R E G U L U S

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ANOTHER VIEW OF LIGHT POLLUTION

A great deal has been written about various kinds of pollution that affect life in our modem society but there is still one kind of pollution, light pollution, which has not received enough attention. It seems that up until very recently, it has been only the astronomers who have tried to draw the attention of the public to the fact that excessive man-made lighting systems are harming or destroying the beauty of the nighttime sky. Many of us who call ourselves amateurs, in the true sense of the word, "lovers of the great celestial wonders", have tried to add a voice to the chorus being raised against the polluters and the Philistines of our world.

It may seem that those who speak out against man-made light pollution and who want for themselves and future generations the ability to see unhampered the natural, dark nighttime sky are part of a small group whose argument is based wholly on aesthetics. That is how it seems to have been. ("Oh, they are just the astronomers! Oh! their sights may be beautiful, but are they useful? How much money can we spend by turning off lights? What about progress? And so on. And so on.)

Recently, however, certain facts have come to light which, if taken seriously, may make the public realize that the case against light pollution is not one to be presented only by the astronomers and is not just a matter of aesthetics. Within a short while the cause may be joined by those utterly unfamiliar with astronomy and for their own completely practical purposes.

All of this is something I began to think about in a new and different way as a result of facts mentioned in a newspaper article of less than a month ago. On Tuesday, April 8th, an article entitled "Street Light Tree Threat" appeared in The Toronto Star and I wish to quote from it. Here verbatim are the first three paragraphs:

> Brighter street lamps to be installed on 32 miles of North York streets this year may make the streets safer for residents but not for trees, North York Controller Barbara Greene says.
>
> She said the new, high-pressure sodiun lamps--the latest development in street lighting that provide eight times more illumination than the old, incandescent type--could have an adverse effect on trees and other vegetation in the city.
>
> "It's okay to have the lights on highways but we should be careful where we put them" Ms. Greene said.

A subsequent paragraph of the article is more specific. It reads as follows:

> "Ms. Green said studies in the U.S. have found that the lamps affect the growth and flowering of certain plants. Since the lamps' introduction in the U.S., 15 years ago, some florists and nurseries have had to cover plants and greenhouses adjacent to the brighter areas."

The latest development in Street lighting! If the latest development in street lighting is something which adversely affects trees, flowers, and other plants, it would seem to be something which we do not particularly need. The salesman for this product is sure to point out, as did a Hydro spokesman at one point in the article, that things would be "almost as bright as day". Could one not ask whether in the middle of the night we need to have things "almost as bright as day", and whether we need to have miles and miles of such lighting?

Perhaps those who appreciate trees, flowers, and green plants and want to see them flourish in the cities of the future may join with those who want to see the starry sky and together they may ask with a louder voice: "Why? Why do we need light pollution?"

FOR YOUR COMPENDIUM OF ESOTERIC FACTS

Here is a fact for you to remember and quote to your 'lunar-astronomer-friend' when he claims to know everything about the size and shape of the moon, and especially if he says that since its diameter is 3476km. then its centre-to-surface radius must be 1738km.

In fact, the moon is a triaxial ellipsoid. It is very slightly flattened towards the poles, as is the earth. It has a very slight bulge on the sides that face towards the earth and away from the earth and a very slight flattening on the sides facing forward and backward along the line of its orbit. Thus it is called triaxial. The three centre-to-surface radius measurements are as follows:

(1) centre-to-earth-side radius - 1738.9 Km.
(2) centre-to-orbital-direction-side radius-1738.59 Km.
(3) centre-to-pole radius-1737 .81 Km.

REPORTS AND OTHER ITEMS

1. Several of us saw a few of the members of the Lyrid meteor shower. Luckily we had one clear night and I saw two which were long and bright and only about five minutes apart.

2. The weather, as might be expected in April, has been very changeable. Some nights with excellent seeing have been interspersed among numerous cloudy, rainy nights.

   David might be interested in this weather report. On April 15th (I think), when David phoned I mentioned that it had been cloudy and maybe that it was also raining. I did not phone him the next day to say that the next morning there was also a covering of snow on the ground. That was one night that was not ideal!

3. The latest National Newsletter carries a report by David of his telescope collection. I have not yet received my copy but I understand that at the time of writing the article, the "farm" included only 49 members. It is certainly more than that now. I look forward to reading the article and recommend it to others.

   Questions for David: Is it possible that the small model that Doug gave you could become operational and enter the Guiness Book of World Records as the world's smallest telescope? Did you say it was called the One Millimetre Telescope?

4. We are proud to claim that the excellent photograph of Comet Bradfield (1979ℓ) on page 20 of the April issue of Star and Sky is the work of two members of our centre. The five-minute photograph was taken by Rik Hill using the 24-inch Schmidt at the Warner and Swasey Observatory on Kitt Peak and he was assisted by David Levy. Rik, an observer at Kitt Peak, is the

one who played host and tour guide in showing David and Angelika around the mountaintop facilities when the latter visited Arizona last March. Welcome, Rik! I hope you enjoy membership in our centre! (I understand it is a gift from a couple of your friends.)

5. David has informed me that he recently had the occasion of observing all nine planets in one night. That makes him a member of a very select group of people. He said the most difficult one was Mercury. It was certainly not his first viewing of Pluto for he had been watching it move among the stars near the time of its opposition. David has also established the Nine Planet Club and he is its founding president! I hope we can get some people to join within the next few years -- people from the Kingston Centre, if possible. There are to be two divisions -- those who have seen all the planets, and those who have seen them all on one night.

6. Among the things to look for in the coming month is the favourable elongation of the planet Mercury. It should provide a chance for viewing by many people who may not have seen it before. Of special interest may be the close approach of Mercury and Venus low in the western sky during the first couple of days of June. June 1st Mercury at magnitude 0.3 and Venus at magnitude -3.7 are only 0.3° apart.

   Also of interest may be the numerous minor meteor showers listed for the coming two months. It should be interesting to record any meteors you see and then try to trace them to one of those many minor showers. Remember that Uranus is at opposition this month on the 14th and if you have exceptionally good skies about that time you could challenge yourself to see it with the unaided eye. At magnitude about +5.7, it should be possible under ideal conditions to find it in the constellation Libra. One helpful coincidence is that opposition almost coincides with new moon, and so moonlight should not prevent one from finding this planet at the time of opposition. If you cannot find this interesting planet without optical aid, observe its greenish disc through a small telescope, or binoculars.

   It is very interesting to note that next month Neptune is at opposition, again almost exactly at the time of new moon. That event occurs on June 11th at 10 p.m., E.S.T. and the planet is at magnitude +7.7.

Clear skies and good observing!

Leo Enright