

The 5th annual meeting of the
Astronomical & Physical Society
of Toronto held Jan 8 1895 at
the rooms 19 McGill St

The vice-president Mr J. A. Paterson M.A.
in the chair.

The minutes of the previous meeting
were read and confirmed.

Mr A. Blue of Toronto was nominated
for active membership by Mr
J. A. Paterson and Mr G. E. Lumsden

The following named officers were
elected for the year 1895
President Harriet W. Smith J.C. D.C.
Vice presidents E. A. Meredith LL.D.
J. A. Paterson M.A.

Corresponding Secy Mr G. E. Lumsden
Recording " Mr C. P. Spaulding
Treasurer Mr J. Goddard
Asst. Secy and Editor of Transactions
Mr H. Lindsay
Librarian Mr G. G. Pursey
Assts to the librarian Misses Bambridge
and Pursey.

Members of the council

The above named officers and
messrs A. Harvey
R. F. Stupart
C. A. Chant M.A.
D. J. Howell
Rev C. H. Shortt M.A.

The Astronomical and Physical Society
of Toronto

Treasurers Report for Year ending 31 Dec 1894

1894 Dec 31	<u>Receipts</u>	<u>Cash Statement</u>		
		Balance on hand 1 st /93	129 03	
		Annual dues	124 00	
		Sch Catalogue 2 nd - Int Deposits 3 rd	5 03	
		Government Grant	200 00	
		Carporant Estab	20 00	\$478.06
	<u>Disbursement</u>			
		Publication of Report	170 76	
		Secondary Expenses	89 42	
		Cash in Bank	217 88	\$478.06

Statement of Assets

Ideslofer, Globes, Library

Bookcases for up valuation last year \$1075 00

Correct
W. Mitchell
J. H. King

The Astronomical and Physical Society
of Toronto

Mr. President Ladies Gentlemen

The Revenue of the Society for the past year has been \$349⁰³ this sum is made up of a grant from the provincial government, interest on bank a/c, sale of Reports, life Membership and Annual Dues.

The expenditure has been \$260¹⁸ for the publication of Report of proceedings, Rent postage, Stationary &c.

There has been frequent valuable donations made to the library from friends, but have made no alteration in the valuation of the same

Yours Resply

James Todhunter. Treasurer

Toronto 31 Dec 1894

The report of the Treasurer
was read showing as follows

Balance on hand Jan 1/94	129.03	
Receipts for 1894		<u>349.03</u>
	Total	478.06

Disbursements for		
all purposes	\$ 260.18	
Balance on hand ^{in Bank}	<u>217.88</u>	478.06

The report was received and
adopted, as thoroughly satisfactory.

A Report of the progress of the Earth-
Current Committee was read
as submitted by M^r K. F. Stupart.
This was received and adopted to
be published in the annual
volume of Transactions.

M^r Lindsay reported the progress
of the printing of the annual report,
and the progress of the library committee.

M^r J. Van Sommer asked whether any
information could be had in reference
to the auroral displays in the southern
hemisphere. M^r Lindsay stated
that he would ~~endeavour~~ ^{endeavour} ~~endeavour~~ ^{endeavour} to
procure the desired information from
correspondents of the Society in at
the Cape of Good Hope and in
Australia.

The discussion on the distance of the
nebulae was continued by M^r Hawley

who presented some notes in reference to the dimensions of the nebula in Andromeda.

It was announced that the next meeting of the Society would be devoted to short papers on the nebulae by the members generally.

Mr. John A. Paterson then ^{requested} ~~asked~~ Dr. Meredith to take the chair and proceeded to read a "Review of astronomical science for 1894". The paper dealt with Lord Salisbury's address before the British Association and also the various discoveries made in astronomy during the year. At the conclusion of the paper which was enthusiastically received, Dr. Meredith rose to express the pleasure with which he had listened to Mr. Paterson's eloquent address and in so doing voiced the opinion of every member present. The meeting then adjourned until Jan 22nd at 5 o'clock.

Larratt W Smith
 President

C P Spaulding
 Secy

The first regular meeting of the Astronomical & Physical Society was held Jan 22 1895 at the rooms 19 McGill St Toronto.

The president Laratt & Smith L. B. occupied the chair.

The minutes of the previous meeting were read and confirmed.

M^r A. Blue of Toronto was elected an active member of the Society.

A communication ^{was received} from the secretary of the Canadian Institute ~~was received~~, who forwarded the official notice of the death of Father Denza of the observatory of the Vatican, Rome. After some discussion it was decided to forward to Rome an expression of this Society's regret at the loss of the distinguished observer.

M^r J. A. Paterson referred feelingly ~~appropriately~~ to the loss sustained by Dr. E. A. Murchison in the death of his son; the corresponding secretary was instructed to convey to Dr. Murchison the sympathy

of the society

M^r W. B. Musson reported the progress of the library Committee

Observations of parhelia were reported by several members,

It was announced that on the evening of Feb'y 3rd there would be ~~to~~ an occultation of the Pleiades and the members were asked generally to observe if possible.

Short papers on the Stars and Nebulae were announced to be read and M^r Sargy, M^r Lindsay and M^r Collins took part in the discussion which was decided to continue at the next meeting.

W. B. Musson
for the Secretary

Arthur Hanning }
Chairman

The second regular meeting of the astronomical and Physical Society for the year 1895 was held July 5th at the rooms 19 McGill St.

Mr Arthur Harvey occupied the chair.

The minutes of the previous meeting were read and confirmed.

A communication ^{were} ~~was~~ read from the Secretary of the Smithsonian Institution; the Librarian of the Paris Observatory, Dr Et Madaix; Mr David E Hadden of Alta, Iowa; and from W J. Gegg of New York in reference a proposed visit of Mr Garrett P Swiss to Toronto for the purpose of giving a series of lectures.

As Mr Gegg's letter stated that the Y.M.C.A. had also been communicated with, a committee consisting of Mr John A Paterson and Mr J. Lindsay was appointed to interview Mr Pratt the Secretary of the Y.M.C.A. to learn what that association proposed to do in the matter.

The Librarian reported the receipt of several volumes, among them the

American Nautical almanac for
1895, 1896, 1897

Observations were reported by several members. Mr Pursey was of the opinion that the sun spot maximum was not yet past. He had observed very many spots on the solar disc during the preceding two weeks and had noticed particularly that on one occasion they formed a belt almost continuous across the sun.

Mr Elliot called attention to the non-fulfilment of the prediction that Jan. and Feb. would be notable months for auroral.

Mrs Savigny and several other members reported having observed a paraselene on Jan 31st. Mr Lindsay, referring to the phenomenon of the "constant cross" thought that ~~the~~ something very similar might be produced experimentally and suggested an experiment as the best means of giving one a clear idea of the cause of these phenomena.

Mr Hawley presented for inspection a fragment of the Winnebago meteor which fell on May 2nd 1890 and read some notes in connection with meteors generally. He illustrated by a diagram the theorem that meteors which fall in the day time are coming from the sun,

while those which fall at night are
approaching it.

After some general discussion on
this subject, the meeting adjourned
till Feb'y 19th, it being announced
that at the next meeting the full
text of the correspondence between
Mr O. E. Cartwright and others in
regard to the discovery of the 5th
Satellite of Jupiter would be
read.

Confirmed
John A. Paterne.
Vice Presⁿ

Thos Lundsay
For the Secy

The 3rd regular meeting of the
Astronomical & Physical
Society, for the year 1895, held
at the rooms 19 McMillan St.,
July 19th.

The vice-president Mr John A Paterson M.A.
occupied the chair.

The minutes of the previous meeting
were read and confirmed.

