NATIONAL NEWSLETTER

The 1972 Solar Eclipse

After considering the available sites from which to observe the 1972 solar eclipse the Calgary Centre has chosen Tuktoyuktuk, N.W.T. as the best, least expensive and easiest to reach location with a comparatively large group of interested observers. The weather prospects are excellent, as noted in bulletin CDS #6–70 from the Canadian Meteorological Service: "In summary, it can be said that there is a greater probability of drier conditions in the area from Tuktoyuktuk to Chesterfield. . . ." This same bulletin gives the extreme maximum and minimum temperatures for all the chosen sites and shows there is little to choose between them for this date.

The eclipse duration of two minutes thirteen seconds is the second longest along this path and occurs at 12:09 MST, the sun's height being 40° above the horizon. An added inducement to selecting this site is that, it being above the Arctic Circle, the midnight sun can be observed and the time of arrival is selected to take advantage of this sight.

Tentative plans are to leave Calgary early on the afternoon of Sunday, July 9th, 1972 by Jet and 3½ hours later arrive at Inuvik, which has a large enough field for these planes. From there we transfer to 18-passenger Twin-Otter planes to be ferried to Tuktoyuktuk's smaller field. This flight takes approximately 45 minutes. This will allow plenty of time to set up equipment and make preliminary tests.

Normally a 44-pound luggage allowance is made per passenger but it should be possible to pool allowances. Very little extra luggage is required over and above the instrumentation. We would suggest a sleeping bag, a few sandwiches and a thermos. No other accommodation is planned as this will be about a 24-hour in and out operation.

The final price has not been precisely determined but is expected to be not more than $140 per person for the round trip for a full complement of 120 passengers.

We need the names of all those interested in coming on this expedition immediately so that arrangements can be finalized. It is expected that we will require half payment about six months before flight and the balance three months later. All passengers will be covered by insurance to take care of "no shows" on medical grounds.

Perhaps a little added inducement is that particular week the world-famous Calgary Stampede is in full swing, so why not make a proper holiday of this occasion?

Centres are requested to bring this letter to the notice of their membership. If interested please write the undersigned indicating if you intend to do any specific research on this trip.

J. FINDLAY
Calgary Centennial Planetarium
P.O. Box 2100
Calgary, Alberta

What's in a Name?

In no other science, perhaps, do we find so many misnomers as in astronomy. Popular names, once given, cling forever. Unfortunately, in many cases, they give an erroneous impression.

A good example is the appellation *island universes*, first used by Jeans. It is a colourful term. It stimulates the imagination. The thought that its use invokes causes one to gape inwardly. But it conveys a wrong meaning.

Galaxies may well be likened to islands in space, poetically as well as practically, but by no stretch of the imagination may they be thought of as universes. If that were so, why then, we have many many millions of universes, in which case we should set about coining another word to convey the meaning of what we call the universe.

Some words came into use because of insufficient knowledge of the subject at the time. The best example of this is the *maria* or "seas" on the moon. It was thought at first that the great plains on the moon were oceans, hence they were called *maria*, Latin for seas. The word has been in use for so long now that the lunar plains will always be called seas. Indeed, it would be a great pity to lose the historical connotation by calling them anything but.

The word *nova* means new. A nova is commonly supposed to be a new star – a star which flashes on the sky scene in a place where no star had been before. But the process of a nova is much too slow to be called new. With the advent of the telescope it became understood that these stars gradually increased in brilliance, then as gradually faded away. In many cases of novae, the remains of the star may still be detected.

The word *nebulous* means something unformed or hazy, and so came into being the term nebula, meaning a luminous cloudy patch in the heavens. But a nebula can be one of several different objects, and its indiscriminate use has mystified many a beginning amateur.

A *nebula* is not necessarily nebulous! A galaxy of stars is a nebula. If we were consistent, we should refer to these objects simply as galaxies.

A star whose atmosphere has expanded, faded, and left to our view a round disk of gas surrounding the hot star is called a *planetary nebula*. It has nothing whatever to do with planets, and was so named because its shape resembled that of a planet.

Globular and loose star clusters are often referred to as *nebulae*, when they are, in fact, nothing of the sort.

There are countless other circumstances. The *Tidal Theory* has nothing to do with the tides. *Shooting stars* are not even stars. The *canals* of Mars are not canals. The *Great Red Spot* of Jupiter is rather more than a spot!

The term "*seven sisters*" as applied to the Pleiades is also misleading, for to ordinary eyes there are only six, and to extraordinary eyes there may be 11 or 12 of the beauties visible.

The stars in star clusters are not all clustered together as one might suppose, just as lots of double stars are not really double. They may appear so in the line of sight, but they are not always a related system.

We speak of the emptiness of space, yet nothing could be farther from the truth, since space is not empty, but is filled with dust and gas and wandering chunks of this and that, including our own contributions to space pollution in the form of castoff hardware.

And, coming down to earth – while we have long realized that the four corners of the earth exist only in mythological concept, it is not so long since we have had to abandon the beautiful roundness of our planet and concede it to be a very misshapen orb indeed.

If it is possible to build perfection upon imperfections, then astronomy will find a way!

