ASTRONOMICAL SOCIETY OF TASMANIA

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NEXT MEETING

Monday, 29th August, 1955, 7.45 p.m. in the Adult Education Rooms, Ground Floor, C.M.L. Bldg., c/r. Elizabeth & Macquarie Streets.

Subject: General discussion evening and Members' Night. Short talks will be given with slides.

REPORT OF MEETING ON 25.7.55:

After a short talk by Dr. Reber on "The Sun" Mr. C. H. Johnson talked on "Stellar Evolution".

Mr. Johnson in his talk mentioned that one of the fundamental problems of stellar evolution is the source of stellar energy. About 100 yrs. ago Mayer, Lockyer and others considered the meteoric theory, and Helmholz in 1854 pointed out that the contracting of a gaseous sphere by its own gravitational attraction would provide a source of energy. The speaker pointed out that the energy produced in this way could not account for the prodigious amount of energy the sun has been giving out for millions of years.

However, in recent years a theory has been brought forward based on thermo-nuclear reactions, in particular the carbon cycle in which hydrogen is converted into helium. The loss in mass which takes place in this reaction although small can account for this output of stellar energy, from our sun and stars.

There are indications that the birth of a star takes place in the condensation of inter-stellar matter, and in the case of our sun this is assumed to have occurred 4.5 thousand million years ago.

Thermo-nuclear reactions commenced with temperature rise from gravitational attraction of this inter-stellar matter. As our sun progressed down through time it is considered at least four separate types of thermo-nuculear reactions took place before it reached its present state. Our sun will get hotter before it gets cooler and will eventually end up as a "White Dwarf", in about a thousand million years. It is difficult to say what eventually happens to the White Dwarfs and where they fit into the classical Hertzsprung - Russell diagram which the speaker drew on the blackboard.

COMETS:

Up to date six comets have been found this year of which four are new and two the return of periodic comets.

The last coment discovered was Comet Bakharev 1955f, discovered on 13th July at Stalinabad in South East Russia, as an 8th magnitude object in Pegasus, then moving about 1½ degrees per day, its declination being 20 degrees N.

According to Time Magazine Aug. 1st 1955, there appears to be some doubt as to who first discovered this comet. Two American amateurs using an 8" home-made reflecting telescope in Seattle on the Pacific Coast of the U.S.A. also appeared to have discovered this comet about the same time as Bakharev, but owing to the fact that there is a large difference in time between the Russian and American observer Bakharev was able to claim priority by reporting his find some hours ahead of them.

Macfarlane the American observer, was only 16 years old and since finding this comet his enthusiasm has been aroused to the extent that he now intends to get a much larger telescope.

It is rather significant that most of these comets seem to be discovered in the Northern Hemisphere, which one perhaps should naturally expect, as our northern hemisphere is looked at far more due to the larger number of observers

there. However, it is up to our astronomers in this part of the hemisphere to try and reverse the position.

Our southern skies have more bright stars, and the richest parts of the Milky Way and the Magellanic Clouds are best seen from the Southern Hemisphere.

Perhaps the amateur is more interested in looking at these bright objects than searching for coments.

SECOND-HAND BOOKS ON ASTRONOMY:

The following books are available for sale from Mr. R. P. Harrison at 6 Swan Street, North Hobart and are part of his father's estate, who recently became deceased.

"Stars of the Southern Heavens" - James Nangle, O.B.E., F.R.A.S. (1929)
"Life on Other Worlds" - H. Spencer Jones, M.A. Sid. F.R.S. (1940)
"The Astronomy of the Bible" - E. Walter Maunder, F.R.A.S. (1922)
"Celestial Objects" - For Common Telescopes - Rev. T.W. Webb, M.A. FRAS. (1868)
"Astronomy for Everybody" - Prof. Simon Newcomb, L.L.D. (1903)
"Worlds Without End" - H. Spencer Jones, F.R.S. (1935)
"A Star Atlas" (Fifth Edition - 1932) - Arthur P. Norton, B.A.

A LIGHT BOOSTER FOR TELESCOPES:

University of Chicago Astronomer W. A. Hiltner has completed laboratory tests on a new "image - converter" that may increase telescopic visibility a hundredfold. The image - converter is essentially a booster for light. In a vacuum tube, photons of light strike a cesium - antimony photocathode which in turn gives off high-speed electrons. The electrons are accelerated through an electric field, and an aluminium shield four millionths of an inch thick and hit a sensitive "retina" screen or a photographic plate, and etch out a crisp picture.

Although Hiltner has yet to try this converter out on a telescope, he and his colleagues at Yerkes Observatory, Chicago, feel sure they have developed something that will revolutionise photographic astronomy, and will bring to view galaxies in much richer detail and from farther out than the 2 billion light-years now possible with the 200 inch at Mt. Palomar. TIME MAG. AUG. 8. '55.

SOLAR ECLIPSES SEEN FROM JUPITER:

Observers of total eclipses of the sun from Jupiter would not feel as rushed as earth-bound astronomers. For the Galilean satellites, totality at an eclipse might last from 10 minutes to over two hours. In the Journal of the Brit. Astronomical Assn. B. Peek points out the striking consequences of the fact that the shadows of satellites III and IV cross the disk more slowly than the planet's equatorial velocity of rotation. For either of these satellites three total eclipses normally occur in rapid succession, 12 contacts in all, although contacts 4, 5, 8 and 9 are sometimes lacking. For some favorable latitude the three totalities could run together, giving one long totality lasting 2 hours, 44 minutes for an eclipse by satellite III, and 2 hours 24 minutes for one by satellite IV. This is based on a rotation speed close to that of System II.

Mr. Peek suggests that if sunlight tends to inhibit the formation of clouds of ammonia droplets or crystals, it is possible that a white cloud may sometimes form over a locality at which the sun has suffered prolonged eclipse. He suggests that toward the end of a shadow transit of III at latitudes - 19° or + 19°, where the longest totalities occur, it might be worthwhile to look for a white spot against the dull background of the belt, closely following the shadow. Observers should be warned against a possible spurious effect, resulting from contrast with the black shadow. In the planet's equatorial zone, the effect might be seen closely preceding the shadow of III 10 or 20 minutes after middle of transit of the shadow, as seen from the sun, for the shadow will actually be retrograding across Jupiter after 1½ hours of totality. SKY & TEL. July '55.

U.S. GOVERNMENT OPPOSES CALENDAR REFORM

Last summer the United Nations Economic and Social Council adopted a resolution introduced by India asking all nations, whether member of the UN. or not, to study the question of calendar reform and present their view by May of this year.

On March 21st, the U.S. replied officially that this government does not favour any action by the UN. to change the present calendar. Reasons given are that there is no evidence that a majority of the population favors calendar reform at this time, and that large numbers have expressed objections to change, on religious grounds. ..... SKY & TEL. July '55.