The committee appointed to interview
the Secy. of the Y.M.C.A. in reference
to the proposed visit to Toronto
of Mr Garrett P. Serviss, reported
that the Y.M.C.A. would give moral
support heartily to the lecturer but
could not assist in any other way.

The corresponding secretary was
requested to acquaint Mr Serviss
with this fact and to say that this
society would co-operate in any
scheme to under a ^{series of} lectures in Toronto
successful, so long as no financial
liability was to be incurred.

A communication was read, from the
Royal Astronomical Society, explaining the
cause of the non-transmission of the
"monthly notices" and assuring this
society that these volumes would be
forwarded regularly in the future.

Mr John Hoskin J.C. wrote to thank the Society in the name of the relatives of the late Mr Carpmail, for the engraved copy of the Society's testimonial.

A letter from the Rev W. Brookman was read. Attention was called to a printed challenge, issued by some one in the United States, to any person or society of persons, who would dispute that the Earth was flat as a pancake. After some discussion it was moved by Mr R.F. Miller, seconded by Mr Lindsay "that the letter be treated with silence, inasmuch as it would be quite ~~un~~ undignifying for this Society to have anything to do with such ridiculous discussions as an answer to the challenge would involve" This was carried.

Mr J.W. Gibson was nominated for active membership by Mr G.E. Lumsden and Mr Lindsay.

Mr Gibson's nomination having been inadvertently omitted from the proceedings of the last meeting, the Chairman the rules were suspended, and Mr Gibson duly elected an actual member of this Society.

The librarian reported the receipt of several volumes of exchanges, and two rare books donated by Mr Robinson to whom the thanks of the society were accorded.

Observations were reported by several members. Mercury had been well seen at the recent elongation, without optical aid. A series of sketches ~~was~~ of the sun's disc was presented by Mr J. H. Weatherke, a visitor at the meeting. In the course of a discussion which followed, upon the nature of sun-spots Mr A. F. Miller gave his reasons for believing that these are not elevations above the photo-sphere of the sun, but rather depressions in the same. He held that if they were elevations then, whenever a spot came over the limb of the sun, a "notch" would be seen. As a matter of fact Mr Miller stated that the "notched" appearance is extremely rare.

Mr Harvey then read by request a brief review of the proceedings of the Royal Society on at the meeting of Jan 31st when Lord Rayleigh and Prof Ramsay presented their joint paper on the new element Argon, found by them to be a constituent of the atmosphere.

The paper proved of very great interest and Mr. Hanny was requested to favour the Society still further with a review of such work as may be done by the co-discoverers.

Under the head of queries Mr. Hindley stated that he had been unable to find in any of the text books sufficient data regarding the satellites of Jupiter to enable one to calculate the eclipses and occultations. The times of these ^{phenomena} are recorded in the Ephemeris, are very correct but it was thought strange that the positions of the nodes of the satellites' orbits and their inclinations to the ecliptic could not be found anywhere.

The correspondence relating to the discovery of the fifth satellite of Jupiter, and events that led Mr. O. E. Cartwright of Detroit to believe that he had seen a shadow of the ~~the~~ satellite was read.

The hour being late the meeting adjourned without discussing the correspondence at any length.

It was announced that at

the next meeting to be held
 March 5th a paper would
 be read by Mr. A. P. Miller on
 the "Spectra of the Nebulae"

John A. Peters
 Secy. Pres.

Mr. B. Musson
~~Secretary~~
 for the Reading Society.

The 4th regular meeting of the
Astronomical & Physical Society for
the year 1895 was held March 5th
at the rooms 19 Melville St.

The vice president ~~Mr~~ John A. Paterson M.A.
occupied the chair.

The minutes of the previous meeting
were read and confirmed.

Letters were received from Rev. M^r. Brookman,
and from M^r. J. C. Donaldson

Copies of the Transactions of the Society for 1894
were distributed to the members

M^{rs} Josephine Flecker 55 Wellesley St. Lomb
was nominated for active membership
by M^r. John A. Paterson and M^r. J. Lindsay

M^r. Musson read some extracts from
press reports forwarded by M^r. Lodhwick,
relating to parhelia and phenomena of
that kind. Among these was an account
of a lunar rainbow seen in January
on the isthmus of Panama and which, it
was said, was the first seen since the
16th century. Some discussion following,
M^r. Harvey said that the account was
most probably correct as such phenomena
would be extremely rare in the tropics.

Observations of the sun were reported by M^r Pursey and M^r Harney.

M^r J. C. Donaldson, referring to the recent elongation of Mercury, wrote that he had seen the planet on five different evenings during Feb'y. with the unaided eye. M^r Leussler thought that this was an excellent record for naked eye observations of the planet.

M^r A. F. Miller was then called upon to read his paper on the spectra of the nebulae.

M^r Miller dealt with the memorable discovery by S. Huggins in 1864 and reviewed much of the work done subsequently; reviewing ~~the~~ ^{several} ~~some~~ erroneous theories which have had some credence, it was stated that the chief nebular line has no connection with the ^{chief} line in the aurora spectrum, or the line 1474 K in the Corona spectrum, or with any suppositious line in the spectrum of the zodiacal light.

K. J. Keller's work on the nebulae which led to the discovery of the motion of the nebula in the line of sight was also sketched.

At the conclusion of the paper M^r Miller showed the spectra of nitroper and hydrogen, using a small battery and direct vision spectroscopes,

It was announced that at the next
 meeting Mr A. Elvins would read
 a paper on "Earthquake Phenomena"
 The meeting then adjourned till March 19th

John A. Gale
 Vice Presⁿ

W. B. Musson
 For the Recording Secy

(1)
Meeting of Council

March 12 1895

Mr. John A. Paterson M.A. Vice-Pres. in the chair.

Present Messrs. Harvey, Lumsden, Stuart, Shortt,

Howell and Lindsay,

Chas. R. Pauling

The following accounts were presented and recommended to be paid:

Rowell & Hutchinson Printing account \$221.

Grip Publishing Co. 7.25

The following expenditure was recommended:

Suitable stationery with the Society's name, address and seal. ✓

Forms of acknowledgement for receipt of exchanges.

Forms of invitation for special meetings.

The Vice-Pres., Mess. Harvey, Stuart and Lumsden were appointed a committee to devise a suitable seal for the Society's official documents.

motion of Mr. Sparling seconded by Mr. Shortt it was recommended,
 at the duties of the assistant secretary and editor be as follows:
 assist generally in the secretarial work of the Society, to keep
 records, and to assist the treasurer. To prepare the press reports
 the Society's meetings and the matter for the annual Transactions.
 condense as far as practicable the matter contained in the
 Society's exchanges and present the same for reading from time to
 time. To direct work with the Wilson telescope on evenings of obser-
 vation.

The question of the council's supervision in the matter of
 papers to be published in the Transactions was discussed, as the
 institution already provided for such supervision, no further
 amendment was considered necessary.

of which is respectfully submitted.

John A. Gales
 Chairman

The 5th regular meeting of the
 astronomical & physical Society
 for the year 1895, held March 19th
 at the rooms 19 McGill St

The vice-president John A. Paterson M.A.
 occupied the chair

Number present 33.

The minutes of the previous
 meeting were read and
 confirmed.

The report of the Council meeting
 March 12th was adopted.

Communications were received from
 Dr J. Morrison;
 S. W. Burnham;
 Dr M. A. Veider.

M^{rs} Fletcher of Toronto was duly
 elected an active member.
 M^r J. F. Parkin was nominated for
 active membership by M^r J. R.
 Collins and M^r J. Lindsay.

