

THE JUNIOR ASTRONOMER

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Junior Astronomical Society*

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OVERSEAS: GIBRALTAR.—J. O. Gomez, 7 Devils Gap Steps, Gibraltar.

SWEDEN.—L. Helander, Lohegaten II, Eskilstuna.

Dublin Astronomical Group. Leader: Malcolm Leigh.



THE PLEIADES

Photographed by Richard E. Roberts through his home-made camera

The Swansea Astronomical Society's 9in. reflector was used for guiding during the 30-minutes' exposure

THE JUNIOR ASTRONOMICAL SOCIETY

OUR FRONTISPIECE

We are pleased to have among our members several who are finding pleasure in astronomical photography. Several good photographs have been received which reveal a creditable amount of care, skill and patience. From these, we have selected for our Frontispiece a very pleasing picture of the Pleiades taken by Mr. Richard E. Roberts, of Swansea. We take this opportunity of congratulating him on his highly successful effort.

Mr. Roberts, who is Director of the Sky Survey Section (South Wales Zone) will be pleased to hear from members who are engaged upon astronomical photography, so that a Photographic Section may be formed.

For the information of beginners, Mr. Roberts sends the following note:—

“ Situated in the constellation of Taurus is the pretty cluster of stars known as “The Pleiades”.

“ Various peoples of the earth have myths and fables regarding risings, culminations and settings of this group of stars. To the naked eye, seven bright stars may be seen: Alcyone, Celaeno, Electra, Taygete, Merope, Atlas and Pleione. The cluster looks well when viewed through a finder telescope.

This photograph was secured by using a lantern lens 2in. in diameter and 16in. focal length, following for 30 minutes. The plate was a Zenith Astronomical Plate, developed in I.D.19 for $7\frac{1}{2}$ minutes and fixed in Hypam for 5 minutes. The telescope used for following the guide star, Alcyone, was the Swansea Astronomical Society's new 9in. Newtonian reflector.”

IMPORTANT ANNOUNCEMENT

THE GENERAL ANNUAL MEETING OF THE J.A.S. will be held on Saturday, October 8th, at THE KENT ROOM, CAXTON HALL, S.W.1. It is hoped that many members will be able to attend, so that we may know each other better and become more than “pen-friends.”

Our Patron, Dr. J. G. Porter, will travel a long way to be with us. The meeting will commence at 6.30 p.m. Dr. Porter's talk will be the main feature of the evening. Members will also hear of the satisfactory progress of the Society, and will be invited to suggest ways in which our activities may be made more useful. Written suggestions should reach the Secretary before Oct. 7th.

OUR COMPETITION

The standard of entries received for the Essay Competition was most encouraging, and selection of the winners was a difficult matter. The final choice was made by the President, and the result is as follows:—

Group A.—Joint winners: Peter Cattermole and Edward L. Barry. Runners-up: Richard Spencer and Peter Hazelgrove.

Group B.—Winner: Richard E. Roberts.

Two of the winning essays, those of Edward Barry and Richard Spencer, are printed in this issue of the "Journal"; the other three will follow in January.

Many of the other entries also were of high standard; mention must be made of David Jeffery, who at the age of 9½ was by far the youngest entrant. Some of these entries, too, will—it is hoped—be printed in subsequent issues of the Journal.

We hope that this competition has uncovered some new authors who will contribute to this Journal and others in future years. We are always glad to receive contributions; this is your Journal, and we want you to write for it.

PATRICK MOORE.

WHY I AM INTERESTED IN ASTRONOMY

By Edward L. Barry (Wallasey, Cheshire. Age 17½)

A number of my associates have asked me the question "Why study astronomy?" I have answered their query in four short words, "For the aesthetic value". Really, all astronomers, whether eminent or otherwise, are aesthetes, and I am sure that they have never failed to appreciate the beauty which the study of astronomy reveals to them.

For centuries men have endeavoured to solve the mystery of the universe, and at the present time we are on the threshold of moving one step nearer to the solution.

It is surprising how many people are completely ignorant about the most elementary details of astronomy. One must bear in mind that the children of to-day are living in an extremely scientific age, and there is no doubt whatever that it will continue to become more scientific as the years pass. Indeed, astronomy promises to play an important part in the lives of men and women of future years, for I believe, as many others do, that the day will come, perhaps not in my life-time, when man will leave this planet and endeavour to set foot on other worlds.

