

Patron: His Excellency the Governor
 Rt. Hon. Sir Ronald Cross, Bart., K.C.V.O.,
President: Mr. J. L. Hull, F.R.A.S.,
Treasurer and Mr. C. E. Bisdee, Room 301, C.M.L. Building,
Editor: 18 Elizabeth Street, Hobart. Phone B5277.

NEXT MEETING

Tuesday, 26th June, 7.45 p.m., in Adult
 Education Rooms at 85 Elizabeth Street,
 (First floor), Next door to new Common-
 wealth Bank Building.

Subject: "Radio Astronomy" by Dr. Grote Reber. Illustrated.

Dr. Reber returned in March last from a trip overseas to the U.S.A., England and Europe in connection with his work on radio astronomy and will include in his lecture some of his experiences.

Members please note - the above meeting is to be held on a Tuesday instead of our usual Monday night in order to fit in with Dr. Reber's requirements.

REPORT OF MEETING HELD ON 28.5.56:

Mr. B. B. Robinson lead a discussion on some of the more controversial points in Dr. Hoyle's book titled "Frontiers of Astronomy". Members took part in a general discussion afterwards.

THE TEN MOST IMPORTANT ASTRONOMICAL EVENTS IN 1955:

The eminent astronomer Dr. Harlow Shapley, speaking before the American Association of Variable Star Observers in October 1955, gave the following ten events as the most important astronomical happenings during the year -

1. The announcement of the launching of an artificial satellite during the International Geophysical Year 1957-58.
2. Detection of Thunderbolts on Jupiter by Radio Astronomy.
3. The finding of the star of smallest known mass. This object which is the fainter component of a dwarf reddish double star has a mass of only one twelfth of our sun.
4. The raising again of the question as to the ownership of the upper air and the right-of-way of outer space.
5. Conclusion of a 50 year research programme by Harvard Astronomers on variable stars of the Megallanic Clouds.
6. Identification of Calcium 15 in the solar corona. That is calcium atoms that have only six of their twenty electrons remaining under the high ionizing conditions in sun's uppermost atmospheric layers.
7. The 10,000 excellent photographs taken by Dr. Slipher of Mars in red, yellow and blue light.
8. Appearance of the first instalment of the two colour star and galaxy atlas, made with 48 inch Schmidt telescopes on Mt. Palomar.
9. The occurrence on 20 June 1955, of a solar eclipse with the greatest duration of totality, 7 minutes 7.8 seconds, since June 818 A.D., 1238 years ago. It will be nearly 200 years before this record will be broken.
10. An exploration by Weizsäcker of the reason for the sphericity of globular clusters, and their freedom from inter-stellar dust and gas. VEGA. No. 32.

AUSTRALIAN ASTRONOMICAL ASSOCIATION PROPOSED:

Dr. Buscombe of Mt. Stromlo has suggested that an Australian Astronomical Association be formed with a membership embracing both amateur and professional astronomers. His proposal is now being considered by the N.S.W. body which has brought the matter under the notice of all other Societies.

Some of the difficulties to be overcome before such an organisation could be formed are :-

- (a) There may not be sufficient members to allow an attractive membership fee.
- (b) The publication of a Journal would be desirable but this would necessitate the submission of sufficient material at regular intervals. An Editor would also be required.
- (c) The question of interstate representation at an annual convention would need to be solved. Those visiting interstate might not be able to obtain time off from employment or care to bear the expense of fares and accommodation. Dr. Buscombe has suggested that this difficulty might be overcome on the basis adopted by the A.N.Z.A.S. which meets the expenses of delegates. This would naturally be a further drain on the funds of the proposed association.

Members are requested to give consideration to the above scheme and to voice their opinions at our meetings.

At present the proposal is more or less in a nebulous state as it is the intention to first sound out the views of the various astronomical bodies in Australia.

RADIO OBSERVATIONS OF THE RED SHIFT OF GALAXIES:

Hitherto, the red shift of the spectrum lines of remote galaxies - usually interpreted as evidence that the universe is expanding - has been observed by optical methods only, by means of fast spectrographs attached to large telescopes. Now, for the first time, the red shift of a remote galaxy has been measured with radio techniques, by A. E. Lilley and E. F. McClain, of the Naval Research Laboratory, Washington, D.C.

The 21-cm. emission line of hydrogen is far too weak in distant galaxies to be observed directly with present-day radio telescopes. However, the intense radio source Cygnus A offers a special opportunity. This source is known to be a pair of colliding galaxies (see page 298 of the July '54 issue) that has a strong continuous spectrum at microwave frequencies.

If there is neutral hydrogen gas associated with these galaxies, on the near side of the collision region, then the intense radio radiation would have to pass through the neutral hydrogen before escaping into intergalactic space. Such neutral hydrogen would then produce an absorption line in the radio spectrum of Cygnus A. But because of the high speed of recession of these galaxies - observed to be 16,830 kilometers per second by W. Baade and R. Minkowski at Mount Wilson and Palomar Observatories - this absorption line should not be at the normal position in the spectrum. A red shift of 17,000 kilometers per second corresponds to a change in frequency of about 81 megacycles per second from the undisplaced 21-cm.-line frequency of 1420.4 megacycles.

Such an absorption line was sought for and found by Drs. Lilley and McClain with the 50-foot NRL radio telescope.

SKY & TELESCOPE, APRIL '56.

METEORS AND RAINFALL:

In 1953, the Australian radio astronomer E. G. Bowen, suggested that about 30 days after an active meteor shower there occurs an excessive amount of rainfall at stations all over the world. He proposed that the lag of a month was needed for the fine meteoric material to fall from the upper atmosphere to lower levels where it could provide nuclei for the formation of raindrops.

Now, F. L. Whipple and G. S. Hawkins, Harvard Observatory, point out some serious difficulties with this proposal, chiefly one first suggested by P.M. Millman, of Canada, that even the major annual showers produce only minor additions to the total influx of meteoric material into the atmosphere of the earth.