The librarian reported the receipt
 of volumes from
 British astronomical Assn.
 Weather Bureau, Washington
 Toronto Observatory

Observations of the eclipse of the moon were recorded by
 M^r A. Harvey who presented a coloured drawing of the moon when totally eclipsed;
 M^r A. F. Miller who gave the result of his observations with the spectroscope;
 M^r G. J. Kunitzer who described some unusual phenomena, which had also been observed by Miss C. F. & W. L. Gilbert;
 Miss Gray and others also reported and accounts were received from the Meaford Astronomical Society and J. B. Donaldson.

M^r Harvey read an announcement to the effect that the Bureau of Longitude in France were favourable to the proposed change in astronomical time reckoning.

A paper on the cause of earthquake phenomena was then read by M^r A. Elvins.

It was announced that at the next meeting M^r J. Van Sinner would read a paper on the "Cause of the Aurora".

A. Elvins

C. P. Spaulding
 Secy

The 6th regular meeting of the
Astronomical & Physical
Society for the year 1895
held April 2nd at the
rooms 19 Melville St.

Mr A. Elvins occupied the chair.

The minutes of the previous
meeting were read and
confirmed.

A letter was read from the
Secretary of the Royal Society
of Canada, giving notification
of the annual meeting to be
held May 15th, and requesting this
society to appoint a delegate
to that meeting.

Mr Arthur Harvey was unanimously
elected to represent the astronomical
and Physical Society of Toronto.

Letters were read from Dr M. A. Veder
and from several correspondents to
whom the Transactions for 1894
had been sent.

Mr R. L. Steuart forwarded the report
of the Mexican Government on the
subject of the unification of time;
the report was favourable to the
change in time reckoning.

Mr J. F. Parkin was duly elected an active member of the Society.

~~Rev~~ Right Rev. J. A. Newham, Bishop of Moosonee was elected a corresponding member. Mr G. E. Lumsden reported briefly an interesting interview he had had with Bishop Newham in reference to the auroral displays on the shores of Hudson's Bay.

Mr G. G. Pursey presented a series of drawings of the sun's surface, covering three months observations. He stated that he had become satisfied that faculae are the precursors of sun spots and had consequently been able to predict the appearance of the latter by observing the faculae.

A paper on "Solar electric currents the cause of the Aurora" was read by Mr J. Van Sommer who illustrated his subject by diagrams and a model; the conclusion reached by Mr Van Sommer was that currents of electric energy proceeding from the sun are broken at the poles of the Earth and cause the auroral light.

Reference was made to some experiments conducted at

in the Physical room of the
University.

~~M^r Van~~ The paper was discussed
by M^r Musson who read some
notes by the late Prof. Loomis
bearing upon the subject and
by M^r Miller who disputed the
validity of the conclusions which
M^r Van Sommer had drawn from
his experiments.
The meeting then adjourned till
April 16th

Confirmed
Wm A. Gator M.E.
Vice Pres.?

Thos. Luedray
for the Rec. Secy.

The Seventh regular meeting of the Astronomical & Physical Society for 1895, held at the rooms 19 McGill St April 16th

M^r John A. Paterson M.A. vice-president in the chair.

The minutes of the previous meeting were read and confirmed.

The following communications were received.

From Right Rev. J. A. Newkham,
 Lieutenant Winterhaeter, Washington
 Dr Francois Terby Louvain, Belgium
 W. N. Greenwood Lancaster, England
 Wesley & son London
 J. A. Donaldson Fergus
 M^r J. S. H. Shearman Brantford
 Dr M. A. Reader

Miss Gray read a note from the pupils of Wellisley School who asked for the pleasure of an evening at the telescope. Several members announced their willingness to place telescopes at the service of the pupils at an early date.

It was moved by M^r Christ, seconded by M^r Miller and Resolved:-

That this society deeply sympathizes with ~~these~~ ^{its} esteemed fellow members M^r & Miss Pursey, in the great loss

which they have sustained by the death of a wife and mother and wishes to express the hope that they will be supported by that infinite power, intelligence and love, which governs the universe and doeth all things well.

In moving the resolution Mr. Christ referred to his long ~~acquaintance~~ ^{friendship} with Mr. Pursey and his family and to the very high regard in which they were held by all who were privileged to enjoy their acquaintance. Mr. Miller in seconding the resolution referred to the many very pleasant meetings which ~~were~~ ^{had been} held, in the early days of the Society's existence, at Mr. Pursey's house and to the kindly hospitality of Mr. Pursey who had always ~~made~~ taken very great pleasure in making welcome those who met together for recreative study.

The ~~chairman~~ ^{tendering} ~~presented~~ the sympathy of the Society to Mr. Pursey paid a high tribute to the ~~best~~ Christian character of Mr. Pursey and to the ^{Christian} work in which she had been long engaged.

Mr. Pursey thanked the members for the kindly sympathy expressed, and the business of the evening proceeded.

A report was received from Mr. J. A. Copland to the effect that on the night of the 10th of March and the morning of the 11th an

aurora had been visible here. This was the date predicted by Dr. Veir

Mr Arthur Hallow read some notes upon the recent discovery of the element "helium" hitherto supposed to exist only in the sun. The mineral cleveite had been found to contain an element in * combination with argon, and which gave in its spectra ~~lines~~ a line identical with the helium line in the solar spectrum.

Mr A. F. Miller read some notes on the spectra of Argon and from a comparison with the spectra of the nebulae had found that the chief nebular line ^{and other nebular lines} was reproduced in the ^{blue} spectrum of argon. This line hitherto [^] had been supposed to originate in matter not known to terrestrial chemistry.

A letter from Mr J. S. H. Shearman of Bradford was read ~~concerning~~ referring to a short paper which he had transmitted on the oblique cosec grain telescope. The paper was taken or read with the understanding that the ~~fact~~ text would be given in the press report and the matter brought up again at the next meeting. The meeting then adjourned to April 30th

John A. Gale
Vice Pres

The Secretary
for the Society

The eighth regular meeting of the Astronomical & Physical Society, held April 30th at the rooms 19 McGill St.

The Vice President John A. Paterson M.A. in the chair.

The minutes of the previous meeting were read and confirmed.

Mr Arthur Harvey stated that he would be unable to act as delegate to the Royal Society of Canada on the occasion of the meeting of that body in May, and moved that Mr G. E. Lumsden be appointed to so act. Seconded by Mr Pursey. Carried unanimously.

Correspondence was received through the Director of the Observatory, from the Brazilian Government; to the effect, that the proposed change in time reckoning would be adopted in the Astronomical Ephemeris of that country.

Letters were read from Mr H. H. Young of Cherry Valley
Rev W. G. Haund of Wexbridge
It was recommended to forward a set of the Society's Transactions to Mr Haund.

The librarian reported having received copies of Transactions of Astronomical Society of the Pacific, & complete volumes.

Reports of observations were received from Mr. Pursey, Mr. Miller, Mr. Elvins, Mr. Savigny and others.

Mr. Miller had measured the large spot which had been on the Sun's disc for some days and found it to be for the umbra 26.6 seconds of arc. Solar prominences, a sketch of which was shown, had been observed.

Mr. Hawley read some notes on the behaviour of several minerals at very high temperatures, obtained in a Barton electrical furnace.

It was announced that Mr. Shearman's paper would be read in full at the next meeting.

The meeting then adjourned till May 14th

A. Elvins

Thurs day
for the Secty.

The Ninth regular meeting of the Astronomical & Physical Society for the year 1895 held May 14th at the rooms 19 McGill St.

Mr. A. Elvins occupied the chair.

The minutes of the previous meeting were read and confirmed.

