R E G U L U S

THE NEWSLETTER OF THE

ROYAL ASTRONOMICAL SOCIETY OF CANADA - KINGSTON CENTRE

JANUARY, 1980

A NEW YEAR BEGINS

Greetings for the New Year, 1980. Best of luck in your observing and in all your astronomical endeavours in the coming year.

While I am mentioning the New Year, I cannot help but think of the good fortune that our centre has enjoyed in the past twelve-month period, and hope that such good luck continues. We need only think of a few of the highlights of a very eventful year to realise that it has been one of the most important in the history of the Kingston Centre.

In February of 1979, many amateur astronomers were provided with an eclipse that they will likely remember for the rest of their lives and our centre was probably better represented proportionally in southern Manitoba than any other centre in eastern Canada. 1979 was the year our centre realized a long-held dream -- that of owning its own telescope, and when it materialized it was a beauty -- a 10" Newtonian! Four of us attended a memorable General Assembly in London. Our centre meetings included talks by Dr. Douglas and Dr. Percy. Meetings included a tremendous number of observation reports and photographs. David Levy's efforts included a successful Astronomy course for the public, a presentation at the penitentiary, and the work involved in constructing a telescope that won a prize at Stellafane. He also provided hospitality for many astronomers at his place in the Gatineaus, added to his family of telescopes by significant acquistions, and expanded his observing program.

Our centre took part in a Science Day in February, held a popular Mall Display and a public Star Night in August and had members who went on several outings to the Holleford Crater. Three of our members attended the I.A.U. in Montreal.

Our membership grew as we welcomed Warren Morrison, who also received recognition for his exceptional work, and others who wished to join us even though they lived far from Kingston. Our newsletter also received some recognition.

A glance at these highlights should make us feel that we have been very lucky over the past year, but the luck or the achievements of the year, we must remember, were largely the result of dedicated efforts by those who

contributed to the centre. Our real fortune is that we have a few people who are so dedicated to the good of the centre. May it continue through 1980!

I hope that the member of our centre who plans to witness the eclipse of next month has the same excellent weather conditions that we enjoyed last February. We wish our honorary president, Dr. Douglas, the best of luck for this special event and hope she thoroughly enjoys the trip to India. Let us work to see that our centre continues with all the activities of the past year. May David and Warren continue their magnificent observation programs. May our membership increase and our interest grow. Let us have a venturesome spirit and try some things we have not done before. Perhaps we could have a second entry at Stellafane or several Mall Displays instead of one, or new kinds of observing programs. Let's continue the fine efforts of 1979 and transform them into the successes of 1980.

AN ASTRONOMY PROGRAM FOR YOUNG CHILDREN

BY David H. Levy

(The following is the text of a paper presented by David at a session on the teaching of astronomy held in conjunction with the I.A.U. Congress in Montreal last August. This text is taken directly from the proceedings of the above-mentioned session, which have just been published.)

This paper arose from a four-year summer astronomy program that had been devised for the six hundred children who attended a large day camp near Montreal. The program began with a question: would it be possible to introduce astronomy to children between the ages of four and ten? The resulting experience indicated that the answer is yes.

I was astonished at some of the theories the children presented. In one session, for example, we discussed the origin of meteors. I asked the children if they had any ideas of their own on the subject. One child certainly did: "They could have been made," she proposed, "by a larger rock blowing up and falling apart into many smaller rocks." Much closer to our standard theory of meteors coming from comets this girl could not get.

Though the program varied from one year to the next, there was considerable overlapping as many children in succeeding years were new. During a discussion about the moons of Jupiter, one child recalled my previous year's statement that Jupiter has more than twelve moons. "I looked it up in the encyclopedia after last summer," he objected. "Jupiter has only twelve moons." While it took some convincing that his source was out of date, I noted that he had been interested enough to check out something he had heard and that he had remembered both my comment and his investigation of it from a year earlier.

The idea that young children will be excited by something "big" is well known, but it has not been widely exploited in the schools. In

astronomy this is particularly evident. The children in my program wanted to learn astronomy. Some of them couldn't believe that scientists had given a child-like name to the major theory of the origin of the universe, the Big Bang. Although the program was broad in scope, I could always count on their attention when the subject turned to bigness, either of dinosaurs or of the universe. On the subject of dinosaurs, many of the children were already expert. And here was an opportunity to combine two areas of "bigness", perhaps a supernova was the cause for the extinction of this large and successful species 65 million years ago. From discussions such as this we began to explore the concept of evolution, and the children were surprised to discover how short a time humans have been on earth. They were left with an idea of what we have done to our planet in this short time, and they also gained new respect for the colossal ages of the earth and the universe.

