

R E G U L U S
THE NEWSLETTER OF THE
ROYAL ASTRONOMICAL SOCIETY OF CANADA - KINGSTON CENTRE
NOVEMBER, DECEMBER, 1979

WHAT ABOUT THE "SUPERCONJUNCTION OF 1982"

One day during the past summer when I was busily working on an 'astronomical' project, I was asked by someone

what I thought of the fact that within a few years all the planets would be lined up in the sky. The question seemed to carry the message that the person was very concerned and thought others should be also. I tried to assure him that this kind of planetary alignment should not cause great concern and its effect would be so absolutely microscopic that there was no instrument ever invented by man which could detect so miniscule a change in gravitational effect as that caused by this planetary alignment. (I believe one of my thoughts may have been about how interesting observations might be for the nights when we could see this alignment, but, alas, it just is not so.)

Since that day I have had time to get some facts behind that concerned question and to find out some other answers that could be given. But, why are some people so concerned? Will there be a grand alignment or superconjunction of all the planets in the next few years? Can such an alignment have any effect on the earth?

The reason that some people are so concerned is likely the result of newsmagazine or other media coverage of the so-called 'alignment of 1982', or reports about a book that appeared in 1974 called The Jupiter Effect. There could be slim chance that the concerned person had even read the book(!)

This book by John Gribbin and Stephen Plagemann tells about the planets in 1982, states there will be a "superconjunction", and even says there will be "an unusual alignment in which every planet is in conjunction with every other planet; that is, all the planets will be aligned on the same side of the sun." As a matter of fact that is not true at all. If one were to take his position on the sun, assuming it were possible, he would see the nine planets scattered out over a very wide distance along the ecliptic and this would be true for the entire decade of the 1980's. Let's be more precise and see how close all the planets do come to an actual alignment. It is true that the sector of sky measured from the sun and along the ecliptic plane and containing all the planets will become somewhat smaller than usual at certain times in the 1980's. The minimum for the sector will occur on March 10, 1982 at which time the angular width of the sector will not be zero, but 95 degrees, ranging all the way from 170°, which will be the approximate heliocentric longitude of the earth, to 265°, which will be that of Mercury and Neptune. Is that an alignment or a conjunction? Most certainly, not! In fact, as viewed from the sun, the planets will be scattered around the zodiac over a quarter of the distance around the entire sky. Even conjunctions of some individual planets occur rarely. The next Saturn-Uranus conjunction is 1988; that of Saturn-Neptune is in 1989; Uranus-Neptune in 1993; and the next Neptune-Pluto conjunction is over 400 years away!

Not only did the book mentioned talk about something which simply does not happen, as stated, but the authors go through a very bizarre argument saying the tidal forces caused by the planets in alignment will increase, causing more sunspots and a greater chance for a solar eruption, with the ejected solar particles causing unusual air movements on earth, which in turn would affect the earth's speed of rotation, which in turn would cause earthquakes. This strange, and long argument has been shown to be ridiculous by a number of serious scientists. Probably the best published refutation of the book's thesis is that by the Belgian astronomer, Jean Meeus and published in the periodical Icarus in 1975. The Griffith Observer (January, 1975) also refutes the argument in an article called, "The Great Earthquake Hoax." The American Scientist (Nov. 1974) and Mercury (July, 1979) also speak out against it.

Again, let us be precise, yet brief, with certain parts of the argument presented in the book. Firstly, what about the tidal forces of the planets? Calculations have shown the 'tide' raised by all the planets could be one millimeter! Compare that with the sun's diameter of 1,392,000 kilometers! Try to calculate what percentage change that would be!! Secondly, what about such forces causing an increase in sunspots? Meeus has stated that this simply is not true. Moreover, various studies have shown that it is absurd to consider any connection between either
(1) close approaches (Forget alignments!) of planets and numbers of sunspots, OR
(2) numbers of sunspots and earthquakes.

In regard to the first set of studies, it has been shown that there have been years (e.g. 1804) in which the largest planets more closely approached each other than they do in 1982, and yet the sunspot maximum at that time has been exceedingly weak. Moreover, it has also been shown that those planets which most effectively produce a "tidal effect" on the sun produce "tides" which have a period of 4 months - out of line, but no less than a factor of 33, from the recorded sunspot cycle of 11 years. In fact, no correspondence whatever appears between this solar cycle and planetary motions.

