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## Extracts from Publications.

*The Sun's Magnetic Field.*—The question of the Sun possessing a magnetic field, similar to the terrestrial magnetic field, is discussed, especially with regard to the phenomena of the Sun's upper atmosphere, by M. Deslandres, in No. 27 of the *Comptes rendus* (December 30, 1912). He first discusses the matter theoretically, and, supposing the magnetic field to be produced by the rotation of the sun's electric charge, shows that a solar ion expelled vertically from the Sun should be so deviated by the field as to describe a helix having its axis parallel to the field; if many luminous ions are expelled in the form of a prominence the helical motion at the base of a prominence, as seen from the Earth, will depend upon the position of a prominence in the solar magnetic field. From a number of observations, M. Deslandres shows that the recorded

phenomena are in accordance with the demands of theory, and he accepts as certain the existence of a general magnetic field about the Sun, similar to that of the Earth, and in general much more feeble. [Nature.]

*The Attraction of Sun-spots for Prominences.*—In an illustrated article appearing in No. 4, Vol. XXXVI, of *The Astrophysical Journal*, Dr. Slocum shows that in some cases sun-spots apparently have a very strong attraction for prominences. He deals especially with a large group of spots which first crossed the solar disc between August 2 and 15, 1910, and received the Greenwich number 6874; at the next apparition it was numbered 6880, and, reappearing on September 27, as an extended group, its parts were numbered 6894 and 6893.

At each apparition, active prominences and large flocculic areas were observed in the immediate neighbourhood of the spot, the best prominence displays occurring at the west limb on October 8, and at the east limb on October 22. Photographs in Calcium light, taken on the former date, show that the prominences were pouring down from both sides right into the large spot. So many jets were visible that there can apparently be no doubt as to their common direction; moreover, the measures of the successive photographs, indicate accelerated velocities for the matter forming these jets. Three bright knots, shown on photographs taken at 4 h. 26.6 m. and 4 h. 34.9 m. respectively show velocities along the apparent trajectories of 16, 20 and 60 km. per second at distances of 170,000, 130,000 and 75,000 km. from the centre of attraction; other points recognised on two photographs gave velocities ranging from 15 to 90 km. per second. In addition to the general feature of attraction there is also evidence of repulsion, but the jets showing this are very short-lived.

The distances over which the attractive force of the spot appeared to exert its influence are remarkable. The prominences covered 45° of the solar limb, and prominences 260,000 km. (162,500 miles) from the spot were evidently drawn towards it.

Both Hale and Evershed have previously found evidence for this spot attraction, but Dr. Slocum's observation differs from theirs inasmuch as he finds accelerated velocities for the prominence matter, whereas their observations indicated diminishing velocities. [Nature.]

*The Integrated Spectrum of the Milky Way.*—The Harvard analysis of the spatial distribution of the spectra of more than 32,000 stars indicates that the Sirian type predominates in the Milky Way, and therefore the integrated spectrum of the Galaxy should be of the A type. To test this conclusion Dr.

Fath has actually secured spectra of certain large areas of the Milky Way, and finds that his results are not exactly confirmatory. With the special spectrograph he used for his work on the Zodiacal light, he exposed a plate for a total of 30 h. 20 m. on the rich region of the Milky Way that is partially bounded by the stars  $\gamma$ ,  $\delta$ , and  $\lambda$  Sagittarii; a second plate was exposed for a total of 65 h., and gave better results.

The general character of the spectrum so secured is solar in that it shows the F, G, H, and K lines, and three broad absorption bands more refrangible than K; a bright line is suspected at  $416 \mu\mu$ , but may be merely a subjective phenomenon due to contrast. Plates of other regions were taken and agree in indicating that the integrated spectrum of the Milky Way is of the solar type.

Dr. Fath suggests (*Astrophysical Journal*, Vol. XXXVI, No. 5, p. 362) that his result differs from that obtained at Harvard because he dealt with altogether fainter stars, and that beyond a certain undetermined magnitude stars of solar type predominate. A perfectly independent photographic investigation also indicates that, in the mean, the fainter stars of the Milky Way are the redder. These results, if they prove to be perfectly general, are most important from a cosmological point of view. [*Nature*.

*Amateur Astronomy*.—"If you look down the list of those to whom the medal of the R. A. S. has been awarded in past years, you will find a considerable number of so-called amateurs. This tells us, or at least I think so, that the work of the amateur is not less valuable than that of the professional, and that it is as readily welcomed and recognised. This should be an encouragement to all amateurs to go and do likewise. In the vast field of research there is room for all, and just as amateurs have rendered yeomen's service in the past, so I firmly believe that they will be needed, and will enrich astronomy in the future. \* \* \* \* \*

"Professor Schuster describes an amateur as one who learns his science as he wants it and when he wants it, and gives the following simile: The engine which works out the great problems of Nature may be likened to a thermodynamic machine. The amateur supplies the steam, and the hide-bound professional the cold water. The former, boiling over with ill-considered and fanciful ideas, does not like the icy douche, and the professional scientist does not like the latent heat of the condensing steam; but, nevertheless, the hotter the steam and the colder the water, the better works the machine. Sometimes it happens that the boiler and the cooler are both contained in the same brain, and each country can boast of a

few such in a century, combining the zeal of the enthusiast and the caution and restraint of the professional scientist; but most of us have to remain satisfied with forming only an incomplete part of the engine of research. \* \* \*

“It does not follow that because an amateur pursues his own method he is wrong or inferior. Further, if he possessed a complete knowledge of everything bearing upon a particular subject, he might be discouraged, or consider himself not sufficiently well-informed. The stimulus of enquiry would be gone. In some cases such knowledge may be essential; in other cases it is a hindrance. \* \* \*

“It has been said that there are two parties necessary for every advance in science; the one which makes it, and the one that believes in it. Possibly to some of us it is given only to believe; but to most of us it is permitted to take a more active share in the progressive march, especially if we have the true spirit of the amateur in us. ‘According to my view,’ says Professor Hale, ‘the amateur is the man who works in astronomy because he cannot help it; because he would rather do such work than anything else in the world, and who therefore cares little for hampering traditions or for difficulties of any kind.’ Professor Turner says of this definition that it provides both an ambition and a criterion. Surely, in this sense, we all want to be amateurs who will find it impossible to stop, who work in astronomy because we cannot help it. Clearly the army of amateurs is the right one for the work: weariness cannot touch them! They will go on fighting automatically because they cannot help it!”

[W. E. Plummer in an address to the Liverpool Astronomical Society.]

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## Memoranda for Observers.

Standard Time of India is adopted in these Memoranda.

*For the month of April 1913.*

Sidereal time at 8 p.m.

					H.	M.	S.
<i>April</i>	<i>1st</i>	...	...	...	...	8	37 22
	<i>8th</i>	...	...	...	...	9	4 58
	<i>15th</i>	...	...	...	...	9	32 34
	<i>22nd</i>	...	...	...	...	10	0 9
	<i>29th</i>	...	...	...	...	10	27 45

From this table the constellations visible during the evenings of April can be ascertained by a reference to their position as given in a Star Chart.