PLANETARY OBSERVATIONS

JUPITER

	YEAR	MONTH	DATE	U.T.	C. M. I	C. M. II	TELESCOPE	POWER	REMARKS
R	1958	MAR	19	3:55	248	44	2" RFR	80	16 mm
R		MAR	20	4:10	55	203	2" RFR.	140	9 mm
R		APR	11	4:55	320	300	2" RFR	140	Red spot visible
R		APR	14	3:30	22	339	2" RFR	140	Red spot visible
R		MAY	1	1:15	106	294	6½" RFR	222	
R	1959	MAY	2	3:55	1	276	8" RFL	180	
R		MAY	4	4:40	344	244	8" RFL	240	
R		MAY	19	3:25	—	—	8" RFL	50	Negative of satellites with nearby star making interesting configuration
R		MAY	19	3:55	168	313	8" RFL	240	
R		MAY	25	3:15	11	111	8" RFL	240	
R		MAY	25	4:50	69	168	8" RFL	240	
AR		MAY	26	4:25	212	304	8" RFL	240	
R		MAY	29	4:35	332	41	8" RFL	240	Drawing terminated due to extremely poor seeing.
AR		JUN	5	2:35	285	301	8" RFL	180-240	
R		JUN	6	3:55	132	140	3¼" RFR	173	
AR		JUN	10	2:15	343	321	8" RFL	240	
R		JUN	11	3:20	180	150	6½" RFR	222	
AR		JUL	4	1:15	136	292	8" RFL	240	
R		AUG	8	1:30	269	157	8" RFL	240	
AR		JUL	28	1:22	—	301	8" RFL	240	Detail of transit #93, drawn from memory, August 8, 1959.
AR		AUG	14	0:32	—	303	8" RFL	240	Detail of transit #137

PLANETARY OBSERVATIONS

MARS

	YEAR	MONTH	DATE	U.T.	C.M.	TELESCOPE	POWER	REMARKS
R	1958	DEC	11	1:50	343	4¼" REFL	175	Metzger Screen 16"
R		DEC	22	0:55	230	4¼" REFL	175	Metzger Screen 14"
R		DEC	25	1:15	207	4¼" REFL	175	Metzger Screen

PLANETARY OBSERVATIONS

SATURN

	YEAR	MONTH	DATE	U.T.	DAYS FROM OPPOSITION	TELESCOPE	POWER	REMARKS
R	1959	JUN	5	4:35	-21	8" RFL	240	
		JUL	15	3:15	+19	8" RFL	360	Crape ring not seen except where it was in front of planet's disk.
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
		JUL	22	3:40	+26	8" RFL	360	Crape ring not seen except in front of disk

PLANETARY OBSERVATIONS — VENUS

	YEAR	MONTH	DATE	U.T.	k	TELESCOPE	POWER	REMARKS
R	1959	JUN	10	0:35	0.565	8" RFL	180	
R	1959	JUN	20	2:30	0.513	8" RFL	180	No drawing made. Terminator seen as either straight or perhaps slightly concave.
R	1959	JUL	4	0:10	0.430	8" RFL	180	Notch in S cusp definite, terminator to S quite straight. Shadings very indefinite.
	1959	JUL	14	0:10	0.363	8" RFL	180	C5 filter. Shadings very indefinite.
	1959	JUL	15	0:05	0.356	8" RFL	180	
		JUL	15	0:15	0.356	8" RFL	180	C5 filter
		JUL	17	0:20	0.341	8" RFL	180	
		JUL	17	0:25	0.341	8" RFL	180	C5 filter
		JUL	28	0:10	0.254	8" RFL	180	

Geoffrey Gaherty, Jr,
636, Sydenham Avenue,
Montreal 6, Quebec.
June 11, 1959.

Mr. V. Ramsay,
84, Glenmount Pk. Rd.,
Toronto 13, Ontario.

Dear Mr. Ramsay:

Last night, George Wedge brought your letter and the May-June issue of Scope up to the observatory of the Montreal Centre where they were greeted with great interest on the part of our observing group. In your letter you requested information on our planetary programme and it was suggested that I write you about this. Before doing this, I would like to make a few miscellaneous comments.

First of all, let me tell you how much I enjoyed the paper you presented at the Annual Meeting. This technique would seem to hold great promise for the study of the true forms of lunar features greatly foreshortened by their position near the limb.

About Scope; on the whole, I consider it a very good job, perhaps too good, as it may be difficult to keep up the quantity of material as there is always the danger of getting bogged down in too much paperwork. The Montreal Centre's newsletter Skyward only consists of two pages, but even so its editor is often hard-pressed to keep it coming out regularly. It's rather hard to slave over a Gestetner while the stars are shining brightly outside! However, I think it marks an important step in amateur astronomy in Canada, and you are to be highly congratulated.

Now, about our planetary work. During the last couple of years our planetary section had deteriorated to such a state that only four observations were submitted during last years opposition of Mars! (Incidentally, these drawings were contributed by George Wedge and myself.) The main difficulty was that our chairman, Dr T. F. Morris, was

kept too busy with his work to devote enough time to give the section its needed support. At a meeting of the Observation Committee shortly after returning from Toronto, it was decided that I should act as an assistant to Dr Morris. This arrangement has worked out very well, as you will soon see.

My first action was to have a silk screen made in order to print blanks for drawing Jupiter. I have enclosed a sample of these, only one as the stock is rather low at present due to the remarkable response we have had. I am told that the screen is good for at least 20,000 copies!

To date we have received thirty-four drawings of Jupiter since May 1. Unfortunately, this figure is not as good as it sounds as most of them are by beginners and do not show much aside from the belts. The difficulty is that I cannot get people to use their own telescopes. With the exception of my own series, all except one of the drawings were made with the Centre's 6½" refractor at our regular observation meetings. This means that all the drawings are in little bunches all made on the same night near the same C.M. My own drawings are made at every possible opportunity with my 8" reflector. Thus there are gaps of as much as eighty degrees in longitude in our records! I can only console myself with the knowledge that this is better than the last two oppositions, of Jupiter, during which only eighteen drawings were contributed.

Aside from Jupiter drawings, I have several other programmes in progress. The most important of these is the taking of central meridian transits on Jupiter. I have only embarked on this in the past week, but already in only two observing periods (totaling 1 hr. 50 min.) I have timed ten transits. If any of your observers are interested in this work I would recommend Budine's article on page 3 of the latest Str. A. which came in this morning. I am anxious to receive reports on this work from others in Canada as I would like to try my hand at calculating rotation periods. Of course, such observations should also be sent to the A.L.P.O. or the B.A.A. who, due to the larger numbers of observations received, can put them to better use. I just thought it would be interesting to compare Canadian results with the rest of the world.

Also received recently were two drawings of Saturn (I also have made a template) and one of Venus. I am also trying to interest one observer in estimating the relative intensities of Jovian features. This just about sums up present work in our planetary section.

Concerning your planetary programme as outlined in Scope, it appears very good to me. I especially commend the work on the dichotomy of Venus. I will be sure to send in my estimate of when this occurs. Two nights ago, it appeared as the phase known as ogee, i.e. the terminator vaguely resembling the crossection of a Schmidt corrector-plate. As to the Jupiter suggestions, I would only note a rather common error referring to the domains of Systems I and II. (Even Patrick Moore has made a similar mistake on page 207 of The Amateur Astronomer.) System I is bounded by the middle of the North Equatorial Belt and the middle of the South Equatorial Belt. The tropical zones are outside this, and the polar regions don't conform to either system. I also think your chances of mapping Jupiter's surface are slim as the formations are always undergoing change and rarely reappear twice exactly the same at the same longitude. The best bet for studying Jupiter's features is the transit work mentioned above.

I was interested to read about your "plateau" and will attempt a drawing of the region if weather permits.

I would like to close this rather lengthy letter by saying how important I consider this exchange of ideas and observations will be to the growth of Canadian astronomy, and by wishing you the best of luck in all your programmes in the months to come.

Sincerely yours,

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

June 18, 1959.

Mr Elmer J. Reese,
R. D. 2, Box 396,
Uniontown, Pennsylvania,
U. S. A.

Dear Mr Reese:

Enclosed you will find reports of ten central meridian transits observed during the last two weeks.

I am sorry that I have been unable to undertake these observations until now, but I felt that I should wait until I had practised drawing Jupiter for a month or so, as I am fairly new to planetary observing, and my eye needed training. These are the first transits I have taken and are probably lacking in accuracy, but I thought that I should send them in anyway. There would be more observations, only it has been cloudy every night for the last week.

I am trying to arouse the interest of other observers, both in the Montreal Centre and the other centres of the R. A. S. C., as I realise the importance of this work, which is covered so inadequately in North America, except by a few people like yourself.

I have been a member of the A. L. P. O. since March, 1958, being mainly active in the Lunar Meteor Search, being the local recorder for Bob Adams, and, more recently, in Lunar work. I have also recently become a member of the B. A. A., to whom I am sending duplicates of these transit observations.

I will try to keep sending in transit observations regularly every two weeks as suggested by the B. A. A. and will send in some drawings at the end of the apparition.

Sincerely yours,

Geoffrey Gaherty, Jr, Acting
Chairman, Planetary Observations.
636, Sydenham Avenue,
Montreal 6, Quebec,
Canada.

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

June 18, 1959.

Mr W. E. Fox,
49, Milner Street,
Newark,
Nottinghamshire,
Great Britain.

Dear Mr Fox:

Enclosed you will find reports of ten central meridian transits observed during the last two weeks.

I have delayed making transit observations until this late in the apparition because I am rather new to planetary observation and desired to train my eye by making disk drawings, some of which I will submit at the end of the apparition. I now plan to devote most of my efforts to transit work.

My instrument is an eight-inch reflector with mirrors by Cave Optical, a leading American firm. My eyepieces are top quality orthoscopics; the whole system is highly suited to planetary work. I use short-wave time signals from the U. S. National Bureau of Standards for the transit times.

I am trying to interest other Canadian observers in undertaking transit work. I know that you desire as large a geographic spread as possible; I see that at the present time Jupiter is just beginning to be visible in the twilight at Montreal when it is setting in the British Isles. I cannot see why this work does not appeal to the North American amateur, but with the exception of Mr Reese and a few others, there is absolutely no interest present. I will do my best to try to correct this.

I will try to continue sending in transit reports fortnightly, and, unless you desire otherwise, will wait until the end of the apparition to submit drawings.