The report of the committee appointed to prepare an abstract of the Society's work in 1894 & to be presented to the Royal Society was read and adopted.

Mr. Lindsay read a sketch of the history of the Society which was to be published in "Science" of New York. It was decided to purchase 50 copies of the Journal containing the sketch, for distribution.

The report of the Earth Current committee was received. It was stated that the superintendent of the Cable Co. at Santos had agreed to forward the siphon record of disturbances whenever these were of unusual character.

The chairman called attention to the great fall in temperature between May 12 and 14th and noted that on this occasion ~~the~~ theory had been borne out, that there is a fall generally in Europe and America on the dates named.

Reports of observations were received from Mr. J. G. Rident, Mr. G. G. Pursey and others. Mr. Pursey stated his belief that faculae on the sun had more to do with magnetic conditions than the spots. He described the method used at the Toronto observatory to sketch the appearance of the sun's disc daily.

Reports of observations of Jupiter were received from Dr. J. B. Donaldson of Angus who had observed some unusual markings upon the cloud belts on May 4th and 9th.

Mr. Musson read some extracts from Popular Astronomy bearing upon the work done at the Lowell observatory, during last year, on Mars.

Mr. Lindsay then read the text of the short paper by Mr. Sherrin on the "oblique Cassgrain Telescope" which

The tenth regular meeting of the Astronomical & Physical Society for 1895, held at the rooms 19 M'Clure St May 28th.

Mr A. J. Miller occupied the Chair.

16 members present

The minutes of the previous meeting were read and confirmed.

Letters were read from:
The editor of "Science" who forwarded copies of the issue containing the sketch of this society's work.

From the librarian of Columbia College, New York, asking for copies of "Transactions" to complete the set.

From Rev. W. G. Hanna of Wexbridge and from Dr Sanford Fleming.

Mr W. B. Musson reported that the library committee had completed the cataloguing of the ^{books in the} library and that the bound volumes of the periodicals would be on the shelves at the next meeting.

It was moved by M^r A. Harvey seconded by M^r Lindsey that the opera-glass section be revived and that the first meeting be held on the evening of Tuesday June 4th at 23 Walmer Road, and from that date fortnightly. This was carried.

M^r Lumsden seconded by M^r Elvins moved that M^r Harvey be director of the section.

After some discussion it was suggested by M^r Harvey that no formal director be ^{formally} appointed but that the member who took charge of the meeting on one evening should name his successor for the next. This was agreed to.

M^r Pursey presented his report of exchanges received since last meeting.

M^r Lindsey reported having placed two telescopes at the service of the pupils of Wellesley school on the evening of May 21st, according to arrangement with Miss Gray, who wished to afford the senior classes an opportunity of seeing Jupiter and Saturn.

Observations were reported by M^r Elvins, M^r Harvey and M^r Pursey.

Mr Elvins presented a drawing of a sun spot group which had just passed the central meridian of the sun. He showed also a drawing of ice crystals formed on the surface of water and pointed a similarity between these and the markings on the surface of Mars which had of late years attracted so much attention.

Mr Harvey drew attention to the work of Prof. Keeler at Allegheny and described the methods used in determining the difference between the revolution periods of the outer and inner edges of the ring.

Mr Harvey also referred to a report which had appeared in the columns of a city paper to the effect that Prof. Olzewski had succeeded in liquefying hydrogen. It was thought there was no foundation for this as it had not been reported by any of the scientific journals.

Mr Spaulding then read an extract from the "Bellville Sun", showing how extravagant were some of the published reports regarding observations of Mars. The meeting then adjourned to June 11th.

John A. Salter
Vice Pres

C. P. Spaulding
Rec Secy

The regular meeting of the Astronomical and Physical society held
June 11th. 1895 at the rooms ISMC. Gill St.

John . A. Paterson ^{Mr. A. V. H.} occupied the chair.

Members present 24.

The librarian reported the receipt of back nos. of Brit. Astron.
Assn. reports to complete the series; proceedings of the Royal
Society; Science siftings, donated by the president ; and a copy
of the Canadian Magazine from Mr.A. Harvey.

Observations of the Sun were reported by Mr.Pursey and Mr. Harvey.

Mr. Elvins had observed Venus, now in good position, and had noted
a bright spot at the north pole of the planet. ~~Mr. G. B. Lumsden~~
reported having ^{paid} a visit to the Toronto Observatory, on which occasion
the large telescope was used to advantage .

Mr. J.R. Collins had observed an auroral cloud in the form of an
inverted arc, on June 6th. in the evening.

Mr. J. Van Sommer had observed a brilliant meteor on the evening
on the evening of June 10th at 10.30.

The discussion for the evening was on the subject of the Moon.

A short paper was read by Mr. Lumsden illustrated by a diagram of
the lunar surface. Dr. J.J. Wadsworth briefly addressed the meeting
pointing out the great pleasure to be derived from telescopic
observations of the moon.

Mr. J.G. Ridout, Mr. Elvins, and Mr. Harvey also joined in the dis-
cussion.

The meeting then adjourned to June 25th

Larrett Smith
C. P.

12

The regular meeting of the
Astronomical & Physical
Society held June 25th 1895
at the rooms 19 McGill St.

The president Dr. Laframboise occupied the chair.

The minutes of the previous meeting were read and confirmed.

Copies of reports from the governments of France and Austria were read, in reference to the change in time reckoning.

On motion of Mr. Pursey seconded by Mr. Goddard;

Mr. R. F. Steuart was elected a member of the joint-committee of the Canadian Institute and this society, taking the seat upon that committee rendered vacant by the death of Mr. Chas. Cornwall.

A letter was read from Mr. Shearman of Brantford, who stated that he would shortly resume his work of ~~upon the solar corona~~ endeavouring to photograph the Solar Corona.

In answer to a question asked by the chairman, Mr. Steuart stated as to whether any communication had been received lately from Mr. Peal

Report of Committee on Library.

The committee appeared to arrange and catalogue the Library & to announce the completion of the work, and hereby presents its report to the Society. Following is an outline of the work done -

A set of rules have been drawn up and posted governing the withdrawal and return of books &c, by members.

All books in the library have been properly numbered.

The following books periodicals and monographs have been bound -

Monthly Notices Royal Astronomical Society	2, Vol.
Proceedings of Royal Society - London.	3 "
Memoirs British Astronomical Association	2 "
Journal do do do	1 "
Publications Astronomical Society Pacific	4 "
do Cincinnati Observatory	2 "
Monthly Weather Review	2 "
Astronomy and Astro-Physics	2 "
Science Siftings	1 "
Knowledge	1 "
Monographs &c.	12 "
Handlist Library	5 "
Making 37 volumes in all.	

A complete catalogue of books and periodicals has been made, together with an alphabetical list of authors, and a subject index to all monographs now bound, with reference to the volume in

v

which they are to be found. With the latter is included an index to the principle appendices to the Washington Observations, from the years 1851 to 1889 inclusive.

After careful consideration it was decided that a card catalogue should be best suited to the needs of the Society. Its chief advantage being the facility with which additions to the library can be indexed in their proper places, thus keeping the catalogue always up to date.

A number of duplicate publications are on hand among which are Nos. of Astronomy and Astro-Physics
Popular Astronomy.

Science Observer

Journal of British Astronomical Association
Monthly Notices Royal Astronomical Society,
also a number of appendices to the
Washington Observations.

A complete list of the foregoing may be obtained from the librarian.

A few volumes are still incomplete for which it may be considered advisable to obtain the missing numbers. The most important of these are Knowledge, Astronomy & Astro-Physics, & Popular Astronomy.