In regard to the second set of studies, one involved over 9000 earthquakes and one involved over 12000 and they found no interdependence between sunspots and seismic activity. In fact, one scientist has listed many major and catastrophic earthquakes which have occurred at sunspot minima; Jean Meeus has even pointed out that in 1943, near sunspot minimum, there were 40 major earthquakes (of 7.0 or more Richter magnitude) while in 1947, at the following very high sunspot maximum there were only 25 similar earthquakes.

Taken together, the long argument put forward in the book, The Jupiter Effect, must be considered as having a probability of zero. Yet many people have not investigated the facts enough to know that there is no real superconjunction to be expected in 1982 and that the arguments for supposed 'dire consequences' are based on assumptions which are either definitely false, or unproven, or have a probability of close to zero.

Hoping it is not being too cynical, I think there are some predictions that can be made:

- (1) books like "The Jupiter Effect" will continue to cause concern,
- (2) books like "The Jupiter Effect" will continue to be published and will continue to sell well(!)
- (3) some journalist(s) may discover that the major planets of the solar system make a closer approach in 1984 than they do in 1982, and publish that fact (with suitable alarming headlines) in about 1983.

- (4) someone, somewhere, if he can find something to point to, may at a future date say, "It was all predicted by the planets," not realizing that a coincidence proves nothing and that probably neither planets nor sunspots had anything at all to do with it.

FOR YOUR COMPENDIUM OF ESOTERIC FACTS

Here is another esoteric fact to add to your list. Do you know what area of the world produced more than its share of the world's greatest astronomers of the past century?

The answer is it is not the cities next to the world's great and famous observatories, but the tiny rural villages of Missouri in the central United States that produced two of the great cosmological astronomers of the past 100 years. It was in Nashville, Missouri that Harlow Shapley, the one who found of the centre of our galaxy, was born on November 3, 1885. It was in Marshfield, Missouri that Edwin Hubble was born November 20, 1889 - Hubble, the man whose immense work showed that galaxies are outside the Milky Way and that our universe is expanding.

SUNSPOT OBSERVING

Back in mid-October, before the onset of the rainy season(!) when there were several successive sunny days, it was interesting to observe the numerous sunspots and to watch their progress across the solar disk. One person who observed them extensively at that time was Angelika, our president. Using a relatively small refractor (a 60^{mm} Tasco with a 12.5^{mm} eyepiece) she observed sunspots carefully at mid afternoon over a period of several days, and made some very good drawings of the large groups as they progressively moved across the sun. On the following page, I have tried to reproduce two of her drawings - in this case, ones that were made about 48 hours apart.

I wish to thank Angelika for submitting these drawings.