Sincerely yours,

Geoffrey Gaherty, Jr, Acting
Chairman, Planetary Observations.

636, Sydenham Avenue,
Montreal 6, Quebec,
Canada.

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

July 2, 1959.

Mr Elmer J. Reese,
R.D. 2, Box 396,
Uniontown, Pa.,
U. S. A.

Dear Mr Reese:

Thank you very much for your encouraging letter of June 22. I am glad to discover that even my very first observations were of use.

You will find enclosed reports of 14 more transits. The poor weather which I mentioned in my last letter continued so that observations were only possible on one night in the past two weeks. During this observation I noted the colour of the Equatorial Zone which you mentioned in your letter. It appeared much as described by Mr Herring, although I failed to detect any red. Another of the Montreal Centre's planetary observers, Klaus Brasch, noted the yellow colour independantly with his 3-inch refractor.

You might be interested in hearing about the programme which the Montreal Centre is undertaking for beginners in planetary observation. Our first step is to get everyone present at our observatory to make a plot of the positions of Jupiter's satellites. (Our observatory is open two evenings a week: on Saturday we have a short talk on a constellation, after which observations are made of objects in that constellation and the Moon, planets etc. with our 6½" refractor; on Wednesday the 6½" as well as other instruments are available for members to observe the Moon, the planets, and to hunt for Messier objects.) The satellite plots are then replotted on a single sheet along with the N.A. positions. This "breaks the ice" for those doubt their drawing ability.

Observers then are allowed to make disk drawings using special blanks which I have prepared. I have enclosed one of my drawings on such a blank. The outline of the planet is made with a silk screen copied from the outline on page 120 of Patrick Moore's The Amateur Astronomer (Lutterworth). So far we have on file 41 drawings by 14 observers. Unfortunately, almost all of these observers

are beginners like myself so that only about half the drawings are of any use. I feel that it is enough this year to get the beginners making drawings but hope to get them making colour and intensity estimates during the next opposition. The main difficulty is that very few observers have their own telescopes and must rely very heavily on the Centre's instruments.

If the weather co-operates, I will send you more transits in two weeks time.

Sincerely yours,

Geoffrey Caherty, Jr.,
C36, Lydenham Avenue,
Montreal 6, Quebec.

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

July 2, 1959.

Mr W. E. Fox,
49, Milner Street,
Newark, Nottinghamshire,
Great Britain.

Dear Mr Fox:

Enclosed you will find reports of 14 more transits. Unfavourable weather conditions prevented more work than this.

Sincerely yours,

Geoffrey Gaherty, Jr.
636, Sydenham Avenue,
Montreal 6, Quebec.

ROYAL ~~WITH THE PLANETS~~ ASTRONOMICAL SOCIETY OF CANADA

~~by Geoffrey Gaherty Jr~~ Montreal Centre

SATURN This planet is now well placed in the evening sky. The rings are widely spread during this apparition, making it a good time to observe them. The chief drawback at present is Saturn's extreme Southern declination

July 8, 1959

Mr Adrien Emond,
690, Labelle Boulevard,
Ste Therese de Blainville, Quebec.

Dear Mr Emond:

I am writing you to ask whether it would be possible for you to contribute some planetary drawings, particularly of Saturn. The Montreal Centre is asking its planetary observers to try to make at least three, and possibly more than three, drawings of this planet.

The drawings which you made of Saturn in 1956 are definitely among the best I have ever seen and have been greatly admired by all who have seen them. I particularly like the ones in colour and am going to try to make colour transpanencies of them for the Centre's slide collection.

I would also like to call your attention to the beautiful colours visible at present on Jupiter. If you are still able to observe Jupiter from your location I would recommend making some colour drawings of it. I am sure that they would prove very valuable.

In closing, I would like to thank you again for your past observations and say that any other observations by your father and yourself would be most welcome.

Sincerely yours,

Geoffrey Gaherty, Jr,
Acting Chairman,
Planetary Observations.

636, Sydenham Avenue,
Montreal 6, Quebec.

Geoffrey Gaherty, Jr,
636, Sydenham Avenue,
Montreal 6, Quebec.
July 8, 1959.

Mr Vern Ramsay,
84, Clairmount Pk Rd,
Toronto 13, Ontario.

Dear Vern:

Thank you for your letter of June 19. I am sorry that I have not replied sooner, but frankly I have had little to report due to very poor observing conditions locally.

Lunar observations were only possible on two nights during the last lunation, and both nights were before sunrise on your "plateau". I hope conditions will be better this month.

Bad weather also interfered with observations of Venus. Aside from the observation on June 9/10 which I mentioned in my earlier letter, I have only been able to make two satisfactory observations. On June 20 at 02:30 U.T. I saw the terminator as either straight or perhaps slightly concave with the seeing too poor to make a drawing. On July 4 at 00:10 U.T. the terminator was definitely concave with a notch in the South cusp. From these observations I assume that dichotomy occured on June 30 or slightly earlier. No knife-edge comparison was used in these observations, which were all made with 130x on my 8-inch Cave reflector. Please pass my estimate on to Mr Clark and let me know how it compares with his.

About the Jupiter templates: We are very fortunate in having a commercial artist in our membership, Peter Waugh, who was able to have the screen made by a friend for a very low price. He was also familiar with the printing process, and so we were able to print the blanks ourselves. Peter says that you could probably have the job done commercially for about $25, including running off a few thousand blanks. The only template required by the printer was that given on page 120 of Moore's <u>The Amateur Astronomer</u>.

Concerning other planetary work, we now have 53 drawings of Jupiter on file, and I have 41 C.M. transits to my credit. I was interested to hear that you are engaged in colour and intensity estimates. I hope to start a programme along this line next year. I have tried the "out-of-focus" method of the A.L.P.O. and find it unworkable with my telescope due to the unsteadiness of my mounting. It appears to me that the method you use is better. It is similar to that of the B.A.A.A. which seems to have served them well for more than half a century.

We have received 6 drawings of Saturn which are of relatively little use due to the inexperience of the observers. One of our more experienced observers, Klaus Brunch, and myself have recently been attempting to determine the effect of aperture upon the visibility of markings on Venus. We hope to make simultaneous drawings in white and blue light, he with his 3-inch refractor and I with my 8-inch reflector. We are trying to arrange a suitable schedule at the present time.

That being about all the news for now, I am,

Sincerely Yours,

Geoffrey Gaherty, Jr.,
636, Sydenham Avenue,
Montreal 6, Quebec.

633, Sydenham Avenue,
Montreal 6, Quebec.
July 10, 1959.

Dear Klaus:

I am writing you because I don't know what time you sleep when you are working at night and don't want to disturb you. My reason for getting in touch with you is this business of simultaneous observations of Venus.

I would like to suggest the following schedule:
At 3 P.M. E.D.T.: make a drawing without filter.
At 3:15 P.M. make a drawing using a blue filter.
If this schedule does not suit you, give me a call so that we can discuss this further and decide on a better one.

As my brother relayed to you on Tuesday night, I found the seeing much too bad to make a drawing. Actually I consider that night one of the worst in my experience. The boiling was terrible, I could see the air currents moving very clearly. Miss Williamson made a drawing with her 3-inch Zeiss at 9:35 which shows three dark markings along the terminator.

I will expect to hear from you if the above schedule is not suitable. I can be reached at HU. 4-2402 any time between 10 A.M. and 7:30 P.M. Also, would you please give me a call before you go up to the observatory next, so that I can bring back the books I borrowed. (I may have to keep Die Welt der Planeten for a while as it is rather "tough"!)

Sincerely yours,

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

July 16, 1959.

Mr W. H. Fox,
40, Milner Street,
Newark, Notts.,
England.

Dear Mr Fox:

Enclosed you will find reports of 20 more C.M. transits taken during the past fortnight.

I was very pleased to receive your letter this morning. In your letter you mention the belt of prominent detail on Jupiter this year. I, too, have noticed this, but I assumed that my difficulties were caused by inexperience. A few days ago I received a letter from one of the Montreal Centre's more experienced observers who called attention to the lack of contrast between the belts and zones.

About my transit #1 of a large white spot in the South Tropical Zone: Mr Reese has identified this as the Red Spot Hollow. Transits 27, 29, 31, and 34 in the enclosed report pertain to this region. The last might possibly be the following end of the Hollow but was very indefinite.

In closing I would like to draw your attention to the stamp on this letter; it shows Polaris and the Plough as well as a possible aurora. It was pictured on page 322 of the April 1959 Sky and Telescope.

Sincerely yours,

Geoffrey Gaherty, Jr,
636, Sydenham Avenue,
Montreal 6, Quebec,
Canada.

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

July 16, 1959.

Mr Elmer J. Reese,
R. D. 2, Box 396,
Uniontown, Pennsylvania,
U. S. A.

Dear Mr Reese:

Enclosed you will find reports of twenty transits.

I received your note concerning Mr Herring's observations with the 60". I will not publicize these observations. Naturally, I am rather curious as to why they should deny him permission to publish them, since they allowed Wilkins to publish lunar drawings made with that telescope. I suppose their reason is that they don't want every amateur visiting California to drop in for a peep through the telescope!

Sincerely yours,

Geoffrey Gaherty, Jr,
636, Sydenham Avenue,
Montreal 6, Quebec.

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

July 30, 1959.

Mr W. E. Fox,
49, Milner Street,
Newark, Notts.,
England.

Dear Mr Fox:

Enclosed you will find reports of 67 transits observed during the last fortnight.

I am now observing Jupiter for the entire time that it is available at my location. I can usually pick it up before 0h. 30m. U.T. in the twilight and follow it until it sets behind a neighbour's house. At present I am limited to slightly more than two hours observing, and this time is decreased by four minutes every night. Thus I will be unable to observe after about the end of August. However, if I keep making transits at my present rate, I should get at least fifty more this year.

With regard to the enclosed observations, I would like to note that I have used "NEBn" to refer to the Northern component of the N.E.B. I find that I can usually detect the two components of this Belt. Also, in transit no 93 the note in parentheses refers to the latitude of this spot, using the same method as the Meteor Section. Incidentally, in moments of good seeing this spot seemed to be joined to the SEB by a fine dark wisp.

I hope that these transits will prove of use to you.

Sincerely yours,

Geoffrey Gaherty, Jr,
636, Sydenham Avenue,
Montreal 6, Quebec,
Canada.

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

July 30, 1959.

Mr Elmer J. Reese,
R. D. 2, Box 396,
Uniontown, Pennsylvania,
U. S. A.