In astronomy, like countless other subjects, the quest for knowledge may never be exhausted; therefore, I am anxious to absorb as much information on the subject as possible. I have found from experience that a practical, as well as a theoretical, knowledge is necessary; for if the astronomer is not capable of

building a suitable mounting for his instrument, his field for research is limited.

I discovered that astronomy is a study in which the enthusiast has to rely on his own fortitude and ingenuity. However, I found that the feeling of personal achievement is a just reward for my labours.

Once I had equipped myself with a telescope and a suitable mounting for it, my financial worries were really over, for I have found astronomy a very inexpensive hobby indeed. It is a hobby which has never failed to fascinate and interest me, and I am certain that the fascination will remain with me throughout my life.

THE FOUR GALILEAN SATELLITES OF THE PLANET JUPITER

By Richard Spencer (Chester. Age 17)

In the year 1610, the great astronomical revolution that had been started by Copernicus in the sixteenth century and carried on by Kepler attained its pinnacle, for in that year Galileo, by applying the newly-invented telescope to the observation of the celestial bodies, opened up a whole new field of research, namely, that of descriptive or physical astronomy. Amongst the many wonders his little "optick tube" revealed was the fact that the planet Jupiter was attended by four lesser stars which appeared to circle their primary much as the Moon revolves about the Earth. To-day we know these bodies as the Galilean satellites of Jupiter: Callisto the largest, Ganymede, Io, and the smallest Europa.

First we have Callisto, which is decidedly peculiar inasmuch as besides being the largest it is the least massive, having only half the mass of the Moon. When observed telescopically it is of a "bluish red" colour, but is said to vary from red to violet, according to the conditions of observation.

Ganymede is the brightest of the satellites, being of magnitude 5.1. It is yellowish-white in colour. Several vague streaks and patches have been seen on its surface, and the American observer E. J. Reese, and the late Dr. Lyot, have mapped these features.

The innermost of the four is Io, and like our Moon (and probably the other Galilean satellites) it keeps the same face turned towards its primary. Io is of a yellowish hue, but has been described as orange at various times.

Last, but not least, is Europa, which, when observed, is of a whitish colour, and is almost as bright as Io—which is indeed surprising, as it is considerably smaller. It has been found that Europa reflects 75 per cent. of the total light its surface receives.

When observing these satellites one should note the time, place, conditions, and instrument used. Then proceed to draw them as they appear with respect to Jupiter, noting any colours observed or any light variations. Several phenomena occur which may be seen with but slight optical aid—transits, eclipses and occultations.

A transit is the term applied when a satellite crosses in front of the planet, and appears as a dark spot on its disk. An eclipse denotes the passage into the planet's shadow, and an occultation is caused when the satellite passes behind the planet's disk.

Much enjoyment and experience may be gained from watching the phenomena of these principal satellites of Jupiter, even though the equipment used be only an opera-glass.

A VISIT TO THE OBSERVATORY OF STOCKHOLM

By Lars Helander (Eskilstuna, Sweden)

Some time ago I paid a visit to the Observatory of Stockholm, after having received permission to do so from Docent Tord Elvius, a member of the Observatory staff and member of Council of the Swedish Astronomical Society. At the Observatory I had the opportunity of meeting several prominent Swedish astronomers, and with Docent Elvius as my guide I was shown round the whole Observatory. As the readers will understand, this was a very interesting and instructive experience.

Thanks to this visit, I received a great deal of information about the Observatory, its instruments, etc., and I also learned many other interesting things about it. I am, therefore, going to mention a few things about the Observatory of Stockholm that may interest other members.

The present Observatory was built during the years 1929-1931, on the top of the Karlsbader Hill—situated 56 m. above sea-level—at Saltsjöbaden, some 15 kilometres outside Stockholm. The Observatory was previously situated in Stockholm—the building still remains on the so-called Observatoriekullen—but the same reasons as those which have forced the Greenwich Observatory to move its equipment to Herstmonceaux made the transplantation of the Stockholm Observatory to Saltsjöbaden necessary.

The Observatory has in its possession several large and up-to-date instruments. Above the library in the main building the refractor is situated. It is double; one tube for visual and one for photographic observation. Each is more than 8 metres long, with apertures of 51 and 61 cm. respectively.