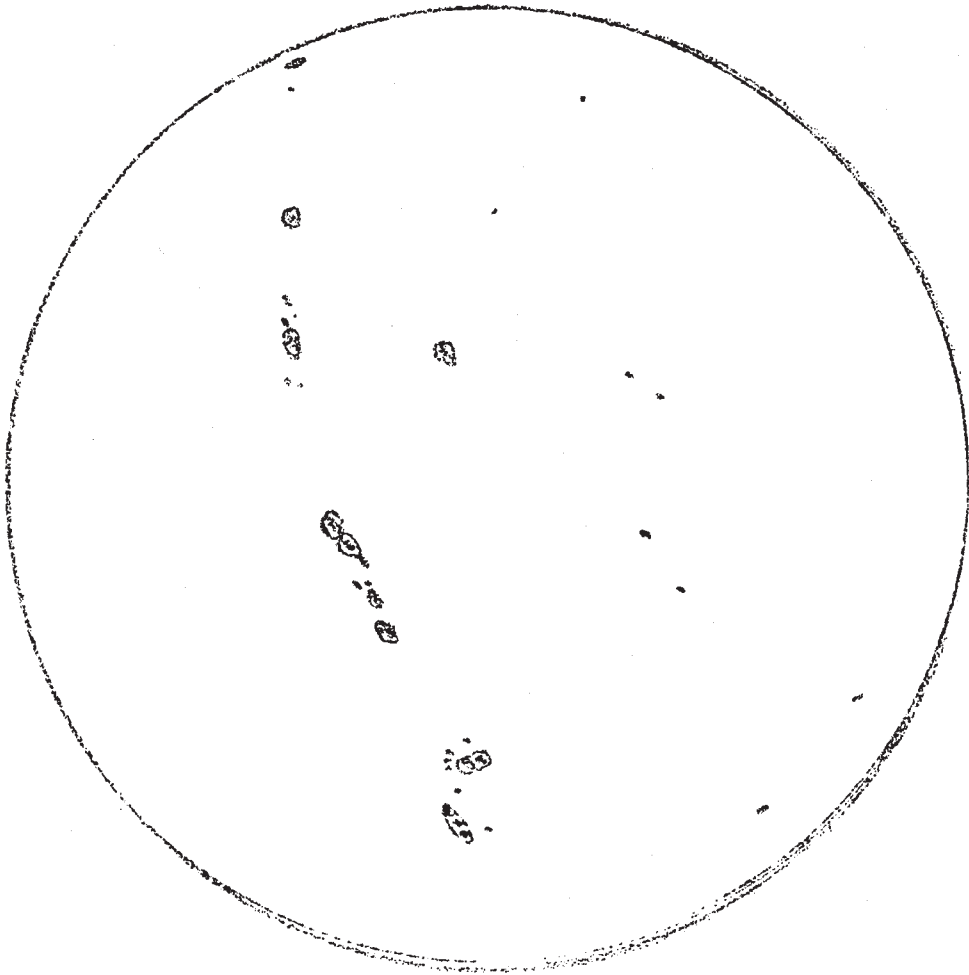
OTHER ITEMS

1. In the past this section was called Reports And Other Items. However, there are few reports of observing to make at this time. As many of us know too well, the weather has been abominable for observing over the past month - that is, from these locations. We do continue to hear from David who lives under superb skies and enjoys incredibly good weather night after night, day after day.

One observation simply must be reported - Enrico reported seeing Venus in the western sky on October 18th. That is probably about a month before many other members of the centre saw this very bright planet. The latter sightings when they finally came may have been partly due to the prolonged cloudy weather, but Enrico's sighting was an exceptionally early one. Since the time of its superior conjunction, Venus had been moving into the western evening sky very slowly. It should be a spectacular sight dominating evening skies for the next seven months.

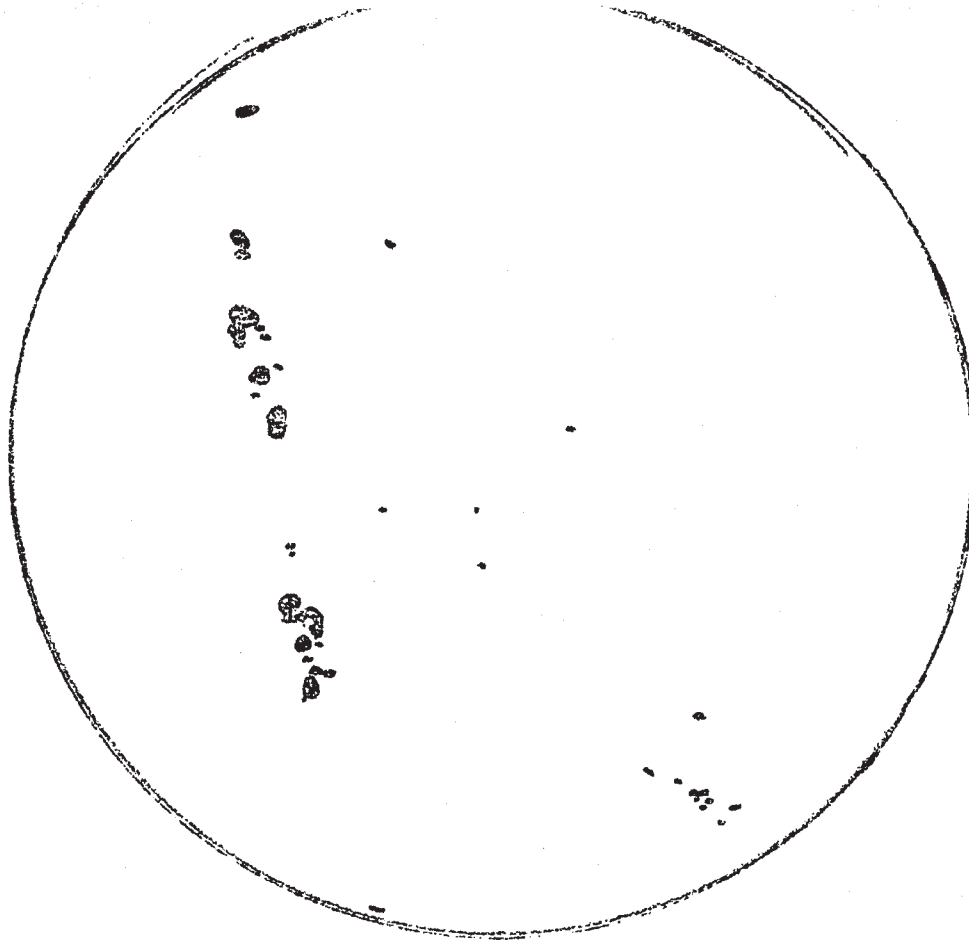
Because of the weather, most of our members almost assuredly missed the meteor showers, the Saturn-ring disappearance, the Aldebaran occultation, the Mercury-Venus conjunction, the lunar conjunctions with Mars, Jupiter, Regulus, and Saturn, and probably many other things that could have been observed.