Dear Mr Reese:

Enclosed you will find reports of 67 transits observed during the past two weeks. (Please excuse the carbon copy; Montreal is in the midst of a heat wave, and I haven't the strength to type out such a lengthy list twice!)

At present I am observing Jupiter for the entire time it is visible. Because of horizon difficulties I shall probably be forced to terminate observations somewhere near the end of August. However, if I continue taking transits at my present rate, I should get at least fifty more during this opposition.

Thank you for your letter and the Jupiter forms. I showed these to my observers who thought them a good idea. They solve the problem of folding drawings for mailing very neatly.

Sincerely yours,

Geoffrey Gaherty, Jr.
636, Sydenham Avenue,
Montreal 6, Quebec,
Canada.

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

August 13, 1959.

Mr W. E. Fox,
49, Milner Street,
Newark, Notts.,
England.

Dear Mr Fox:

Thank you very much for your letter of August 4. You will find enclosed a list of 23 transits; fewer than in my last report because of very poor weather conditions.

From correspondence with Mr Reese, I have discovered that the object referred to in transits #58 and #87 is in reality the preceding end of the NNTB, rather than the NTB as noted. The confusion arose from the invisibility of the latter belt this year. When I made the observation, I suspected that it was the NNTB because of its high northern latitude. Mr Reese confirmed this by latitude measures and from its rotation period.

I hope that this error did not cause you any inconvenience.

Sincerely yours,

Geoffrey Gaherty, Jr,
636, Sydenham Avenue,
Montreal 6, Quebec,
Canada.

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

August 13, 1959.

Mr Elmer J. Reese,
R. D. 2, Box 396,
Uniontown, Pennsylvania,
U. S. A.

Dear Mr Reese:

Enclosed you will find a list of 23 transits; fewer than in my last report because of very poor observing conditions.

Thank you for your card of August 8. Concerning the dark spot in the STrZ (transit #93): After receiving your card, I made the enclosed drawing of this object from memory. I think that the sketch is quite accurate as I was interested by the spot at the time I observed it, and studied it for a considerable time.

Because of your interest in this object, I went through my drawings to try to find earlier records of it. My success is shown by the remaining three drawings enclosed. The first (May 25/26) does not show the spot. The second (June 4/5) shows it very definitely, but the third (July 3/4) strangely shows just an indefinite projection. This might be due to the seeing conditions.

From The Planet Jupiter I gather that this feature is the start of another SEB disturbance. After drawing this feature on the morning I received your card, I was quite startled to read on page 157 my description almost exactly.that evening! It was fortunate that I did not reak Peek's description before making my drawing.

About the NTB-NNTB mix-up: When I got your card, I had already decided that the belt I had seen was the NNTB after reading your excellent article in the Strolling Astronomer. I would also like to note that the dark spot in the NEBn (#52, 53, 54) might possibly be akin to last year's "barge". I remember that it was so dark that I thought it might be the shadow of a satellite!

Returning to my drawings, I have quite a problem as far as submitting them, and those of my fellow observers. There are 83 drawings on file at present, of which about half are of use (the other half being drawn by beginners). As it would be impossible to copy all of them, I would suggest the following: If your records show some particular longitudes on which more observations are needed, send me a list of such longitudes and I will copy the drawings which apply. The Montreal Centre's observations cover a period from late April right up to the present, with drawings on practically every clear night.

I will close this letter now, as it is getting dark outside, and the sky is clear.

Sincerely yours,

Geoffrey Gaherty, Jr,
636, Sydenham Avenue,
Montreal 6, Quebec,
Canada.

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

September 18, 1959.

Mr Elmer J. Reese,
R.D. 2, Box 396,
Uniontown, Pennsylvania,
U. S. A.

Dear Mr Reese:

Thank you very much for your letter of September 2. Continuing bad weather and Jupiter's increasing proximity to the Sun have decreased my observations sharply, and I am enclosing reports of only nine transits. I find now that the markings which have been so indefinite all year are becoming still more difficult to detect.

I have carefully examined all drawings made near 325° (II) but have failed to detect any definite sign of the Red Spot Hollow. However a drawing made at 348° (II) by Mr George Wedge shows what appears to be the Red Spot itself! A drawing made 15 minutes earlier by Miss Isabel Williamson fails to show this object. Both of these observers are reliable and both were using the same telescope, the Centre's 6½" Refractor. A power of only 100x was used. These drawings were made at 03:15 and 03:00 respectively on May 16/17, with seeing rated at 4 by both observers. I will try to send copies of these drawings with my next letter.

I hope to be able to continue transit observations for a few weeks more, but conditions become more difficult every night.

Sincerely yours,

Geoffrey Gaherty, Jr,
636, Sydenham Avenue,
Montreal 6, Quebec.

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

September 19, 1959.

W. E. Fox, Esq.,
49, Milner Street,
Newark, Notts.,
England.

Dear Mr Fox:

Enclosed you will find reports of nine transits. Continuing bad weather and Jupiter's proximity to the Sun are reducing my observing time drastically. I fear that very shortly I shall be forced to curtail my observations for this year.

I have a bit of a problem as far as the submission of drawings is concerned. The Montreal Centre's Jupiter file contains over eighty drawings this year. To send you copies of all of them would of course be next to impossible. Therefore, I would suggest the following: Should you discover in your records some particular longitude in which more observations are desirable, inform me of this longitude, and I will send you copies of all drawings pertaining to this longitude. This seems to me to be the only practical method for submitting drawings.

I hope that you will find this scheme agreeable and that the Montreal Centre's observations will be of use to you.

Sincerely yours,

Geoffrey Gaherty, Jr,
636, Sydenham Avenue,
Montreal 6, Quebec,
Canada.

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

Planetary Section

Annual Report to Director of Observations (October 1958 - September 1959):

This year has shown a large increase in the activities of the planetary section. 167 drawings have been received, as well as a large number of notes and other observations. The following 28 observers have contributed: D. Bartlett, C. Bedard, J. D. Bouthillier, K. R. Brasch, W. J. Cullinan, F. J. DeKinder, S. Downing, C. L. Drolet, E. Fraser, G. Gaherty, M. Garon, W. Gilbert, C. M. Good, C. Grassby, M. Ihnat, W. S. Kimble, J. Musgrave, C. Papacosmas, R. Prezament, D. Sands, E. Sundell, S. M. Sundell, T. Topham, P. Waugh, G. Wedge, V. Williams, I. K. Williamson, and K. Zorgo. The following is a brief summary of the work done on the various planets.

Mercury. Although no telescopic work has been done, several observers have reported catbhing a glimpse of this planet with the naked eye or binoculars.

Venus. 29 drawings have been made by 6 observers. A detailed report of these observations appears in the October issue of Skyward.

Mars. 27 drawings have been made by 3 observers. A detailed report appeared in the September issue of Skyward.

Jupiter. 84 drawings have been made by 17 observers. In addition, 32 plottings of the positions of Jupiter's satellites, 4 timings of satellite phenomena, and 149 central meridian transits, have been made. Copies of several drawings have been submitted to the A. L. P. O., and all the transits have been reported both to the A. L. P. O. and to the B. A. A.

Saturn. 27 drawings have been made by 10 observers.

Uranus. No drawings have been made of this planet, but quite a few observers have located it with binoculars using the chart in the Observer's Handbook.

In conclusion, special mention should be made of the followigg observers whose drawings, together with those of the Acting Chairman, constituted fully 66% of all drawings received: K. R. Brasch, C. Papacosmas, and Miss I. K. Williamson.

Geoffrey Gaherty, Jr,
Acting Chairman.

Paper to be presented at the Montreal meeting of the Royal Astronomical Society of Canada on April 9, 1960:

CENTRAL MERIDIAN TRANSITS

Geoffrey Gaherty, Jr
(Montreal Centre)

Abstract of Paper:

The chief criticism of amateur planetary studies is their highly qualitative nature. A quantitative method to study the rotation periods of Jupiter's various belts and zones is described in detail. Essentially, this involves timing the transits of semipermanent features across the planet's central meridian. Nothing more than a telescope and watch is required. Graphs of longitude vs date are then used to find the mean drift of the marking and hence its rotation period. The uses of such observations are mentioned. The need for more participants in this field is emphasized; the author being the only Canadian engaged in such work at present.

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The purpose of this paper is to try to arouse an interest among Canadian amateurs in the field of central meridian transit observations of Jupiter. To the best of my knowledge, I am the only Canadian at present engaged in this work.

Most amateur planetary studies are highly qualitative in nature, often involving the interpretation of detail at the limit of visibility, and hence very much affected by subjective error.

In the last decade of the nineteenth century, a British amateur, A. Stanley Williams, started to use a quantitative method to study Jupiter's rotation. The method involved estimating by eye the time when a marking appeared to be on the planet's central meridian. A large number of such observations yielded rotation periods of high accuracy.

Perhaps a description of the peculiarities of Jupiter's rotation is in order. The solid surface of the planet is forever hidden from us by a heavy layer of clouds. These clouds form distinct dark belts and bright zones. Each latitude has a different rotation period, but these periods are apparently haphazard, obeying no law yet discovered. The only rough generalization that can be made is that the equatorial regions rotate faster than the temperate regions. As if this wasn't bad enough, the rotation period of any particular latitude varies from year to year, also without any apparent pattern. This explains the need for constant surveillance of the planet.

To bring some sort of order to the chaos, two constant rotation periods were assigned to form a fixed reference system. These are known as System I and System II. System I is used for objects which lie within about ten degrees of the equator; more exactly, between the middle of the North Equatorial Belt and the middle of the South Equatorial Belt. System II is used for the rest of the planet. The rotation periods of these two systems are $9^h\ 50^m\ 30^s.003$ and $9^h\ 55^m\ 40^s.632$ respectively. The explanation of the peculiar numbers is that the systems were chosen to correspond with daily rotations of $877^\circ.90$ and $870^\circ.27$, the latter being the daily rotation of the Red Spot between the oppositions of 1890 and 1891. The longitude of the central meridian for every day at 0^h U.T. is given in the Astronomical Ephemeris and the American Ephemeris.

Observations of central meridian transits can be made with very simple equipment; viz a telescope and a good watch. For regular work, six inches is about the minimum aperture. Transits can be timed just as accurately with smaller instruments, but fewer of them will be seen. The watch should neither gain nor lose more than one minute in four or five hours; most wrist watches being of sufficient accuracy. The watch should be set by shortwave time signals if possible; otherwise the hourly signals given on CBC radio may be used.

