Will pick you up at West Point 7.30 pm Monday. C.B.

# ASTRONOMICAL SOCIETY OF TASMANIA

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Patron: His Excellency the Governor,
Rt. Hon. Sir Ronald Cross, Bart., K.C.V.O., K.C.M.G.
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## NEXT MEETING

Monday, 27th June, 1955, 7.45 p.m. in the Adult Education Rooms, Ground Floor, C.M.L. Bldg., c/r. Elizabeth & Macquarie Streets.

Subject: Short illustrated talks by following speakers followed by general discussion:
Dr. Grote Reber, "How Large is our Sun?"
J. L. Hull, "Eclipse of Sun on 20th June"
C. E. Bisdee, "Lunar Craters".

## REPORT OF MEETING ON 30/5/55:

Dr. Grote Reber gave a very interesting illustrated lecture on "Radio Astronomy" after which a general discussion followed.

An extract of Dr. Reber's lecture is given below.

"Radio Astronomy" Cosmic static is an electromagnetic wave similar to light and heat except that its wave length is very long. Thus the apparatus necessary for its detection and measurement is quite similar to radio apparatus.

Speculation about the possible existence of such natural radiations were first made by Sir Oliver Lodge in 1894. However, their discovery was purely by accident in 1931 when K. G. Jansky of the Bell Telephone Laboratories found them in the residuals of experiments upon terrestrial atmospherics. He was able to show that in a general way cosmic static arrived from a variety of directions approximating the milky way. Later Reber made the first maps of the sky which confirmed Jansky's findings and showed the major maximum to be Sagittarius with a number of minor maxima along the galatic equator. Other workers in England and Australia have been able to demonstrate that many small sources from a minute to a degree or more of arc exist. Less than ten have been associated with any visual objects. These include the colliding galaxies in Cygnus, the Crab Nebula in Taurus, the highly turbulent patch in Cassiopeia and a few pathological extra galatic nebulae such as the one in Virgo with a jet out one side. Excepting the Crab Nebula, all these sources are very faint fotographically. All involve great masses of gaseous material in violent motion. Thus it may be concluded that the processes generating cosmic static are not fotogenic and do involve considerable mechanical energy. These processes can only be speculated about at present. Certainly they do not involve any kind of stellar furnaces but are more like dynamos in the sky which are able to convert the energy of moving charged particles directly into electromagnetic waves. Thermal radiation from hot bodies has a spectral distribution at long waves where the intensity is inversely proportional to the square of the wavelength. Conversely, it has been found that cosmic static has a spectral distribution of intensity approximately directly proportional to the square of the wavelength. Obviously no thermal processes are involved but the interpretation of this clue is still most vague.

Celestial radio waves have been found by Reber and others to be coming from the sun. The efforts of a large number of investigators have demonstrated that these solar radiations are in fact of thermal origin involving the hot materials of the solar corona. They can be detected from the sun merely because the sun is so very close and are far too weak to be detected from any other star. Thus, they in no way assist in the explanation of the great intensity of cosmic static coming from the milkyway. A wide variety of studies are being prosecuted on this subject in several civilized countries."

## SUNSPOT CYCLE NOTES:

The most active sunspot cycle in the past 170 years ended in April 1954, according to recent analysis of the smoother American sunspot numbers prepared by the Solar Division of the American Association of Variable Star Observers. Expressing dates as years and decimals, the cycle began at 1944.2 and reached its maximum at 1947.5 and minimum again occurred at 1954.3

Compared to the 1933.8 minimum when the monthly number was 7.79 the recent minimum was only 2.4. The 1947.5 maximum, at 151.8 far surpassed that of 1937, which was 119.2. The cycle just ended lasted 10.1 years; the presoding ono lasted 10.4 years.

If the new cycle continues to increase in activity at its present pace, it is also very likely to be a high one, and solar activity should be at its peak during the International Geophysical year in 1957-58. SKY & TEL. APL. 55.

It is interesting to note here that the curves of variation in relative sunspot numbers only goes back to 1749. These data were initiated by Prof. Wolf of Zurich in 1849. The record prior to that time was compiled by him from a study of a hundred or more sources, the observations being in most cases incidental to other solar observations such as culminations, solar diameter, eclipses, transits, or on the nature of sunspots.

From this latter data Wolf determined the times of maxima and minima back to the days when the telescope was developed by Galileo in 1610.

Some large spots have been observed on the sun already this year and on 19th inst. a large group crossed our medidian.

NEW COMET DISCOVERED:

A new Comet, visible to the naked eye, with a tail "greater than one drgree long" has been discovered by a Czech astronomer at Skalnate Pieso Observatory in Czechoslovakia, says the Harvard Observatory.

A telegram received at Harvard says that when first observed it was in the region of the constellation Auriga, near the bright stars Capella and Epsilon.

The location of the new comet was given as 4 hrs. 42 min. right ascension and plys 44 deg. 12 min. declination. MELB. HERALD 16.6.55.

AN AUSTRALIAN ASTRONOMER IN U.S.A.

To supplement its work in optical astronomy at Mount Palomar, California Institute of Technology is initiating a radio astronomy project to be headed by John G. Bolton, the Australian pioneer in this field. Mr. Bolton was the discovered of the first radio star (in 1948), and the first to indentify a radio star with a visible object, the Crab nebula. He served for 10 years as a research scientist at Sydney in the division of radiophysics of the Commonwealth Scientific and Industrial Research Organization.

The major goals of the Caltech protram will be to detect radio emission from outer space, to find out what its sources are, and to discover as much as possible about the position, strength, and size of these sources. Construction of new radio equipment is expected to sart within a year. SKY & TEL. MAY, 1955.

LOST SATELLITE RECOVERED:

Last observed in 1941, the eighth satellite of Jupiter has been re-discovered, thanks to UNIVAC, a Remington Rand high-speed electronic computer. Dr. Paul Herget, Cinicinnati Observatory, was assisted by Dr. John Mauchly in calculating the position of Jupiter VIII for every 10 days from 1940 to 1980, using starting values provided by Dr. Herbert Grosch. Actually, the positions for 10 slightly different orbits were computed, the machine accomplishing the entire task in about $2\frac{1}{2}$ hours.

SKY & TEL. MAY, 1955.