Each instrument has its own building, and in a house south-west of the main edifice the reflector is situated. It is used exclusively for photographic work, sometimes with a large spectro-scope attached. The diameter of the mirror, which weighs

300 Kg., is 102 cm., and the tube is 5 metres long. A new reflector for the observatory is being built; it is of the Schmidt-Väisälä type.

The astragraph, which is the third main instrument, is used for photographing larger areas of the sky. If a large prism is placed in front of the 40 cm. objective, the astrograph can also be used for recording star spectra.

A number of other instruments, including an establishment for observations of radar echoes from the ionosphere, are placed in a special building. One of the objects of the solar observations carried out there is to fix the connection between certain phenomena on the Sun's disk and phenomena in the ionosphere.

As well as the refractor, the main edifice contains the time-service room, a lecturing room, a measuring- and dark-room, a work-room and, of course, the library.

Apart from the solar observations, the work carried on at the observatory is mainly stellar. Studies of star spectra, investigations into the distribution of the stars in certain selected areas of the sky and into extragalactic systems, and, finally, determinations of the distances and motions of the stars are the most important investigations which are at present being carried on at the Observatory of Stockholm.

THE LONDON GROUP'S VISIT TO GREENWICH

The number of members wishing to take part in this event was so large that two separate parties had to be arranged.

The first party was conducted by our President, Mr. E. H. Noon, on June 18th, and the second party by our Treasurer, Mr. H. J. Lewis, in early August. On each occasion an enjoyable sunlit trip down-river was followed by a visit to the Flamsteed Octagon Room and the Airy Transit Instrument. Afterwards we were conducted by Mr. E. A. Whitaker to the Yapp reflector. We are indebted to him for his lucid description of this instrument; also to the Observatory authorities for the privilege of seeing the only remaining large reflector left at this historic site.

The welcome tea and conversazione which followed rounded off a very successful day, and allowed members to make new friendships which we hope will prove to be of lasting value.

On the second occasion, in August, our Vice-President, Mr. Patrick Moore, took a group photograph on the steps of the Yapp dome. It is not particularly good, and gives the general impression of a group of ghosts in a thick mist, but if any of those present would like a copy Mr. Moore will send them one on application.

EARLY DAYS IN THE MARTIAN CONTROVERSY: PT. IV

By R. M. Baum, F.R.A.S.

In any account of the pioneer observations of the Red Planet, a place must always be left for an account, no matter how brief, of Professor Percival Lowell's celebrated theory or "Martian Hypothesis" which was publicly advanced in 1906 in the last of his three popular Mars books, "Mars as the Abode of Life".

Shortly, this set out to explain the phenomena of the canals as the result of intelligent beings. It was assumed that the planet was older than the Earth and would be in its last stages, when the oceans would long since have dried up, and its once fertile atmosphere a rare remnant of its former self. In other words, the planet was a universal desert, or in Lowell's picturesque term, "a world athirst". Thus in order to conserve what little moisture remained, the Martians had constructed a vast scheme of canals to carry the water from the polar caps down to the warmer, vegetation-clad and inhabited equatorial regions. Seemingly the water was pumped down over the surface by means of great pumping stations along the canals' length. Thus was explained the fine network of canaliform features that characterises Mars. The astronomical result we call a canal would not, of course, be the actual channel, but the vegetation bordering the waterway—an appearance much the same as that exhibited by the Nile when viewed from the air. So thought Lowell.

Romantic as they are, and explaining though they do the Martian scene as seen through our telescope, we can be assured that that which will greet the first space-man will be different. Perhaps underneath the oxidised sands of Mars the ruins of once mighty cities might be uncovered, and caterpillar Earth vehicles may rumble down crumbling roadways, but Mars as envisaged by Lowell can have no place except as a figment of an over-vivid imagination that was guided by an astronomer who can never be paralleled—Professor Percival Lowell, Columbus of a new world across a sea of space.

Books for Further Reading:—

Lowell, P. Mars, 1900.

Lowell, P. Mars and its Canals, 1906.

Lowell, P. Mars as the Abode of Life, 1909.

Wallace, A. R. Is Mars Habitable? 1907.

Flammarion, C. La Planète Mars. Vol. I, 1892:

Vol. II, 1909

Antoniadi, E. M. La Planète Mars, 1659-1929, 1930.

Strughold, H. The Green and Red Planet, 1954.

Moore, Patrick. Guide to the Planets, 1954.

De Vaucouleurs, G. The Planet Mars, 1952.