The committee are glad to report that upon comparing their catalogue with former lists they do not find anything of importance missing.

The library now contains close upon 300 volumes, and is being constantly increased.

It is suggested ^{that} in future ~~that~~ periodicals should be bound as soon as the vols. are completed, this method would not only make the work comparatively light, but would also tend to prevent numbers going astray.

The Librarian is now keeping a stock book and purposes making a careful record of all matter coming into his hands.

The expense incurred is as follows.

Binding 37 Vols. @ 30 [¢] =	11.10
Cards & Indices	2.95
Labels	1.00 paid
Stationery	.30 paid
Box for Cards	2.00 paid
	<hr/>
	17.35
Paid on last ac.	1.30
Balance.	<hr/> <hr/>
	\$ 16.05

G. G. Pursey

Librarian

W. H. Lindsay

Asst. Secretary

A. A. Gray

J. R. Collins

W. B. Murron

of India, M^r Elvins stated that he had recently had a letter from that member who was at present engaged in archaeological research. M^r Peal had been requested however to favour the Society with a paper on some astronomical subject.

The formal report of the Library Committee was presented and read by M^r Musson.

It was adopted by the meeting unanimously, and the thanks of the Society were tendered to the Committee for the great pains they had taken to make the work complete, and furnishing a most minute index of the books, monographs &c on the shelves.

The expenses incurred were in all \$16.05. These were recommended and approved for payment.

The librarian reported the receipt of ~~several~~ several exchanges.

Members then reported observations. M^r Elvins remarked that the English astronomical journals just received contained drawings of the bright spot at the north pole of Venus which he had reported at the last meeting.

Mr Harvey and Mr Z. M. Collins had also observed this peculiar feature and other markings on the disc.

Mr Pusey referring to solar observations said that a group of spots on the sun's disc between June 9th and 17th showed all the phenomena of accretion and disruption which the observer usually has to wait months for, seeing one phenomenon now and another again.

The chairman referred to the ~~small~~ brilliancy of the zodiacal light as seen during a recent visit paid to southern latitudes.

Mr Watson referred to some of the inaccuracies regarding celestial phenomena which sometimes creep into the writings of the poets, and quoted two from Shelley and Coleridge.

Mr Lindsay drew attention to a loss sustained in the scientific world by the death of Prof. Daniel Kirkwood, an honorary member of this society. A brief outline of ~~the~~ ^{his} work of the deceased astronomer.

It was announced that a meeting would be held at the observatory on the evening of Tuesday July 2nd for observation and that at the regular meeting, July 9th a paper on the Nautical Almanac would be read by Mr Lindray. The meeting then adjourned.

John A. Patterson
Vice Pres

Wm Lindray
For the Secy

The Regular Meeting of the
Astronomical & Physical Society
held July 9th 1895 at the
rooms 19 M^r Gill St.

The Vice-pres. M^r John A. Paterson
occupied the chair.

The minutes of the previous meeting
were read and confirmed.

Letters were read from:

D^r Isaac Roberts who stated that he
had forwarded a copy of his
book to the Society.

The Leeds astronomical society;
Astronomical Society of Wales;
International Geographical Congress.

M^r F. L. Blake was nominated for
active membership by M^r Ewins
and M^r Lumsden.

The Librarian reported the receipt
of several exchanges.

The report of the first meeting
of the lunar section was presented
by M^r G. E. Lumsden and
adopted.

M^r G. G. Pursey presented a series
of sketches of the solar surface
extending over a period of 3 months.

FIRST MEETING OF THE LUNAR SECTION.

The Lunar Section of this Society, on the evening of Tuesday, the 2nd of July, held its first meeting for the Summer in the grounds of the Toronto Observatory which had kindly been thrown open by the Director, Mr. R.F. Stupart, who, with the assistance of Mr. W. Menzies, and Mr. F.L. Blake, of the Observatory Staff, contributed, in a marked degree to the success of the night's work. The attendance of members and others was very gratifying and deep interest was manifested by everyone. In addition to the fine 6-in. Cooke refractor of the Observatory, which was available during the evening, the following telescopes had been set up on the lawn:--3-in. Wray, by Mr. Andrew Elvins; 3-in. Vion Freres, by Dr. A.D. Watson; 3-in. Bardou, by Mr. Charles Foster; 2-3/4 in. Vion Freres, by Mr. Thomas Lindsay; 72-in. focus glass of small aperture by Mr. G.G. Pursey; a 6-in. reflector, by Messrs. J.R. and Zoe M. Collins, who had made the instrument and stand throughout, and a 10 in. With-Browning reflector, by the undersigned. Though the earlier portion of the day had been perfect for observational work, the sky, especially during the late afternoon hours, had become cloudy and hazy. Towards 8 o'clock, however, the sky cleared up and was in fair condition until observation ceased at 11 o'clock. The Moon, being in the eighth day of her age, was in an interesting phase and presented under most favourable

2.

conditions, many subjects for study and examination. To several of these subjects especial attention was paid, as they were selected types of characteristic lunar surface markings. Among these was Mare Crisium, as a typical sea; the Alps, as a typical mountain range, the Great Valley of the Alps, typical of those excoriations on the surface possibly indicative of the action of rapidly flowing water; Plato, typical of walled plains of the circular order; Copernicus, typical of the great craters with central mountains; Clavius, typical of vast irregular walled plains, containing craters, themselves of considerable size, and numerous craterlets; Theophilus, Cyrillus and Catharina, typical of great heights and depths, and of crater-walls broken away on the side of seas by the apparent action of water, and last, but entirely as a popular ^{optical} illusion, the play of light and shade upon the hills fringing Sinus Iridum, so as to present the spectre commonly known as The Moon Maid, whose head is formed by Cape Heracles. Among other celestial objects examined were the planets Venus, whose polar-cap was shown by Mr. Elvins to those who looked through his telescope armed with a very high power, and Saturn, which was seen to good advantage, one telescope showing four moons. The Pole Star, Cor Caroli, Mizar and Alcor, Vega, Beta Cygni and other stars were shown by request. Among the visitors present, was Mr. Saunders, Professor of Physics in Hamilton College, and Director of the Smith Observatory, Clinton, New York; an Observatory possessing a fine equipment including three telescopes, one of them a 13 in. refractor. This Observatory was the scene of the labours of the late

Dr. Peters who paid steadfast attention to sunspots for many years. Professor Saunders' object in visiting Toronto was to consult the magnetic records at the Observatory here, with a view to a comparison being made between them and Dr. Peters' drawings and observations, for the purpose of ascertaining the relationship, if any, between sunspots and magnetic disturbances. The Professor's work being along the lines of ~~some previous~~ investigation recently taken up by this Society in respect of earth currents, his conclusions will be awaited with some interest and may, ^{it is hoped,} in a short time, be communicated to the Committee on this subject.

Owing to a fine sky, the presence of eight telescopes, a large attendance and the interest manifested in the night's work, the first meeting of the Lunar Section may be regarded as both successful and encouraging. Indeed, so intent were those present upon the pleasures of observation, that a paper entitled "The Present Condition, and One Step in the History of the Moon," especially prepared by Mr. Elvins, had to be postponed for the purpose of being read this evening to the Society, a distinction it well merits as it deals with the subject in a popular vein and evolves a theory as regards the possible causes of the disappearance of water and air from the side of the Moon visible to us. The paper is herewith laid before the Society.

Respectfully submitted.

G. E. Saunders

Director, the Lunar Section.

The sun had been fairly active for ~~some~~ some time past; in connection with this Mr. R. F. Stupart stated that there had not been any unusual magnetic disturbances since last November.