The observation itself is easy after a little practice. After watching Jupiter for several minutes, the drift of markings from right to left across the disk becomes obvious. The observer then waits until some well-defined feature appears to be on the central meridian. He then notes the time to the nearest minute and writes a brief description of the object in order to allow later identification. The nomenclature and abbreviations used may be found in a number of publications, Observational Astronomy for Amateurs by J. B. Sidgwick containing particularly complete information.

Last summer, I timed 149 transits in about 21½ hours, or an average of seven transits per hour. My best night was when I recorded twenty-two transits in just over two hours. These observations were all made with an eight-inch reflector at 240 power.

The reduction of the observations is rather interesting. The first step is to determine the longitude of the spot on the night in question. This is obtained by calculating the central meridian at the time of transit in the system that applies. This is done in the way familiar to all planetary observers, using the tables in the Astronomical Ephemeris. There is one small snag here; these tables only allow the central meridian to be calculated to the nearest five minutes. While interpolation is simple, it tends to be a bit tedious where a large number of transits is involved. The solution is to be found in one of the appendices to The Planet Jupiter by B. M. Peek where the change of longitude for every minute is given.

The central meridian calculated in this way is the longitude of the spot. These longitudes are plotted against the date with longitude across the top of the graph and the dates increasing downward. The drifts in longitude over a period of time can then be seen. From these drifts, the rotation periods are obtained with the help of critical tables in The Planet Jupiter.

Of what use are the results thus obtained? First of all, they provide data for theorists. Rotation periods cannot be determined with this accuracy by any other method; as witness the failure of spectroscopy to determine even the order of magnitude of the rotation period of Venus. A second use for these rotation periods became apparent recently when radio astronomers desired to correlate Jovian radio emission with features seen by optical means.

Transit observations, like observations of sunspots and variable stars, are peculiarly suited to amateur study, requiring more time than any professional observatory can give them. Although transits should be the primary consideration of all serious students of Jupiter, they have been sadly neglected on this side of the Atlantic. I will consider this paper a success if I have induced even one more observer to try his hand at this fascinating work.

Geoffrey Gaherty, Jr,
636, Sydenham Avenue,
Montreal 6, Quebec.

February 26, 1960.

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

OBSERVATIONS COMMITTEE

PROCEDURE TO BE OBSERVED WHEN RECORDING PLANETARY OBSERVATIONS

It is important that as uniform a method as possible be followed by all those interested in making planetary observations. In order that this method coincide as closely as possible with the established standards of the Association of Lunar and Planetary Observers, observers of the Montreal Centre who interested in this phase of astronomy are requested to include the following information and observe the following procedure when submitting their observations to the Chairman of the Planetary Observations Section of the Observations Committee.

1. Name and address of observer.

2. Type of telescope used (reflector or refractor, etc.), maker, focal length, aperture and power of eyepiece.

3. Date and time of observation (Eastern Standard Time should be used).

4. The seeing or atmospheric steadiness and the transparency or atmospheric clearness. (Seeing is measured on a scale of zero (worst) to ten (best). The transparency is measured on a scale of one (very hazy) to five (very clear)).

5. Any special equipment used in the observation, such as colour filters, and any accompanying circumstances likely to influence the future evaluation of the observation, such as the presence of passing clouds.

6. Never use the same piece of paper for more than one planet. It is permissible to use the same piece of paper for several observations of the same planet.

7. Original drawings should be submitted. Those wanting to keep their original drawings should submit careful reporductions but these should be indicated as such.

8. All drawings should be made in pencil, which pencil should be soft enough to give sufficient contrasts of tone and hard enough not to smudge.

9. Drawings should always be completed at the telescope. They should never be altered afterwards to agree with an idea of how the planet should look.

Following the above instructions in recording and submitting your observations will result in material of definite scientific value.

It will prove helpful and interesting if observers kept note books of their observations. As was mentioned the original drawing should be submitted in reporting observations, but a careful copy of the original might be preserved for yourself. It would be wise here to again caution the observer against allowing past observations to influence him when he is recording through telescope what he sees on any one particular night. Draw as accurately as possible exactly what you see in making any one observation. Skill in drawing can only be acquired by practice, and the attention thus enforced in the process of making a drawing improves observational skill more than a dozen casual observations would. Beginners in the field should bear in mind that considerable practice and training of the eye are required to become a skillful planetary observer. By comparison, the same kind of training of the eye is required by those who wish to learn the use of microscope to the best advantage.

As the rotational velocity of most of the planets is such that the aspect alters in a fairly short period, observers should complete their observations in as short a time as possible. No more than fifteen minutes should be occupied in making and recording the observation.

Regularity in submitting observations at monthly intervals is a good habit to form.

Observing the planets is a fascinating branch of astronomy for those who have but a modest amateur's instrument at their disposal. The planetary observer develops a keenness of perception that is useful is any walk of life and at the same time is furthering the sum total of man's knowledge, which is the goal of every scientist.

K. Brian Cockhill

K. Brian Cockhill
Chairman, Planetary Observations
Section,
Observations Committee

ROYAL ASTRONOMICAL SOCIETY OF CANADA

Montreal Centre

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Extract from the February 1st, 1951 issue of "The Strolling Astronomer"

"A SIMPLE AND IMPORTANT OBSERVATIONAL PROGRAM FOR A.L.P.O. MEMBERS"

by Walter H. Haas

"The amateur observer is often asking, "What can I do with my telescope that is of scientific value?" Other amateurs frequently inquire, "How may our observations be coordinated with the researches of the professional astronomers?" I have often been asked both questions by A.L.P.O. members, and I suspect that I have not always given satisfying answers! This article will describe, however, a specific observational project for the next few months which is so somple as to require no more equipment than binoculars or field-glasses but is at the same time of definite worth to our professional colleagues. The article is in part the outgrowth of an enjoyable personal conversation with Dr. Joseph Ashbrook of the Yale University Observatory in December, 1950; he has further contributed much of the information here presented.

"Dr. W. Becker opened a new field in planetary observing by amateurs through his discovery that all the outer planets undergo slow year-to-year changes in brightness. Readers interested in details should consult "The Meteorology of Other Planets", by Joseph Ashbrook, in The Scientific Monthly, Vol. LXIX, No. 4, October, 1949. With the simple and inexpensive equipment available to most amateurs these changes are most easily observable with Uranus and Neptune. In fact, simple visual estimates of the brightness of these two planets are of considerable scientific value. The brightness of Uranus, after allowance is made for its changing distance from the sun and from the earth, varies periodically by nearly half a magnitude in an 8-year cycle. Although the range in brightness is thus small, the changes are clearly shown when annual means of the observed magnitudes are taken. The cause of this variation is wholly unexplained. It is very desirable that observations of the brightness of Uranus should be continued in order to provide the light-curve of this planet.

"I urge A.L.P.O. members to observe Uranus according to the following plan: Use binoculars, for the planet has a visual magnitude between five and six. Actually, binoculars will be much better than any other instrument during the balance of the current 1950-51 apparition; for the comparison stars that must be used are as much as five degrees distant from the planet, and hence not even a finder will have a large enough field of view to allow accurate comparisons of brightness. After locating Uranus, select some two of the comparison stars from the list given below, one star being a little brighter than the planet and the other a little fainter. Then estimate the brightness of Uranus on a scale of zero to ten, where zero represents the brightness of the brighter comparison star and ten that of the fainter one. It should be noted that this plan is neither the Argelaender step-estimate nor the A.A.V.S.O. procedure. However, it is easy enough to follow. It is important that all participating observers should use this scale for their estimates so that all the work will be uniform enough for an easy and meaningful reduction. As an example, if a and b are the brighter and the fainter comparison stars respectively, then an estimate of a 5 Uranus 5 b would mean that the brightness of the planet was exactly midway between those of a and b. The estimate a 1 Uranus 9 b would mean that Uranus was very slightly fainter than a; a 10 Uranus 0 b would indicate that [illegible] would be necessary, and perhaps it is not even desirable, to know the stellar magnitudes of the comparison stars used. On each night of observation compare Uranus with several different pairs of stars, if possible, in the manner described above. It will be very satisfactory if each observer undertaking this work will estimate the light of the planet on about eight or ten nights in all.

"We give an ephemeris of Uranus:

Date	Right Ascension (1950)	Declination (1950)
1951, February 1	6h 26.8m	+ 23° 38'
February 15	6 25.0	+ 23 39
March 1	6 24.0	+ 23 40
March 15	6 23.6	+ 23 40
April 1	6 24.2	+ 23 39
April 15	6 25.5	+ 23 38
May 1	6 27.8	+ 23 37
May 15	6 30.5	+ 23 35

Comparison stars used must be selected from the following list:

Star	Right Ascension 1950	Declination 1950	Approximate Visual Magnitude
a = 49 Aurigae	6h 32.1m	28° 1'	5
b = 53 Aurigae	6 35.2	29 1	5½
c	6 49.0	23 36	5½
d	6 22.5	23 30	6
e = 9 Geminorum	6 14.0	23 45	6
f	6 35.4	24 38	6½

"As remarked above, the observer does not need to know exact stellar magnitudes.

"We think that the information in the two tables above will be sufficient for this study and hence omit any chart of the planet's path and its field of stars. Presumably our readers have access to Star Atlases such as those of Norton and Webb. It might be a great convenience, however, to sketch in the path of Uranus in your Atlas from the date listed above and to mark thereon the six comparison stars.

"We cordially invite the cooperation of the American Association of Variable Star Observers in this study of Uranus. What we are describing is, after all, variable-star technique. A number of our members are also active in the A.A.V.S.O. The simple project here outlined could certainly easily be included in the course of an evening of variable-star work.

"The brightness of Neptune can be studied in the fashion here described for Uranus, but finders and very small apertures may be preferable to binoculars on this dimmer planet. We may carry an article specifically about Neptune in the near future.

"All the principles and techniques of variable star work apply to this program on Uranus. In making the observations it will be a wise precaution to see that the line joining the eyes preserves a constant direction relative to the field of stars. It is best to avoid observing when there is moonlight, twilight, or haze; but if these conditions exist, they should be recorded. It is not anticipated that atmospheric seeing-effects will be of any importance with binoculars.