Since this was a day camp, observation of the sun became a major ingredient of our program. The most successful method was projection of the solar image onto a small screen, with images up to two feet in diameter. Children were impressed by the size, and they were not made impatient by the long lines that are usually a problem with traditional viewing sessions. With solar image projections, studying the sun's behavior did not have to take more than five or ten minutes. This left more time for other matters, and also enabled us to repeat the viewing several times during the summer. The children therefore could be left with an idea of sunspots marching across the face of the rotating sun.

The program has been expanded to include children as young as four years. With a little imagination and more than a little enthusiasm, I found that it was possible to give this younger group a nodding acquaintance with the universe. We imagined that the nature room had become a spacecraft capable of travelling at superlight speed to visit several of our sister planets. Evidence that our voyage was successful came the following week, when several four-year-old girls returned to the nature room and requested a second journey to the planets.

The final part of this paper consists of a slide presentation designed to portray the mood that the program generated in the children. The presentation also attempts to underscore the aim of the program, which was not to present mere facts to the children. Instead it tried to offer them an approach to the understanding of the universe, an approach that many of the children had not been exposed to before. This approach is a personal one that portrays a friendly universe whose ideas can be played with and enjoyed by young children. At the same time, the children are left with a feeling that they have a place to keep and to care for within the universe, and so they leave the program with a feeling of pride.

FOR YOUR COMPENDIUM OF ESOTERIC FACTS

Here is a fact (or maybe two or three) for you to store up and use the next time a friend tells you he has seen a full moon that was almost as bright as the noon-day sun. See whether it makes him think twice about such statements.

With the sun's apparent magnitude at -26.7 and the full moon's at -12.7 on the average, there is a difference of 14 magnitudes, which means that the full moon is 465,000 times less bright than the sun.

Another way of looking at it is to say that even if the whole sky were as bright as the full moon we would still have much less light than that given by one sun. This hypothetical situation has even been calculated and it looks like this: if the entire sky were tightly packed with full moons (and there would be 105,050 of them and they would have to be squeezed out of their round shape, to 'honeycomb' together in order to fill every bit of space) we would still have only 22.6% of the light we have from one sun. There is certainly an enormous difference between the light of the two great celestial bodies.

REPORTS AND OTHER ITEMS

1. After long periods of cloudy weather we have finally received a few clear nights. On some of these clear, but bitterly cold evenings there have been good occasions for viewing a number of the planets, and other celestial objects.
   We were fortunate to have clear skies for the lunar occultation of Aldebaran on December 30th. At the last meeting Enrico and I showed photographs we took recording the occultation. Enrico had some taken after egress and I had several before the occultation and after.
   One of the major coming events is the occultation of Aldebaran along with quite a number of the stars of the Hyades on the night of January 26-27th. Let us see if we can have a good number of photographs of that event.

2. David reports from the clear skies of Arizona that his observing program is continuing and he has been able to make sunspot observations for three months without missing a single day.

3. Our last meeting, on January 10th, marked the closing date of our fourth contest, the Annoying Light Contest. Our winner this time was Doug Baker and his prize was a constellation map of the equatorial region of the sky.
   The winning entry went like this: The last time I set up my telescope for observing, the neighbour's lights were so annoying that Perseus was wearing his sunglasses. I also saw Orion reading a newspaper by the light (in his long underwear, of course!). Musca came down and flew around his bug-lamp.

4. At the last meeting, also, Doug ended his term as our National Council Representative and I (Leo Enright) was the one chosen as the new representative. We wish to thank Doug for his three years of service as our rep.

5. It was a pleasure to see at the meeting Mark Reynolds and two members of the Makepeace family -- all of them from Amherstview. We hope they continue their interest in astronomy and perhaps they will continue to attend our meetings also.

6. Among the things to watch for in the future are:

(1) the interesting configurations of moon, planets and bright stars in the first few days of February. Watch the moon as it moves past Regulus, Jupiter, Mars,and Saturn.

(2) the Aldabaran occultation mentioned above,

(3) the planet Mercury in the middle and latter part of February when it may be seen low in the west after sunset. The greatest eastern elongation from the sun occurs on February 19th, and the magnitude is a bright -0.1.

(4) With binoculars or a small telescope you should be able to find the asteroid Juno without too much trouble. It is currently near opposition and favourably placed in the constellation Canis Minor, not far from Procyon. Carefully study the map on page 99 of your Handbook and you should be able to locate this asteroid.

Clear skies!

Leo.