

## ASTRONOMICAL NOTES.

BY PROF. KHAGENDRA NATH CHAKRABURTTY, M. Sc.

*Temperature at the centre of the sun* :—In a paper in the *Comptes Rendus*, A Vronnet sets forth physical considerations supporting the belief that the temperature at the centre of the sun, instead of being millions of degrees, as required by the formula for a perfect gas, cannot be much more than 10,000 degrees centigrade.

*$\beta$  Cygni, a triple system* :—The bright star in the head of "The Swan" is a well known wide double star which, however reveals no relative motion of the components during the past century. The spectrum of the brighter component is composite and the statement by the Harvard Observer is that it could be explained on the supposition that the brighter member of the visual double is itself double, one component being a star of the "second type" (yellow), the other a star of the "first type" (blue), approaching the second type. Professor Campbell gives the following summary of radial velocities of the brighter component obtained at the Lick Observatory on 25 nights from 1898 to 1918 inclusive :—

Period	Velocity	No of observations.
1898—1901	—25·3 ken	5
1904—1907	—24·4	2
1910—1912	—23·2	6
1913—1914	—23·0	6
1917—1918	—21·6	6

These show that the velocity is certainly changing, so that the system is doubtless a triple one.

*A new unit of stellar distance* :—Sometimes ago Mr. De Rey Pailhade of Toulouse, France, proposed as the unit of stellar distance  $10^{10}$  kilometers. A light year would be  $946 \times 10^{10}$  kilometers or approximately 000 units of stellar distance, a number easy to remember.

A *parsec* in the same unit would be  $3.25 \times 940.7$  or 3078; roughly  $3000 \times 10^{10}$ .

The abbreviation Us is suggested for "unit of stellar distance," so that on this plan, the earth's distance from the sun would be 0.015 Us that of Neptune 0.450 Us, that of 61 Cygni 5865 Us etc.

It is worth while to question however whether this is any improvement over the "*parsec*" as a unit. The *parsec* is directly connected with the parallax of a star. As soon as one sees a star's parallax expressed in decimal's of a second, he may instantly know that the distance is the reciprocal of that number. For example if the parallax is 0.11 seconds, the distance is 9 *parsecs*. This may be converted into miles if one wishes by multiplying by 20 trillions ( $20 \times 10^{12}$ ) or into kilometers by multiplying by 30 trillions ( $30 \times 10^{12}$ ).

*The nearest star* :—Hitherto we have called  $\alpha$  Centauri the nearest star, but now we will have to give that position to a faint star Centauri which is apparently moving through space with the latter but somewhat nearer to us. In circular No. 40 of the Union Observatory, South Africa, Mr. Innes gives the result of a determination of the parallax from micrometric observations connecting the star with an 11.7 magnitude star 30' distant. From these measures alone the resulting parallax is 0.802 seconds, but Mr. Innes combines this with the result obtained by Dr. Vonte 0.755 seconds and another value 0.796 obtained from the ratio of the proper motions of this star and  $\alpha$  Centauri and adopts for the final parallax 0.782 seconds.

*Leap Years with 53 Sundays* :—The ordinary year has 52 Sundays. If however the year begin on Sunday, it will end on Sunday and so have 53. If it be a leap year, it may begin on either Saturday or Sunday and have 53 Sundays. The chances are however that leap year will begin on one of the other five days of the week; in that case there would be only the usual 52 Sundays.

The year 1916 was leap year and began on Saturday; it therefore had 53 SUNDAYS. The year 1911 had 53 Sundays.

That was not a leap year, but began on Sunday. The last leap year that had 53 Sundays was 1888; but that began on Sunday, whereas 1916 began on Saturday. The last year identical with 1916 in all respects was 1876, the year of the centennial of the United States, 40 years ago which exactly like 1916, began on Saturday and had 53 Sundays. The last three instances preceding that were the years 1780, 1820 and 1848. The next two following instances will be 1944 and 1972. It will be noticed that the intervals are either 28 or 40 years.

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#### ABSTRACTS FROM FOREIGN JOURNALS.

*Dr. Abbot on the Life on Venus.*—The *English Mechanic* for 5th March has a short note giving the views of G. C. Abbot as to the possibility of life on other planets. Contrary to the usual opinion the distinguished Director of the Smithsonian Astrophysical Observatory considers Venus, being about the same as that of the Earth, would make any other conditions similar. It must be inferred that Dr. Abbot inclines to the belief that Venus has a short rotation period as it is generally conceded that the longer period of 225 days, favoured by some observers, would make life impossible. It may be added that Dr. Abbot considers conditions on Mars too frigid for any kind of life to exist there.

*Standard time of Siam.*—The following note has been received from Phya Buri, Navarasth, Envoy Extraordinary and Minister Plenipotentiary:—"I beg to inform you that Siam has adopted the standard time of 7 hours 0 min., east of Greenwich (or Zone time of 7 hours,) to date from April 1st, 1920.