"The observations are to be reported at the end of the current apparition (thus in May or June, 1951) to Walter H. Haas, 167 W. Lucero St., Las Cruces, New Mexico, on a form which I shall supply. There will be no charge for this form; it is desired only that it should be used. If interested, write me today for your copy of the form. Arrangements have been made for the reduction and discussion of these observations of the brightness of Uranus by Dr. Joseph Ashbrook, Yale University Observatory, New Haven 11, Connecticut. He will be very glad to furnish additional information to those requesting it of him.

"We have here a simple, easy, and worthwhile project and also one of interest to professional astronomers. Let us all do something about it!"

A.L.P.O. COMETS SECTION SUPPLEMENT No.1

Since its formation last year, the A.L.P.O. Comets Section's 30 members have recorded much information about cometary astronomy. Nevertheless, it was thought that all A.L.P.O. members should be given a chance to participate in our work. Thus from the special notices of the section observing notes and comet ephemerides, these supplements will be written and included in the regular issues of The Strolling Astronomer. This supplement is a revision of the recorder's article on comet observing that appeared in an earlier issue. Using this reprint and the report forms that will be included in a later issue, any A.L.P.O. member should be able to make routine reports to the section. This material is provided with the hope that it will be used-not just laid aside. If comet work appeals to you, you are invited to join our group of observers and receive information in advance of normal channels by way of our airmail circulars. Section members are also provided proper report forms for their specific research programs, and when it is completed, they will be sent a copy of a mimeograph booklet on all phases of comet observing.

All of this material will be sent free of charge for the duration of A.L.P.O. membership. Any A.L.P.O. member may join our group as there are no geographical restrictions. Some of the booklet may appear at a later date in the Str.A., but the recorder thought that many observers would like to have a complete volume bound for easy reference. Like the rest of the comet section material there will be no charge to the A.L.P.O. or to section members as long as they are members, and as long as the material is in use. You may become a section member by simply filling out the form below and indicating the research programs you would like to participate in now, in addition to those you might contribute to in the future. Previous experience is not needed-the only limitation will be instrumental in nature. (It should be stressed that even a 2-inch scope can be used to advantage in photometric work, and a regular camera has yielded good results in detail work. So instrument size should not prevent anyone from receiving section material and putting it to good use. The limitation is more of the nature of accessories for the scope: low-power eyepieces, spectroscopes, and etc. All observers will receive the same information regardless of quantity of equipment they possess.) However, orbit calculation is open to those whose mathematical background enables them to do the work. Those who are already section members need not send in the form below unless they wish to indicate a change in, or addition to, their individual research program. Any change of address should also be given immediately in any case. Whether you decide to join section or not, the recorder whould like to have any copies of comet observations made by A.L.P.O. members. These observations, past, present, or future will be preserved in the comet file for permanent record.

The recorder is looking forward to hearing from you. Good Seeing!

(tear off) Mail to: D. Meisel, 800 8th St., Fairmont, West Virginia, U.S.A.

VISUAL:

(1) Internal Detail_____
(2) Position Measures_____
(3) Photometric measures_____
(4) Spectral (needs some type of dispersion)_____
(5) Polarimetric (needs polarizing filters or etc.)_____
(6) Colorimetric (needs a set of filters)_____
(7) Surface intensities_____
(8) External detail (very wide angle telescopes or cameras of large apertures)_____
(9) Orbit calculation _____ Mathematics Background_____

PHOTOGRAPHIC:

Plate: ___ small scale (1)_____
___ large scale (2)_____
___ ____ scale (3)_____
(4)_____
(5)_____
(6)_____
(8)_____

NAME_____ EQUIPMENT:_____

MAILING ADDRESS (give zone no.)_____ _____

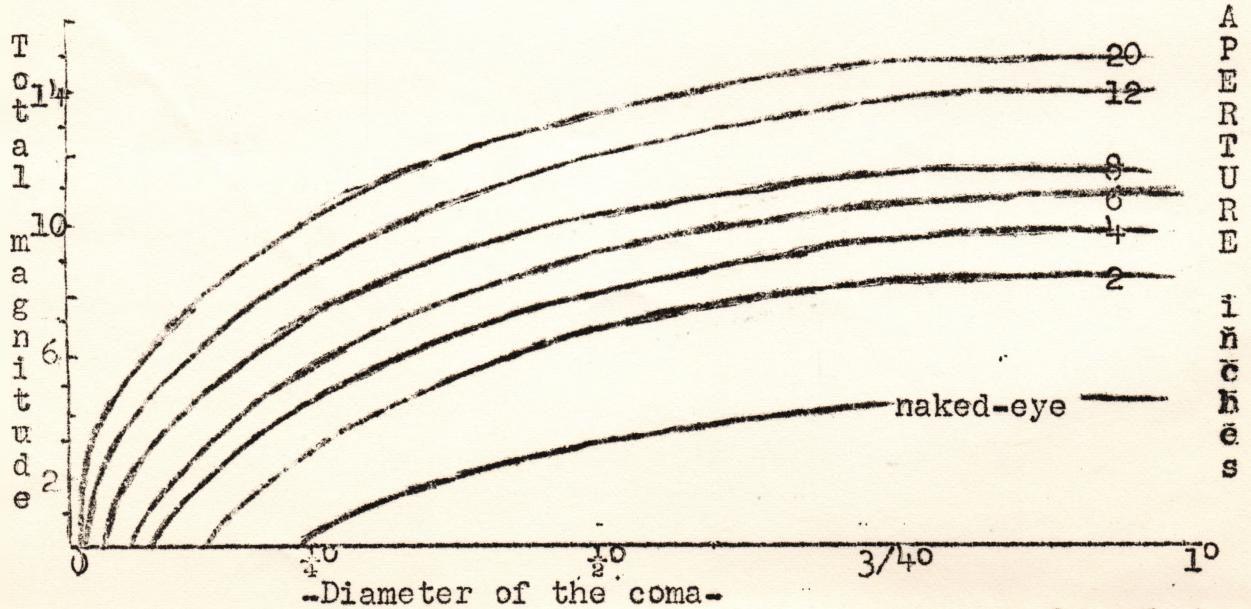
_____ _____

by David Meisel, Comets Recorder.

Bright comets are a seemingly rare occurrence in the life of the amateur astronomer. Although most periodic comets remain beyond the reach of the majority of amateur telescopes, occasionally comets are discovered or recovered that are or that will be bright enough to be seen in small or medium size instruments. When such a discovery occurs, the A.L.P.O. Comets Section alerts its comet observers for action. Work proceeds along the lines of visual, photographic, positional, photometric, and special research. After the observations are made and submitted to the recorder, reports analyzing the various contributions are written for the Str.A.. It was realized that potential comet observers would be interested in the work of the section. Thus the recorder offers the following suggestions in an effort to acquaint these new-comers with some of the facets in this area of study.- - -Of all of the available observational methods used by amateurs, visual observation is the most widely employed. This is not to say that it alone is the most valuable type of work, because that would not be true. All observations are valuable, whether derived by visual, photographic or photoelectric means. However, emphasis is put on visual work as it can be used almost immediately without elaborate preparation.- - -First, a prospective observer wants to know if he can see cometary objects with his size scope. Of course, he can see any object that is brighter than his instrument's magnitude limit. Yet can he see detail? This is a hard question to answer because of the variability of atmospheric conditions and individual eye sensitivity. However, the set of curves in Figure 1. as derived by the recorder gives an indication of the chance of seeing detail on any certain comet, given ideal conditions and that there is detail present. If the object's predicted magnitude as plotted against its reported size lies below the curve for a given aperture, there is a good chance that something may be seen. If the magnitude and size lie near the curve, but above it, brightness estimates may be made, remembering that while full aperture is desirable for any detail work, photometric observations are best obtained with scopes too small to show physical detail, but large enough to see the comet as a distinct object.- - -Once it has been determined that the comet may be seen theoretically, one must determine the relative effects of moonlight, twilight, and sky haze on the objects observability. When it is finally established that the object can be seen, it must be located in the sky. Included with information concerning an object's size and brightness is a set of positions (in R.A. and Dec.) on a daily or weekly basis. A similar table of positions (an ephemeris) of periodic comets may be found in the B.A.A. annual Handbook. Corrections to the B.A.A. tables along with ephemerides may be had through the A.L.P.O. Comets Section Circulars or the Harvard Announcement Cards. If the observer's scope is equipped with circles, the positions from the above sources can be used directly. Others must plot the comet path on an atlas or with respect to several well-known stars. For serious work on the fainter objects, an atlas that shows stars fainter than 7th or 8th magnitude is a must. With a little practice at the telescope, using nebulae for test objects, the observer should be able to locate comets with relative ease.- - -After the comet has been located through the telescope, record in pencil (this information should be in ink when it is submitted to the section) its name and serial number, the date and Universal Time in either hours and minutes or decimals of a day, and then the observing conditions (seeing, transparency, object's altitude in the sky, moonlight, twilight, and artifical disturbances). When this preliminary data has been noted, the observer is ready to begin the actual observation.- - -The comet's real position is the first thing that should be determined. This may be done most simply by sketching relative to the surrounding stars, the location of the object's brightest spot, usually known as the central condensation (if star-like it is called a nucleus); or if there is no bright spot, the center of the object should be located and indicated as such. The star-field should always be drawn first, that is before the comet is sketched in. After the

