper motions, such as Mr. Innes's researches with the blink microscope. The question of the effective area of the sky covered in each research is considered—that is, if a catalogue is not exhaustive down to some assigned magnitude, it is considered to be exhaustive for a smaller area of the sky, determined by the number of stars contained in the catalogue.

One of the most interesting questions dealt with is the number of stars in the whole sky with motion between certain limits. The following table has been formed from data in Tables 6 and 7 of the book. For these large proper motions the distribution is shown to be independent of galactic latitude.

Limits of Proper Motion.

No. of stars in whole sky.	0.2"	0.3"	0.4"	0.5"	0.6"	0.7"	0.8"	0.9"	1.00"	1.50"	2.00"
Mag. 6	169	71	30	26	16	7	5	3	14	1	5
7	304	120	56	61	40	23	12	6	13	3	3
8	520	216	76	124	36	21	21	11	18	6	12
9	1125	410	103	38	47	25	34	13	51	21	9
10	1425	261	166	133	48	29	24	10	33	10	19
11	1770	342	200	135	63	117	45	36	90	9	0
12	1770	450	450	68	45	23	23	90	113	45	0
13	1620	690	400	225	135	23	113	45	23	23	28
14	1490	800	350	158	68	113	45	0	0	0	0

The 169 in the first line means that there are 169 stars in the whole sky with annual proper motion between 0.2" and 0.3" and magnitude between 6.0 and 6.9. Similarly in other cases. The figures for the faint stars are rough, since they are deduced from the examination of very limited areas.