Referring to solar halos which Mr. Pursey and Mr. Harvey reported having observed, Mr. Stupart stated that they are most frequent here when an area of low pressure is passing over the Ohio Valley.

Mr. Ellis desired to call attention to the fact that twice during the present year a very hot wave had been followed by a cold wave, very suddenly. He considered this worthy of note.

~~From~~ Dr. J. J. Wadsworth of Simeon forwarded a detailed account of his observations of Saturn, and called special attention to the outline of the shadow of the planet upon the ring, which was seen concave instead of convex on the outside as would be expected.

Mr. Lindsay read the introductory chapter to an historical sketch of the Greenwich Nautical Almanac, ~~which~~ ~~was~~ dealing chiefly the introduction dealt chiefly with the state of the

literary and scientific world
when the almanac was com-
menced in 1767

It was announced that at
the next meeting Mr Ellis
paper on Lunar study would
be read.

The meeting then adjourned
till July 23rd at 20 o'clock

John A. Bateman
Vice Pres²

Ho Lindsay
for the Sec Secy

14

The regular meeting of the
Astronomical and Physical
Society held July 23 1895
at the rooms 19 McGill st

The vice-president John A Paterson M.A.
occupied the chair.

Letters were received from
the director of the Greenwich Observatory,
Dr J J Wadsworth of Simcoe;
Mr G. F. Townsend of Austin Tex;
and a copy of the correspondence
between the Colonial Secretary
and the Governor General of
Canada in reference to the change
in time-reckoning.

Dr Wadsworth had forwarded a
drawing of Saturn made at his
telescope by Miss Eva M. Brook
of Simcoe. The drawing showed
the concave outline of the shadow
of the planet on the ring, referred
to by the observer in a former
letter.

Mr Townsend forwarded two photos
of the lightning flash taken during
a storm on May 5th at Austin Tex.
The correspondence on Time showed
that the Hungarian Academy of
Science is in favour of the
proposed change.

On motion of Mr. Pusey and Mr. Lewis a
 vote was taken that the sympathy of this
 society be expressed with the family of Miss Danks
 in the loss sustained by the death of his son in N.C.

Mr. J. Lotbunher seconded
 by Mr. Lewis moved that
 the following gentlemen be
 added to the committee appointed
 to consider the establishment of
 a popular observatory in
 Toronto: Mr. A. Harvey; Mr.
 R. F. Stupart; Dr. Harad at Smith;
 Mr. J. A. Paterson; Mr. G. E. Lumsden.
 This was carried.

Mr. Pusey and Mr. Miller reporting
 their observations of the sun
 stated that the disc had been
 very free from spots, only two
 being seen on the morning of
 July 28th

Mr. Harvey reported observations
 of Venus and Mr. Z. M. Collins
 gave a ~~short~~ brief account of
 work upon Saturn at his reflector.

Dr. A. Meredith read some notes on
 steel-making describing the
 Doherty process recently invented
 by Mr. Doherty of Sarnia.

Mr. Harvey and Mr. Dewar
 discussed this subject also.

The method was held to be a
 great improvement on the Bessemer
 system.

A short discussion followed in which
 Mr. Harvey and Mr. Dewar took part.

M^r A. Elvins then read a paper on the study of the lunar surface intended as an introduction to the work of the lunar section.

The paper was illustrated by M^r Elvins' own drawings, photographs belonging to the Society, and the Poole Bros' map loaned by M^r Rumsden.

M^r Harvey at the conclusion of M^r Elvins' paper referred to the work now being carried on in Europe with a view to a ~~the~~ obtaining a thorough knowledge of the conditions prevailing on the moon.

It was announced that M^r J. Philips would read a paper on the nebular hypothesis at the next meeting to be held August 6th.

The meeting then adjourned.

John A. Gattorno
Vice Pres^r

His head say
for the Secy.

The regular meeting of the
Astronomical and Physical
Society held Aug 6. 1895 at
the rooms of Messrs at Fenchurch

The vice-pres Mr John A Paterson was
occupied the chair

The minutes of the previous
meeting were read and
confirmed.

Communications were received
from Mr Espin of Tow Law who forwarded
circular no 42 from Walsingham
Observatory.

From the secretary of the Meaford
Astronomical Society who forwarded
the sum of 5⁰⁰ being the amount
of annual fee as an affiliated
Society.

from Mr Greenwood of Lancaster Eng.
in reference to the unification of
Time; and forwarding a copy of a
circular which he had addressed
to master mariners in England.

From Miss Wesley son of London
the corresponding ~~is~~ in reference
to the possibility of procuring old
volumes of the Nautical Almanac.

The corresponding secretary
was authorized to request the
Meaford Astronomical Society to
furnish a few pages of matter for

the annual volume of Transactions, it being considered that such work the purchase of ^{a copy of} the Nautical Almanac for 1769 was authorized.

The librarian presented two numbers of the Royal Society's proceedings, the Transactions of the Leeds Astronomical Society.

A drawing of a part of the moon's surface made by M^r Elvins, illustrating the hood at the side.

M^r Pursey reported having observed on Aug 5th between 40 and 50 spots on the sun's disc. He thought these had chiefly broken out on the side of the sun turned to us.

M^r Miller had observed these also but had noted among them some five or six which had come round the limb by rotation.

M^r Miller had ~~report~~ observed also on the evening of Aug 5th a very brilliant meteor giving the appearance of a translucent flowing cloud rather than that of a solid body raised to incandescence. He estimated the diameter to be about 15 minutes arc. The meteor passed between ^{γ & δ} Ursa Majoris and Arcturus.

M^r Phillips also had observed this meteor.

Aug 4th & 5th

M. J. Phillips then read a paper entitled "The nebular hypothesis revisited" in which it was claimed that several very serious errors had crept into the theory as now commonly stated.

Some discussion followed in which ^{the chairman} Mr. 2 Mr. Coelinet and Mr. Lindsay took part.

The meeting then adjourned till Aug 20th

Charles H. Shortt.

Her Lindsay
for the Secretary.

The 16th regular meeting of the
Astronomical & Physical Society of
Toronto held Aug 20th 1895 in
the rooms 19 Mill St.

Rev C. H. Short M.A. occupied the
chair.

The minutes of the previous meet-
ing were read and confirmed.

Letters were read from
Dr. Sandford Fleming
W. W. Payne
D. G. Hadden
W. F. King
L. E. Peal
H. Howard, Winnipeg
Mr W. J. McKay of Orangeville was
elected an associate member
of the Society.

On motion of Mr A. Elvins and
Prof J. E. Keeler of Allegheny was
elected an honorary member of
the Society, in place of the late
Daniel Kirkwood.

In moving the resolution Mr Elvins
referred to the pleasant correspondence
he had maintained for many years
with the late Prof. Kirkwood, and also
to the high attainments of
Prof Keeler who was now placed on
the list of honorary members.

The librarian reported the receipt of exchanges and a drawing of a part of the lunar surface by M^r Elvins. as the work of the lunar section.

Several members reported having observed the Perseid meteors, between Aug 10-13. The display had not been large but some very fine meteors had been seen by M^r Musson on the evening of Aug 10th.

M^r Lindsay reported having spent an hour at the Toronto Observatory with M^r McKay of Orangeville, when M^r F. H. Blake had directed the large telescope to Venus about 3 p.m. and shown the planet under various powers from 80 to 500.

M^r Pursey stated that the solar ~~surface~~ ^{surface} was less active than it had been ~~two weeks~~ ^{two weeks} previous early in August. Two fine groups were ^{near} ~~at~~ the middle of the disc, four or five spots in each, general not very conspicuous.