rest of the comet is drawn relative to the spot or center, the scale and orientation of the sketch should be included. The drawing should be in negative, i.e. the brightest parts of the comet should be the darkest on the sketch. Intensity values on a scale of 10 for the brightest area and 0 for the background sky should be included, if possible. Fairly accurate results may be obtained by timing the interval between the disappearance of a spot in the comet and a similar disappearance by a star that has a greater Right Ascension and a Declination difference less than $\frac{1}{2}^{0}$ from the comet. The comet's R.A. may be found when the time interval is subtracted from the star's R.A. (If the star's R.A. is less than that of the comet the time interval must be added.) Using the known angular diameter of the eyepiece, the declination may be estimated using the same star, if its declination does not differ from the comet by any more than $\frac{1}{2}^{0}$. The eyepiece actual field diameter may be found accurate to 10" of arc by timing the interval required for an equatorial star to transit the middle of the field and then convert time into distance using the factor one minute of time equals 15' of arc. In the case of well observed comets setting circle positions or sketch results are satisfactory. Thus the more accurate micrometric methods will not be discussed here. However in the case of newly discovered or recovered objects, the most accurate estimates that the observer can make are valuable because there are no photographic positions, usually available, from which the best elements can be derived. - - -After the object's position has been noted, the observer is ready to make estimations of the total brightness of the objec It should be noted that this is independent of the intensity values that were mentioned earlier. If no star of known magnitude is in the field, locate and note on the sketch the faintest and the brightest star shown. Then on the basis of the assigned magnitudes of these two standard stars further assign arbitrary magnitudes to three stars that appear to be near the magnitude of the focused image of the comet. Rather than assigning arbitrary values it would be better to estimate their actual magnitudes on the basis of known comparison stars, But sometimes this is not always possible, so the arbitrary values have to be used though they are less accurate in most cases. The arbitrary values can be scaled by the recorder at a later time. Indication of whether the values are true or arbitrary should be given. Now rack out the eyepiece until the out-of-focus star images are the same size as the focused comet image. Then use the three chosen comparison stars to estimate by the step or fractional method the magnitude value of the comet. If the stellar images were assigned true magnitudes, of course no further reduction is needed except compensation for moonlight and other effects. The accuracy of such estimates will be at best within 1/3 that derived by other methods. Visual comet photometers have been used, but any discussion of them is beyond the scope of this paper. - - -When the photometric measures have been made, the observer should scan the comet with fairly high magnification (up to 200X, if necessary), and include sketches of any noteworthy detail that was overlooked or very minute in the low-power sketch. * - -After all of the sketches have been completed including notes on scale, orientation, intensities, and magnification used, the observer should write a verbal description of each part of the comet using the eyepiece diameter as found above as the length measure; and the drift point of a star when no drive is employed as the position angle 270^{0} where north is 0^{0}, 90^{0} is east. In every verbal report as much of the information given below should appear if possible. The nomenclature and required data are as follows: THE HEAD: (1) the coma - the main part of the comet, usually oval or round, from which the tail is formed - (size and shape; note variation in these from hour to hour or observation to observation,), (2) haloes - features concentric to the coma, but external to it - (diameters, position angle of major axis if elliptical, description of development if it occurs during observation period,) (3) jets - appendages to the coma directed in a position neither toward or away from the sun - (length, position angle of

the axis,if curved give position angles and distances of three points on the axis.),(4)-coal sacks-very dark interspaces between haloes and the coma or in the coma itself-(distance,and position angles in addition to size and shape.),(5)the central condensation-the large planet-like bright spot in the coma,usually at the center(size,shape,approximate stellar magnitude,distance and position angle relative to the center of the coma,and major axis position angle,if elliptical),nuclei-small star-like bright spots that sometimes occur in the coma and are sometimes confused with the central condensation,if only one is present and near the center of the coma-(same information for each as is needed for central condensation,identify by lettering in order of decreasing magnitude.)In the case of both the central condensation and nuclei tell whether sharply defined or diffuse and uniformly illuminated or not. Tails:(1)anomalous tails-directed toward the sun rather than away from it-(length,position angle,relative to the center of the coma,of the junction of the tail and the coma,the distance of this junction from the center of the coma,position angle of the axis and the position angle distances of three points along the axis,if tail is curved.),(2)main tails(same information as needed for anomalous tail in addition to the distances and position angles of:any condensations or distortions,points of division with lengths and position angles of the segments,and comment on whether the tail converges or diverges along with the subtended angle of tangents to the sides measured at the point of their intersection.) (3)sheathes-faint outer portions of comet enclosing the main tails,the analog of haloes-(same as for the main tail with a description of their appearance-diffuse or well-defined.),(4)any feature not mentioned above -describe; using lengths,position angles,distances,and sizes.)All distances and position angles should be given relative to the center of the coma or the central condensation unless otherwise noted.If the sketch is very accurate,the dimensions cited above do not need be included,but a short description of all the features should always be in a report to the section,if possible.- - -Although the average observer can,by following these suggestions,make useful observations,correlation with the work of others is necessary to make the work truly valuable.Because the section exists for this purpose,the recorder invites you to participate in its work by sending your observations to him.You can be assured that you will receive due credit for your work and effort.Section reports will all apear in the Str.A.....Thus if each amateur observer does his part when the next comet appears,we can truly say that"we've got this one by the tail."



-Diameter of the coma-

Figure -1-

/3rd.Revision 8/1/58./
(of paper)

Observation of Comet Burnham 1959k

Date: May 1/2, 1960.

Time: 22:45 E.D.T.

Observer: Geoffrey Gaherty, Jr

Station: Observatory Montreal Centre

Instrument: 7 x 50 binoculars TRANSPARENCY: VERY GOOD

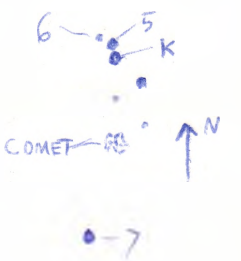
Observations:

Magnitude: Equal to 8 Draconis out of focus (~5.5^m)

Diameter: Equal to distance between k Draconis and 5 Draconis

Position: (1950.0) R.A. 12^h 36^m (Measured from
Dec. +68°7 (Skalnate Pleso Atlas

Chart (all stars shown are in Draco):



OBservation of Comet Burnham 1959k

Date: May 2/3, 1960.

Time: 22:10 E.D.T.

Observer: Geoffrey Gaherty, Jr

Station: Observatory Montreal Centre

Instrument: 7 x 50 binoculars

Transparency: Very Good.

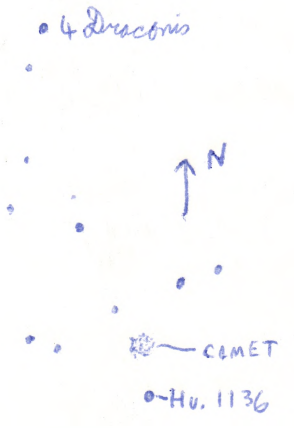
Observations:

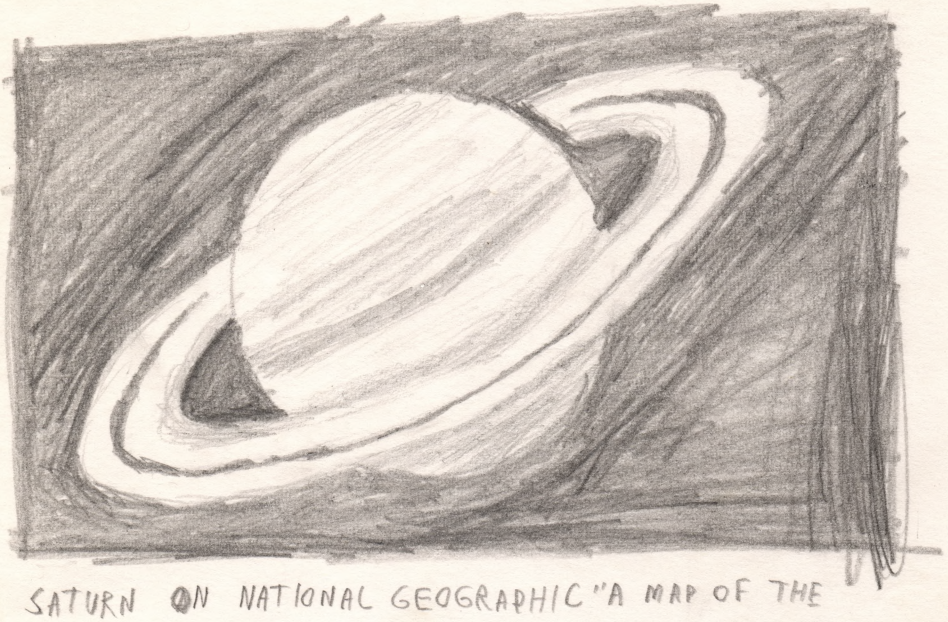
Magnitude: Equal to 8 Draconis out of focus (about 5.5^m)

Diameter: Equal to distance between k Draconis and 5 Draconis

Position: (1950.0) R.A. 12^h ~~XK~~ 5^m (Measured from
Dec. +64°0 (Skalnate Pleso Atlas

Chart: (all stars in Dracc except the one just south of the comet, which was in UMaj)





SATURN ON NATIONAL GEOGRAPHIC "A MAP OF THE HEAVENS" DRAWN WITHOUT OPTICAL AID FROM A DISTANCE OF 10 FEET.

DECEMBER 22, 1958.

EQUIVALENT MAGNIFICATION ≒ 230X.

DISC POORLY ILLUMINATED TO SIMULATE SEEING AND TRANSPARENCY.

G. Gehertz, Jr.

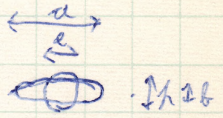
SATURN — 1959 (Opposition June 26)

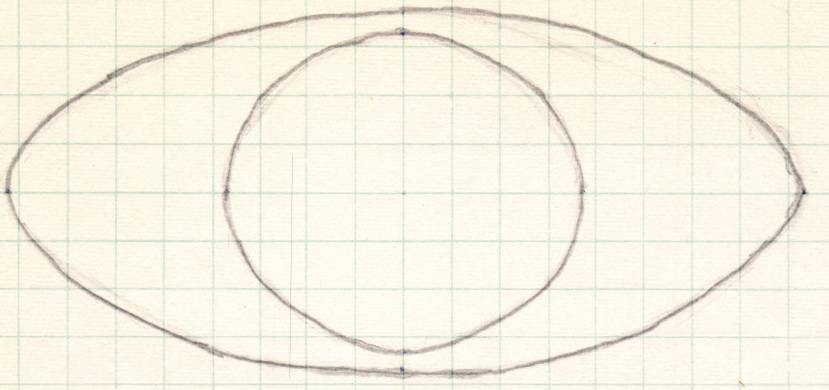
O.A.A. Suggests scale $a_A = 4$ ins

N.A. gives $a_A = 41.47''$ on June 25

∴ Suitable scale would be $a_A = 4.147$ ins.
or 10" = 1 in.