From the Library

Any good, modern library should not restrict its acquisitions to books and periodicals. Our slide collection grows steadily, with the Mariner 6 and 7 photographs of Mars being amongst the recent arrivals. Films, on the other hand, are very costly to purchase and with the availability of many excellent films on a rental basis, it is your librarian's opinion that the expense is not frequently justified. Probably the best source of 16 mm astronomical films for rent is the National Science Film Library, 1962 Carling Avenue, Ottawa 13, Ontario. Details regarding ordering, returning, responsibilities of users, and service charges are included in their catalogue entitled "Films on Space". One-day rental charges generally run from $4.00 to $6.00 plus $1.50 postage.

Some of their latest offerings include the following:

Galaxies and the Universe reviews the composition of the Milky Way, its rotation and motion through space. Classification and evolution of galaxies are discussed and speculation is made concerning the possibilities of other planetary systems similar to our own.

Man in Space: the Second Decade includes a brief history, where we stand now, and proposed future manned programs through the '70's and beyond. It is a 28-minute colour film from NASA.

To the Edge of the Universe stars our first vice-president, Dr. J. L. Locke. It documents the building of NRC's Algonquin Radio Observatory and how it was used in long baseline interferometry.

From the USSR comes *The Search for the Tunguska Meteorite*, which includes footage dating back to the 1921 expedition to Siberia. Evidence is discussed to demonstrate that the phenomenon was due to a comet.

TORONTO R. PETER BROUGHTON

From Recent Newsletters—Variable Stars

Hundreds of amateur astronomers – including many members of our Society – routinely make measurements of the brightness of variable stars. Such measurements are of considerable value to the science of astronomy, and a special organization – the A.A.V.S.O. (American Association of Variable Star Observers), 187 Concord Ave., Cambridge, Mass. 02138 – exists on this continent to co-ordinate this work. A brief introduction to variable stars appears in the 1971 OBSERVER'S HANDBOOK, p. 89; further information can be obtained by writing to the A.A.V.S.O.

Recently, Mr. Rick Lavery of Ottawa has organized a national variable star observing program; charts and instructions are available for the observation of six suitable variable stars. There are many advantages to a concerted effort, such as this, on a small number of stars. Instruction is easier, since a smaller number of star fields are involved. Observers can compare results, and hence determine the extent of random or systematic errors. Finally, the observers can plot their light curves, and see graphically the results of their efforts. There is considerable satisfaction to be obtained in this way.

Members of the Toronto Centre, as well as observing the stars on the national program, gave special attention to R Scuti. This is a star of the RV Tauri type, characterized by a deep minimum and a shallow minimum during a cycle of about 100 days. In mid-June, 1970, R Scuti was at deep minimum at magnitude 8.1; it rose

rapidly to maximum at 4.7 by Aug. 1, then declined to shallow minimum at 5.6 by Sept. 1, then rose to 5.2 by Oct. 1. By early November it had dropped again to deep minimum at 7.0 and by December had risen again to magnitude 5.0. A well-defined light curve of R Scuti is published by Herb Koller in the May 1971 issue of '*Scope*, the newsletter of the Toronto Centre. Observations of this star are being continued this summer.

As a late summer and early autumn variable star project, Mr. Koller suggests R Coronae Borealis. This is an excellent star for beginners; it is easy to find because it forms a neat equilateral triangle with ε and δ Cr B, R occupying the northern vertex. Normally, R Cr B is a 6th magnitude star. However, every few years it will rapidly and unpredictably fade as much as 10 magnitudes, then rise slowly and erratically to 6th magnitude again. This behaviour is thought to be due to the ejection of obscuring material (celestial smog?) from the atmosphere of the star.

A finding chart for R Cr B is published in the July 1971 issue of '*Scope*.

From Recent Journals—The Mass of Pluto

The planet Pluto is so distant that it is difficult to learn anything of its physical appearance and structure. Its tiny disk is barely resolved, even with the largest telescopes, so that it is not possible to make an accurate direct measurement of its diameter, However, a group of astronomers including JOURNAL editor Ian Halliday determined an upper limit to its diameter of 4000 miles, from observations of a near-occultation of a star by Pluto in 1965. The mass of Pluto can be determined only from its pull on other planets – particularly Neptune – because Pluto has no known satellites. Previous analyses of Pluto's pull on Neptune have indicated a mass of anywhere from 0.05 to 1.0 earth masses, depending on the analysis. Now P. K. Seidelmann, W. J. Klepczynski, R. L. Duncombe and E. S. Jackson have re-examined all existing observations of the position of Neptune from its discovery to the present. They have subtracted the effects of the sun and of all other planets except Pluto. The resulting pull, due to Pluto, indicates a mass for Pluto of 0.11 ± 0.02 *earth masses*. This figure, when combined with a diameter of 4000 miles, gives a density of 4.9 gm-cm^{-3}, a density very close to that of the earth. Thus, Pluto resembles Mars in size, but is somewhat denser. These results were reported in the June 1971 issue of *The Astronomical Journal*.

Notes for Contributors

Contributions to this *NEWSLETTER* are always welcome. They may deal with any aspect of astronomy or related sciences. The only requirements are that they be interesting, informative, coherent and brief. Please send manuscripts, typed double-space if possible, to *NEWSLETTER* Editor, 252 College St., Toronto 130. The *NEWSLETTER* goes to press on the 15th day of January, March, May, July, September and November.