M^r J. Philips presented his views on certain problems connected with his paper on the nebular hypothesis read at the previous meeting.

Mr Arthur Hawley read some notes on the ring system of Saturn, and bearing particularly on the form of the surface of the rings. The paper had been based upon the drawing of Saturn by Miss E. M. Brook and the conclusion reached was that the surface of the rings ~~was~~ is curved, not plane.

The paper was illustrated by diapaunt and a model.

The meeting then adjourned till Sept 3rd at the rooms 19 Melrose

J. H. Lindsay
for the Society.

Charles H. Shortt

The 17th regular meeting of the
Astronomical & Physical Society^{of Toronto}
held Sept 3rd 1895 at the room
19 Melville St.

Rev. C. H. Shortt M.A. occupied the
chair.

The minutes of the previous
meeting were read and
confirmed.

Letters were read from
the editor of "Knowledge"
the Meaford Astronomical Society
Prof. J. C. Keeler

M^r G. E. Lumsden presented a
draft of the 3rd report of the
committee on the unification of
Time.

M^r E. F. Churchill 16 Francis St.
Toronto was nominated for
active membership by M^r Lodhman
and M^r Hurdzay

A short report of the work of
the lunar section was
received. The last meeting had
been held at M^r Lumsden's
residence, when the large
reflector had been very used
with the greatest success upon
the lunar features:

Several members reported solar observations; Mr. Lumsden presented a drawing of a large spot across which a partial bridge had been observed. This peculiar feature had been measured by Mr. A. F. Miller by means of the micrometer, and also the spot itself had been carefully measured also, the results being presented together with some notes on spectroscopic observations.

Mr. Arthur Harvey presented a drawing of the Orion nebula made on the morning of Aug 25th, and extended notes of telescopic observations of the region.

The paper of the evening was read by Mr. Harvey on "The contrast between lunar and terrestrial features", an exhaustive review of the subject and an analysis of various theories regarding the conditions prevailing on the moon now and the conditions which had prevailed in past ages.

During the discussion which followed Mr. Elvins stated that he was much pleased at the interest which was being taken in lunar study. Some of Mr. Harvey's views were opposed to his own but there was wide field for

Careful investigation and study.

M^r Musson, ~~and~~ M^r Dewar and M^r Luedray also took part in the discussion.

M^r J. Phillips announced his intention of bringing before the Society his views on the Saturnian system in the near future; M^r Harvey proposed that M^r Lumsden, M^r Phillips and himself be a committee to ~~consult~~ ^{consult with} the chief librarian of the Toronto Public Library with a view to procuring a copy of Teikron's work on "Celestial Mechanics".

The meeting then adjourned till Apr 17th.

John A. Gates
Vice Pres^r

Thos. Luedray
for the Secretary

Moved by Mr. *Lumsden*
seconded by Mr. *Jodhater*

1898
1898


and Resolved that Mr. Arthur Harvey, F.R.S.C., be and is hereby elected a member (representing this Society) of the Joint Committee appointed by The Canadian Institute and this Society to consider the best means of bringing about a unification of Astronomical, Nautical and Civil Time.

Report: The committee appointed to see if the purchase of
F. Tisserand's treatise on Celestial mechanics should
be recommended to the Public Library for purchase has
been to Report.

That Mr Tisserand is a member of the Institute (France)
and of the Bureau des Longitudes - also professor of mathe-
matical astronomy at the Sorbonne.

That since Laplace's great work, no complete
resumé has been published of the knowledge in physics
of Celestial mechanics, brought down to date.
It has been Tisserand's aim to do this, and not only
to reproduce but to analyze & criticize work carried
so as to show what has been done and what remains
to be done by Science in investigating the shape
and movements of the heavenly bodies.

The Comptes Rendus of the Bulletin des Sciences
Mathématiques give an analysis of the work under
few heads.

1. Study of the attraction of a body on a point,
(Newton's laws)
2. Ellipsoidal or annular figures of equilib-
rium of a homogeneous fluid mass.
3. Maxwell's works on the rings of Saturn.
4. Clairaut's theory of the equilibrium of a
heterogeneous fluid mass.
5. Functions of Legendre & Laplace.
6. Laplace's theory of the equilibrium of a fluid
body.
7. Results of geodetic investigations.
8. Rotation of the Earth; fixity of the poles;
constant length of the day (sidereal) pre-
cession and nutation.
9. Libration of the moon.
10. Hypotheses of the rotation of the Earth with
respect to the condition of its interior and
Polar variations.

This is the analysis of volume II. Volume I
deals with the perturbations of planets, according to
the method of arbitrary constants. Volume III
with perturbations according to the method of
Hansen.

The three volumes are sold separately, at
25 francs, 28 francs and 22 francs. In all

about \$15⁰⁰. Gauthier Villed & Son, Paris, published

It is in French, and necessarily very technical. It is not a book of a popular kind. Why the series should only be published now, whereas the 1st vol was printed in 1889 and the second in 1891 seems to be that the third was only printed in 1894.

It is undoubtedly a great work, but in view of the cost and the language in which it is written the Committee wish to transmit this volume to the Pub. Library Board without any recommendation. Some institutions in Paris ought, they think, to own the work, but they are not sure that it is within the powers of the Public Library to purchase such a book. The second volume is the more generally useful.

Respectfully submitted

Archie Jauncey
John Phillips

The regular meeting of the
Astronomical and Physical Society
of Toronto held Sept 17 1895 at the
rooms 19 McGill St.

The vice-president Mr John A Paterson M.A.
occupied the chair.

Members present 19

The minutes of the previous meeting
were read and confirmed.

The report of the committee appointed
to obtain information regarding
Tisserand's great work on Celestial
Mechanics was received and adopted.

A final revision of the third report
of the Committee on the unification
of time was read by Mr Lumsden.

It was moved by Mr Lumsden
seconded by Mr Lindsay that
the report be adopted without
any alterations except such as
Dr Fleming might see fit to make
himself. Carried.

It was moved by Mr Lumsden, seconded
by Mr Lodhwick that Mr Arthur
Harvey be ^{declared} elected a member
of the joint committee on the unification
of time.

Mr E. F. Churchill of Toronto was elected an active member of this society.

The following nominations were received:-

Mr J. E. White 189 Carlton st

Mr H. Caldwell 2 College ave

Miss Jessie Campbell 20 Metcalfe st

Miss Field 41 Metcalfe st

The librarian reported the receipt of exchanges; among these were copies of "Knowledge" forwarded by the Editors

Reports of observations of the lunar eclipse were received from several members. Mr A. T. Miller had forwarded a report of his observations with the spectroscope. Mr D. E. Hadden had written a detailed account of his observations at Alta, Iowa.

Mr Harvey at his own telescope had observed this phenomenon successfully. Mess. Collins had used their reflector to advantage and had ~~made~~ ^{taken} two photographs of the moon in the shadow.

Miss Gray had observed in the telescope of the Toronto observatory; several occultations of faint stars had been noted.

Mr Harvey called attention to the fact that ^{on} the 14th of September the temperature had been very low, agreeing in this case with theory.

The chairman then called upon Dr. McCullum, president of the Canadian Institute, who was present, to address the meeting on the subject of the proposed visit of the British Association in 1897. It was stated that the meeting would certainly be held in Toronto and that it would be necessary to arouse as much enthusiasm as possible throughout Canada so that the fullest success might be attained. The chairman assured Dr. McCullum that this society would take part in all committee work which the general committee might decide upon.

It was announced that at the next meeting a paper would be read by Mr. Harvey and a resume of Mr. H. Allen's solar observations would be read by Mr. Lindsay; and that at the meeting next following Mr. J. Phillips would read his paper on the system of Saturn.