Sunspots
Tue. Oct. 16, 1979. (16:30 E.D.T.)



A.K.

Sunspots
Thu. Oct. 18, 1979. (17:00 E.D.T.)



A.K.

Perhaps we can remind David of our climate by quoting a weather forecast from earlier this week. These are the actual words: "Tonight's forecast is rain; it's already started to rain. Tomorrow's forecast is rain. The outlook for Friday is rain!" Perhaps David will also be reminded of our climate when he sees the constellations: Aquarius, Cetus, Eridanus, Puppis, and Hydra. Is it not interesting that many of the southern constellations which the ancients saw at this time of the year are associated with the watery element? Like the ancient people who gave names to these constellations, we too can find them a reminder of a rainy season, and this can be especially easy if there are as many rainy days and nights as we have had recently.

2. Our sincere congratulations go to one of the newest members of our centre for an outstanding contribution to variable star observing. Although new to our centre, Warren Morrison of Peterborough is a very experienced variable observer, and at the annual meeting about a month ago of the A.A.V.S.O. (American Association of Variable Star Observers) he received special commendation from Janet Mattei, the director, for having contributed over 2000 observations which were of exceptionally high quality.

"We are most delighted, Warren, with this significant achievement of yours, and we wish you best of luck in the future.

Congratulations, also, for receiving that special A.A.V.S.O. award for the discovery of Nova Cygni 1978."

3. Our congratulations also go to another variable star observer, Mr. Bernard Bois of Sept Isle, Quebec. Over the past year he contributed more observations than anyone else - an impressive 6003.
4. While mentioning variables we must not neglect to mention someone else, besides Warren, who is a member of our centre and who has done more than a little (!) variable star observing. Since moving to the clear skies of the south., David has told me of his tremendous variable star program. He has done 150 or more Orionid variables in a single night and is observing variables, I understand, at a rate of 2000 or so per month.

"Best of luck, David! We look forward to hearing what your annual total will be about a year from now!!"

5. We congratulate David for having two of his astrophotos accepted for publication in Star and Sky. They were outstanding pictures and appeared in the December issue. Both are of the September 6th lunar eclipse and one is an unguided shot showing almost the entire eclipse. A beautiful photograph!
6. David has also informed me that he was able not only to see and photograph but also to make a timing of the lunar occultation of Aldebaran on November 5th - 6th. Just another reason to marvel at how well he takes advantage of those clear skies!
7. We extend a hearty welcome to Tim Gladwin of Baltimore, Ontario who has become a member of our centre and even though he lives a good distance away we hope he can join us for some of our meetings.
8. The deadline for the "Annoying Light Contest" announced in the last newsletter has been extended to January 10, 1980. I hope to receive a good number of entries.

9. There are several events in the coming month which I hope you are able to view.

Try to observe the Geminid Meteor Shower on December 14th and the Ursids on December 22nd or 23rd. Both are reasonably close to new moon.

If you have a good eastern horizon and the weather is cooperative, try to catch the lunar occultation of Aldebaran in the evening of December 30th. It should be close to a graze from southern Ontario.

10. Wherever or however you observe the celestial wonders, I wish you a very happy Christmas holiday and the best of good fortune in 1980.

Clear skies and pleasant observing!

Leo .