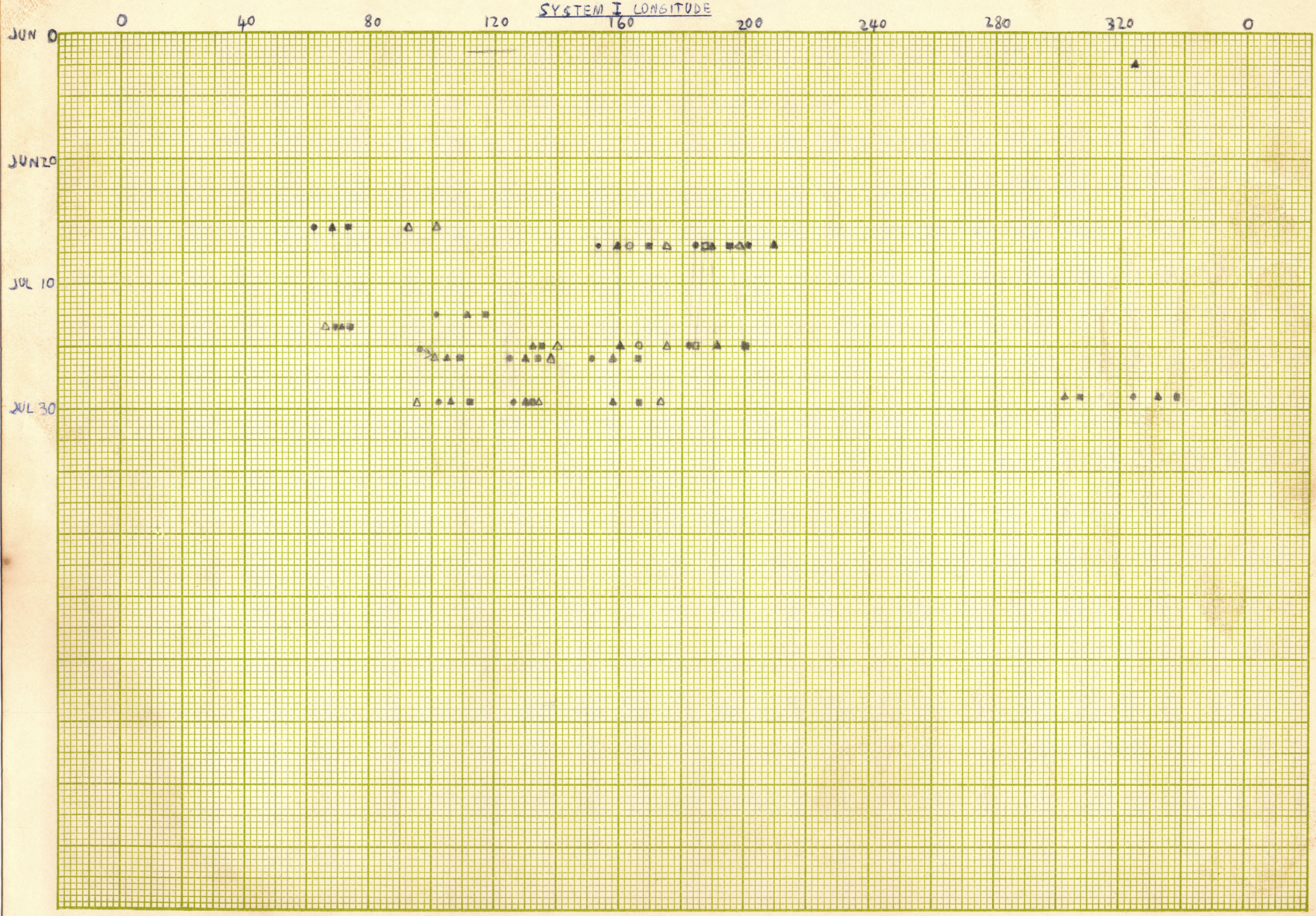
	h		e		a		b	
	"	in.	"	in.	"	in.	"	in.
JUN 4	16.32	1.63		1.83	41.04	4.10	17.91	1.79
JUN 25	16.48	1.65		1.85	41.47	4.15	18.26	1.83
JUL 19	16.34	1.63		1.83	41.12	4.11	18.27	1.83
AUG 12	15.94	1.59		1.78	40.12	4.01	17.95	1.80
SEP 5	15.38	1.54		1.72	38.71	3.87	17.38	1.74
SEP 29	14.78	1.48		1.66	37.21	3.72	16.71	1.67
OCT 23	14.24	1.42		1.59	35.85	3.58	16.05	1.60
NOV 16	13.82	1.38		1.54	34.81	3.48	15.46	1.55





DARK WHITE
● ○ PRECEDING END
▲ △ CENTRE
■ □ FOLLOWING END

SYSTEM I LONGITUDE



S edge NEB
(Great Equatorial Current, Northern Branch)

JUPITER
1959

22:05

Royal Astronomical Society of Canada
Montreal Centre

PLANETARY OBSERVATIONS

E.S.T. (www)

	EST.	U.T	λ_1	λ_2
22:05+ 3m large ^ ms sp. south of SEB (in STB)	22:08	3:08	~~305~~	321
22:30+ 9m bump on S edge of NEB	22:39	3:39	324	—
17m sp. end broadening of SEB	22:47	3:47	329	—

PLANET JUPITER (TRANSITS)

Date JUNE 4/5, 1959

Local Time 22:05 - 22:55 EST Universal Time 3:05 - 3:55 (4)

Central Meridian (1) ~~.....~~ (2) .....

Telescope 8" REFLECTOR (CAVE) Eyepiece 240X

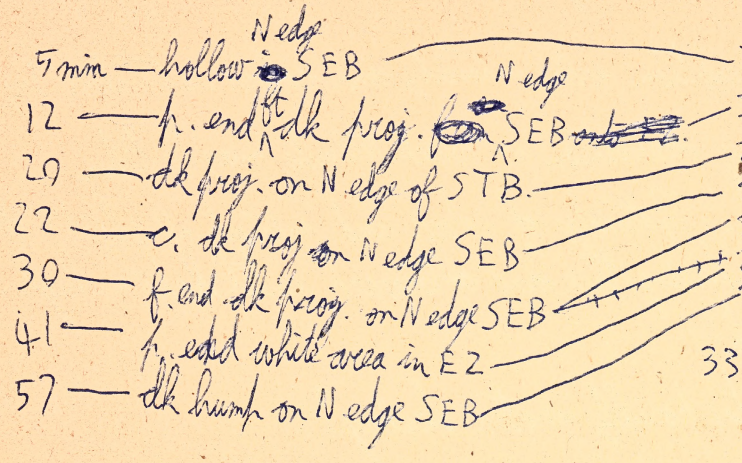
Seeing 2-3 Transparency 3

Remarks:

Observer G.G.

Address ..... Telephone No. .....

21:30 +



E.S.T.	U.T.	λ_1	λ_2
21:35	2:35	355	—
21:42	2:42	359	—
21:50	2:50	—	342
21:52	2:52	5	—
22:00	3:00	10	—
22:11	3:11	17	—
22:27	3:27	26	—

33 — Satellite reappeared from shadow.

22:30 Wind causing excessive vibration of tube.

JUNE 9/10, 1959

21:30 - 22:30 E.S.T.

8" RFL. 24ox

S: 3-4 T: 3

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date JUNE 30/JULY 1, 1959 Planet 24

Period of Observation 8:35 - 10:35 P.M. ~~U. T.~~ E.S.T.

Telescope 8" REFLECTOR (CAVE) Power 240

Seeing 3 Transparency 4

Observer G.G.

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II	
EST. 835	LARGE DK AREA IN NEB	2			11
	F end ~~dk~~ hump on N edge SEB	6			12
	C hump on S edge STB	9			13
	W ~~end~~ shot in S half of EZ	14			14
	f end hump on S edge STB	17			15
	~~S~~ STB becomes narrower and fainter	30+ 9			16
15	h end dk hump on S edge NEB	14			17
9:25	c dk hump on S edge NEB	4			18
	f end dk hump on S edge NEB	12			19
	h end long white oval in STeZ	30+ 5			20
	w shot ~~in~~ on S edge NEB*	13			21
10:15	c w oval in STeZ	2			22
	w shot on S edge NEB*	8			23
	f end w oval in STeZ	9			24
		10:35 = finish 20			

* [redacted]

#	EST.	U.T.	I	II
11	8:37	01:37	36	214
12	8:41	01:41	38	—
13	8:44	01:44	—	218
14	8:49	01:49	43	—
15	8:52	01:52	—	223
16	9:14	02:14	—	236
17	9:19	02:19	62	—
18	9:29	02:29	68	—
19	9:37	02:37	73	—
20	10:00	03:00	—	264
21	10:08	03:08	92	—
22	10:17	03:17	—	274
23	10:23	03:23	101	—
24	10:24	03:24	—	279

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date JULY 3/4, 1959 Planet 24

Period of Observation 01:35 – 03:20 U. T.

Telescope 8" Power 240

Seeing 2-3 Transparency 3

Observer G.G.

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
25	8:35 +1 f end dk proj on S edge SEB	01:36	—	304
26	7 f end dk proj on S edge NEB	01:42	153	—
27	12 f end ft dk proj on N edge STB	01:47	—	311
28	17 c dk proj on S edge NEB	01:52	159	—
	23 c ft dk proj on N edge STB	01:58	—	318
30	24 f end elong. w. oval ~~in N half of EZ~~ on S edge NEB	01:59	163	—
31	29 f end ft dk proj on N edge STB	02:04	—	321
32	+30+3 f end dk proj on S edge NEB	02:08	169	—
33	13 c elong w oval ~~in N half of EZ~~ on S edge NEB	02:18	175	—
34	15 f end indet w area in STrZ (RSH?)	02:20	—	331
35	9:30+3 f end dk proj on S edge NEB	02:33	184	—
36	8 f end elong w oval ~~in N half EZ~~ on S edge NEB	02:38	187	—
37	12 c dk proj ~~on S edge NEB~~ on S edge NEB	02:42	189	—
38	21 f end dk proj on S edge NEB	02:51	195	—
39	26 c w bay in S edge NEB	02:56	198	—
40	30 + 1 f end dk hump ~~in~~ on S edge NEB	03:01	201	—
41	14 c dk hump on S edge NEB	03:14	209	—
	20 finish	~~03:20~~		

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date JULY 14/15, 1959 Planet ♃

Period of Observation 01:55 — 02:45 U. T.

Telescope 8" Power 240

Seeing 2-3 Transparency 3

Observer G.G.

Address

Telephone

Serial No 21:45	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
42 ~~21:45~~ 22:02	p end dk ~~hump~~ proj on S edge NEB	02:02	101	—
43 22:18	c dk ~~hump~~ proj on S edge NEB	02:18	111	—
44 22:28	f end dk proj on S edge NEB. NEB a bit broader.	02:28	117	—
~~22:45~~	seeing too poor to continue			

Clock over -2 sec/hr

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date JULY 16/17, 1959. Planet ♃

Period of Observation 12:05 – 2:55 U. T.