De Vaucouleurs, G. Physics of the Planet Mars, 1954.

A WEEK-END COURSE AT WANSFELL

It was gratifying that a number of J.A.S. members were able to attend this interesting course at Theydon Bois from July 15th to 17th.

The Essex Educational Authority and Dr. Down, of Wansfell College, gave every facility for Mr. Colin Ronan to present a week-end series of lectures and demonstrations, the Sun being the topic for consideration. Mr. Ronan's historical survey of the growth of our knowledge of the Sun's nature prepared us for Dr. Dewhirst's review of present-day investigations in solar physics, and this in turn enabled us more fully to appreciate a visit to the Department of Solar Physics at Cambridge University. Here we saw the spectrohelioscope in operation. We were fortunate in having Dr. Von Klüber to project for us and explain a wide dispersion spectrum obtainable with this instrument. Afterwards Dr. Dewhirst conducted us to the new reflector now in the course of erection, which when completed will be the largest in the country.

Favourable nights enabled one or two small telescopes to be turned to Saturn and star-clusters, and a bright sunny afternoon gave Dr. Dewhirst an opportunity to project the Sun's disk through a 3in. refractor and teach the method of determining the positions of sunspots.

Members should look out for announcements of similar courses, as these will be both enjoyable and instructive. Early bookings should be made, as accommodation is limited.

E.H.N.

THE TOTAL ECLIPSE OF THE SUN, 1955, JUNE 20th

By Sakina Galely (Colombo, age 12)

In Colombo we saw only the partial phase. It was very cloudy during most of the eclipse, and all through totality. We were all very disappointed, and next day the newspapers printed headlines: "Scientists Dumb—Viewers Glum,"

I was ready at 6.45, and listening to a broadcast from Hingurakgoda, where most of the scientists were gathered. It was cloudy there, but lovely and clear here. I watched the eclipse begin, and at about 8 o'clock I saw the Sun as a crescent—but almost as totality was due, a thick cloud covered it up. At totality it grew very dark, and the crows were flying to their nest, very puzzled. No cats or dogs were visible in the lane, and the air became quite cold and all was still for some four minutes. Then the light came back rapidly, but it was still cloudy. I did not see any more until a glimpse in a cloud-break at 8.35, when the Moon had uncovered about half the Sun; I saw it again at 9.10, 9.15, and then at 9.20, when the eclipse was over.

THE SKY SURVEY SECTION

We regret to announce that illness temporarily compels our Director, Mr. S. Bradford, to suspend his activities. Correspondence will be dealt with by the appropriate Zone Directors until further notice:—

Northern Zone: Mr. A. Fedrick, 17 Belbeck Road, Newcastle-on-Tyne, 4.

Southern Zone: Mr. R. D. Watkins, M.Sc., 68 Exonia Caravans, Exeter, Devon.

Welsh Zone: Mr. R. E. Roberts, 80 Graiglwyd Road, Sketty, Swansea, Wales.

Scottish Zone: Mr. J. Murray, 39 Bridge Street, Hawick, Roxburghshire, Scotland.

IMPORTANT CHANGES OF ADDRESS:—

R. M. Baum, F.R.A.S., Linden Lea, 10B Daleside, Demage Lane, Upton-by-Chester, Cheshire.

E. W. Turner, F.R.A.S.: 9 Hill View Road, Basingstoke, Hampshire.

R. D. Watkins: 68 Exonia Caravans, Exeter, Devon.

FORTHCOMING EVENTS

Lecture Courses Commence

1955

Sept. 27. City Literary Institute, Stukeley Street, Drury Lane, London, W.C.2.

Sept. 29. Central Library, Guildford, Surrey.

Sept. 30. Morley College, 61 Westminster Bridge Road, London, S.E.1.

Sept. 30. Goldsmith's College, New Cross, London, S.E.15 (Syllabus on application to the President).

Oct. 8. J.A.S. ANNUAL GENERAL MEETING AT CAXTON HALL (see special note).

Nov. 19. Visit to Mr. Noon's Observatory at Oxshott.

Dec. 16. Morley College Tea and Conversazione, 6.15 p.m. Astronomical Films and Lecture, 6.30 to 8.30 p.m.

(Members wishing to attend either of the two latter events above should apply to Mr. E. H. Noon, Norman Cottage, Pond Piece, Sheath Lane, Oxshott, Surrey).

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