Telescope 8" REFLECTOR (CAVE) Power 240 X

Seeing 3 Transparency 3

Observer GEOFFREY GAHERTY, JR

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
45	~~Preceding end of STB f. end ft dk~~ proj on S edge STB	2:05	—	115
46	c ft dk proj on S edge STB	2:10	—	118
47	f end ft dk proj on S edge STB	2:15	—	121
48	c w bay on S edge NEB	2:16	66	—
49	p end ft dk proj on S edge NEB	2:21	69	—
50	c ft dk proj on S edge NEB	2:25	71	—
51	f end ft dk proj on S edge NEB	2:29	74	—
52	p end large dk shot in NEBn (~~[illegible]~~ ?)	2:29	—	129
53	c large dk shot in NEBn	2:34	—	132
54	f end large dk shot in NEBn	2:40	—	136

8:42

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date JULY 19/20, 1959 Planet 24

Period of Observation 00:59 - 02:55 U. T.

Telescope 8" REFLECTOR (CAVE) Power 240

Seeing 6-7 Transparency 3 (Full Moon)

Observer G.G.

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
55	e ~~bend~~ dk proj on S edge NEB	00:59	132	—
56	f end dk proj on S edge NEB	01:03	135	—
57	c 15 bays on S edge NEB	01:12	140	—
~~—~~	~~f end bend on S edge NEB~~	~~01:23~~	~~—~~	~~—~~
58	f end NTB (much darker)	01:27	—	182
59	c indef dk hump on S edge NEB	01:45	160	—
60	f end indef w oval on S edge NEB	01:54	166	—
61	c indef w oval on S edge NEB	02:09	175	—
62	f end dk hump on S edge NEB	02:20	182	—
63	f end indef w oval on S edge NEB	02:24	184	—
64	f end STB (becomes much fainter)	02:34	—	223
65	c dk hump on S edge NEB	02:36	191	—
66	f end dk hump on S edge NEB	02:51	200	—

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date JULY 21/22, 1959 Planet ♃

Period of Observation 01:00-03:08 U. T.

Telescope 8" REFLECTOR (CAVE) Power 240

Seeing ~~4~~ 5 Transparency ~~2~~ 3 (Moonlight)

Observer G.G. PAGE 1

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
67	p end ~~dk~~ hump on S edge STB	01:06	—	106
68	f end ~~hump~~ on N edge ~~of~~ SEB	01:09	94	—
69	c ~~dk~~ hump on S edge STB. No definite f end.	01:10	—	112
70	c w shot on S edge NEB	01:20	101	—
71	p end dk ~~hump~~ boy on S edge NEB	01:21	101	—
72	c dk proj on S edge NEB	01:27	105	—
73	f end dk proj on S edge NEB	01:34	109	—
74	p end ~~dk~~ dk oval in NEBN	01:35	—	128
75	c ~~dk~~ dk oval in NEBN	01:41	—	131
76	f end dk oval in NEBN	01:48	—	135
77	p end dk proj on S edge NEB	02:00	125	—
78	p end ~~dk~~ break in NEBN	02:06	—	146
79	c dk proj on S edge NEB	02:08	130	—
80	f end dk proj on S edge NEB	02:15	134	—
81	c break in NEBN	02:15	—	152
82	c w shot on S edge NEB	02:21	138	—
83	f end break in NEBN	02:23	—	156
84	p end dk proj on S edge NEB	02:43	151	—

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date JULY 21/22, 1959 Planet ~~PAGE 1~~ 2

Period of Observation ..... U. T.

Telescope ..... Power .....

Seeing ..... Transparency .....

Observer ..... PAGE 2

Address .....

..... Telephone .....

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
85	c ~~dk~~ proj on S edge NEB	02:54	158	—
86	~~f~~ f end NEBN	02:55	—	176
87	f end NTB	03:02	—	180
88	f and ~~dk~~ proj on S edge NEB	03:07	166	—
	Jupiter set 03:08			

1760
1st contact 2:07
2nd contact transit beg.

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date JULY 27/28, 1959 Planet 4

Period of Observation 00:35 - 02:45 U. T.

Telescope 8" REFLECTOR (CAVE) Power 240

Seeing 3 (Wind caused tube vibrations) Transparency 3

Observer G.G.

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
89	c dk hump on S edge NEB	00:39	302	—
90	f end dk hump on S edge NEB	00:47	307	—
91	SEB becomes darker	00:50	309	281
92	f end dk hump on S edge NEB	01:15	324	—
93	c indef small dk spot in STeZ (1/3 SEB = STB)	01:22	—	301
94	c dk hump on S edge NEB	01:28	332	—
95	f end dk hump on S edge NEB	01:38	338	—
96	c indef dk hump on N edge STB	01:50	—	318
97	f end indef dk hump on S edge SEB	02:03	—	326
98	c indef dk hump on S edge SEB	02:18	—	335
99	f end indef dk hump on S edge SEB	02:33	—	344
	Planet set at 02:45			

00:49:30
III visible

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date JULY 28/29, 1959 Planet 24

Period of Observation 00:25 - 02:40 U. T.

Telescope 8" REFLECTOR (CAVE) Power 240

Seeing 3 Transparency 3

Observer G.G.

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
100	c ~~sh~~ indef w bay on S edge NEB	00:30	95	—
101	f end dk ~~typ~~ proj on S edge NEB	00:41	102	—
102	c ~~f~~ indef dk proj on S edge NEB	00:48	106	—
103	f end indef dk proj on S edge NEB	00:59	112	—
104	f end dk proj on S edge NEB	01:21	126	—
~	~~STB becomes darker, no definite f end~~	~~01:25~~	~	~
105	c dk proj on S edge NEB	01:27	130	—
106	f end dk proj on S edge NEB	01:31	132	—
107	c small w oval on S edge NEB	01:34	134	—
108	f end broadening ~~off~~ on S edge STB	01:36	—	99
109	c indef dk proj on S edge NEB	02:14	158	—
110	f end indef dk proj on S edge NEB	02:26	166	—
111	c elong w bay on S edge NEB	02:38	173	—

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date AUGUST 3/4, 1959 Planet 24

Period of Observation 00:30 - 01:30 U. T.

Telescope 8" Power 240

Seeing 2-1 Transparency 3-

Observer G.G.

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
✓112	f end dk bunch on S edge NEB	00:34	324	—
✓113	c irregular white area in N part of EZ	00:39	327	—
✓114	c dk bunch on S edge NEB	00:48	332	—
✓115	f end irregular white area in N part of EZ	00:49	333	—
✓116	f end dk bunch on S edge NEB	01:02	341	—
✓117	c indet dk proj on S edge STB	01:14	—	267
	@ Seeing too poor to continue			
	set 02:35			

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date AUGUST 7/8, 1959 Planet ♃

Period of Observation 00:25 - 00:50; 01:00 - 01:45 U. T.

Telescope 8" REFLECTOR (CAVE) Power 240

Seeing 3 Transparency 3 (passing clouds)

Observer G. G.

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
118	c irregular w area in N part of EZ	00:26	230	—
119	c dk proj on S edge NEB	00:28	231	—
120	f end dk oval in NEBn	00:33	—	123
121	c long narrow section of SEB	00:35	236	~~124~~
122	f end w oval in S edge NEB enclosed by grey loop	00:36	236	—
123	f end dk proj on S edg NEB	00:38	238	—
124	c dk oval in NEBn	00:40	—	127
125	c w oval on S edge NEB enclosed by grey loop *	00:44	241	—
126	f end dk oval in NEBn	00:46	—	131
127	c dk proj on S edge NEB *	01:02	252	—
128	f end dk proj on S edge NEB	01:09	256	—
129	c w shot in NEBn	01:11	—	146
130	c indef broadening of SEB	01:13	259	147
131	c dk spot of NEBn	01:36	—	161
132	f end dk hump on S edge NEB	01:41	276	—

* The f and p ends respectively of these features passed out of view after a ten minute interruption by heavy clouds.

1 STC 1:05
2nd C 1:13

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date AUGUST 11/12, 1959 Planet 24

Period of Observation 00:35 – 01:00 U. T.

Telescope 8" CAVE REFLECTOR Power 240

Seeing 1-0 Transparency 3

Observer G.G.

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
133	c of bay on Sedge NEB	00:38	148	—
134	c dk hump on Sedge NEB	00:58	161	—

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date AUGUST 13/14, 1959 Planet 24

Period of Observation 00:20 — 01:30 U. T.

Telescope 8" CAVE REFLECTOR Power 240x

Seeing 2-1 Transparency 4

Observer G.G.

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
135	c dk proj on S edge NEB	00:23	95	—
136	f end dk proj on S edge NEB	00:29	98	—
137	sm small elong dk spot in STrZ	00:32	—	303
138	f end dk proj on S edge NEB	01:09	123	—
139	c dk proj on S edge NEB	01:16	127	—
140	f end dk proj on S edge NEB	01:28	134	—

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

CONSP
NEB
SEB
STB
NPR
SPR

Date SEPTEMBER 6/7, 1959 Planet 24

Period of Observation 23:40–00:30 U.T. 0010 U.T.

Telescope 8" Power 240

Seeing 2-1 Transparency 3

Observer G.G.

Address

Telephone

N. S. both seen 21:00 last night both 23:00

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
141	p end indef dk hump on S edge SEB	00:07	—	290
142	c indef dk hump on S edge SEB	00:22	—	299

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date SEP 11/12 1959 Planet 2

Period of Observation 23:42-00:10 U. T.

Telescope 8" CAVE REFLECTER Power 240X

Seeing 3-0 Transparency 4

Observer G.G.

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
✓143	f end w bay on S edge NEB	23:48	327	—
✓144	f end ft dk proj on S edge SEB	23:50	—	310
✓145	f end dk hump on S edge NEB	23:53	330	—
✓146	c. w bay on S edge NEB	23:59	334	—

ROYAL ASTRONOMICAL SOCIETY OF CANADA
Montreal Centre

PLANETARY OBSERVATIONS
Central Meridian Transits

Date SEPTEMBER 13/14, 1959 Planet 24

Period of Observation 23:40 - 00:06 U. T.

Telescope 8" Power 240

Seeing 2 Transparency 4

Observer G.G.

Address

Telephone

Serial No	Description of Feature	Transit Time U.T.	Longitude I	Longitude II
147	c. w. bay on S edge NEB	23:45	281	—
148	p. end dk hump on S edge NEB	23:55	287	—
149	c dk hump on S edge NEB	00:06	294	—