The meeting then adjourned till Oct 1st

C. P. Spaulding

Respects

Amfrd
A. Merrell
Chairman

Meeting of Council
Sept 24 1895 at
Dr Lanact w Smiths office

Present

The President in the chair

Mr G C Lowden

Mr A Harvey

Mr Shortt

Mr Goddard

Mr Pusey

Mr Spaulding

Mr Ludray

The following ~~des~~ were
recommended for payment

Miss Michael Ann	2.00
Jos Foster	1.25
Clarius Ann	5.00

It was recommended that the
work of printing the annual
report be given to Mess.
Rowse and Hatchison

The subject of increase in rent
for the Society's rooms was
discussed at ~~some~~ length

and it was finally decided
to postpone decision until the
next ~~general~~ meeting ~~of the committee~~

The treasurer reported having
received 200⁰⁰ from the Provin-
cial Government. It was
recommended that the treasurer
forward a receipt for the
same

Respectfully Submitted

John Lindsay
Ass Secy

The regular meeting of the
Astronomical and Physical
Society of Toronto held Oct 1st
at the Rooms 19 McGill St

The vice-president E. A. Meredith LL.D.
occupied the chair.

Members present 18

The minutes of the previous meeting
were read and confirmed.

The minutes of the council meeting
of Sep 24th were read and
the subject of rental for the Society's
rooms, which the council had
considered was discussed by
several of the members present. It was
finally decided to leave the matter
with the council and await its
report.

The minutes of the ~~last~~ ^{meeting} report
of the joint-committee on the unification
of time ^{held September 25th} were read. These covered
the business of passing the third
report of the committee on to the
Governor General's office for transmission
to the Home authorities.

Letters were read from Dr J. J. Woodworth
and Dr J. C. Donaldson.

The librarian reported the receipts

of several exchanges and additions to the library.

The following named ladies and gentlemen were elected active members of the society.

Miss Jessie Campbell

Miss Field

M^{rs} J. E. White

M^{rs} Hugh Caldwell

Miss Workman

all of Toronto

Report of the work of the lunar section was made by M^{rs} Hawley.

M^r G. G. Percy presented a series of sketches of the solar disc covering the observations of the last three months.

M^r Lumsden reported an observation of the minimum of Algal on Sept 24th.

M^r J. A. Paterson read some notes from a number of "Science Liftings" bearing upon the origin of the moon and indirectly upon the nebular hypothesis. A short but interesting discussion followed, during which M^{rs} Hawley, M^r Collins and others took part. M^r Hawley referred to the address of the President of the British Association in which it had been stated that recent researches in thermo-dynamics prove that

the nebular hypothesis as outlined by La Place was untenable. Mr Paterson and Mr Lindsay dissented, from this view.

The discussion was discontinued in order to give time to the reading of the papers for the evening.

Mr Hanny read an extract from the Transactions of the French Academy of Sciences, treating of Zenger's experiments in electro-dynamics and stating some remarkable results in the investigation of the solar system when the laws of electro-dynamics were applied to the movements of the planets.

A paper by Mr David E Hadden of Delta Iowa was then read by Mr Lindsay. The paper covered five years solar observations and was accompanied by a table showing the sun spot record for that time.

The meeting then adjourned till Oct 15th

John A. Gideman
Vice Pres^t

C. S. Spaulding
Rec Secy

The regular meeting of the
Astronomical & Physical Society
held at the rooms 19 Meville St
Oct 15th 1895

The vice president J. A. Paterson M.A.
occupied the chair

The minutes of the previous
meeting were read and con-
firmed.

Communications were read from
Dr Sandford Fleming
Prof J. N. Smyth

The recording secretary reported
that the council had received an
invitation from the Technical
School Board to hold all meetings
of the Society in the Board room of
the Technical School.

On motion of Mr. Shindsey
seconded by Dr E. A. Meredith
it was decided to accept the
invitation and to move the effects
of the Society at once. The motion
was coupled with an expression
of the Society's appreciation of the
kindness of the Y.M.C.G. in the
past. This was carried unanimously.

Reports of observations were received from several members.

Mr Arthur Harvey introduced the question of the visibility of the unilluminated ~~side~~ ^{part} of the disc of Venus. Mr Lindray stated that this subject had recently been discussed by the British astronomical association and was considered of great importance.

Mr Elvins and Mr Lumsden had observed the aurora of Oct 12th and during the discussion Mr R. F. Stepart showed charts of the magnetic disturbances while the aurora had been in progress. The disturbance, had not been specially marked in this case.

Mr Pursey reported his solar observations and stated that the sun's disc was now rather free from spots.

Mr Lindray reported some observations made with the telescope recently sent to Niagara, ^{the mirror of} which had been figured and polished by Mess. Collin's. The instrument had given the greatest satisfaction.

Mr J. Phillips then read a paper on the "System of Saturn and the nebular hypothesis" in which he

treated exhaustively the particulars of the movement of the ring and gave what he held to be conclusive proof that the ring could not have been formed as La Place supposed it had been.

A short discussion followed after which the meeting adjourned to meet at the Technical School Building Oct 24th.

Arthur Hailey }
 chairman } Chas. P. Sparring
 } Secy

CHANGE OF ADDRESS.

Toronto, Oct., 1895.

Astronomical & Physical Society of Toronto.

The fortnightly meetings of the above Society will hereafter be held in the Board Room of the Toronto Technical School, College Street, opposite McCaul Street.

CHAS. P. SPARLING,
Rec. Sec.

MAIL ADDRESS:

The Astronomical and Physical Society,
 Technical School Building,
 Toronto, Ont.

Regular Meeting
Oct. 29th 1895

The regular meeting of the
Astronomical & Physical Society of
Toronto held at the rooms Toronto
Technical School Oct. 29th at 20 o'clock

Mr. A. Harvey
Chairman

Mr. Arthur Harvey - chairman

Members present 24 Members present

Minutes
Read & Confirmed

Minutes of the previous meeting
were read confirmed

Communications

A communication was received from
D. Veeder New Lyons N.Y.
D. Donaldson also of Donaldson, on Sun Spots.

Expenditure
re Lantern

It was moved seconded and carried
that the necessary expenditure be incurred
in providing a lantern for next meeting.

Announcement

The Secretary was instructed to
make public announcement of the paper
to be read by Mr. Lumsden at the next
meeting of the Society.

Librarian's
Report

The Librarian reported the receipt of
the following Magazines &c. -
American Ephemeris & Nautical Almanac 1898
Knowledge Oct. 1895 presented by Mr. Elvins
A Drawing
Proceedings & Transactions of the Nova Scotia Soc.
Journal of the Astro. Society of Wales.
Monthly Review & Weather Report
Monograph on Saturn
Popular Astronomy for Oct. & Nov. 1895.

Invitation to
Opening Meeting
Can. Institute

Mr. Harvey announced on behalf of the Canadian Institute their kind invitation to be present on Nov. 2nd at their inaugural meeting - paper for the evening by D. Macallum on "Evolution of the Cell".

Observations - Mr. Pursey and Mr. Lumsden reported on the Sunspots during the last two weeks.

Presentation
by Mr. Elvins

Mr. Elvins presented to the Society a chart of a portion of the moon, neatly framed.

Nomination
D. Keirschman

D. Keirschman, University College was proposed as an active member, by Mr. A. J. DeLury and Mr. A. Elvins.

re D. Veeder's
labours -

The members of the Society expressed themselves as desiring the Corresponding Secretary to correspond with D. Veeder conveying their appreciation of his labours re Aurora and hope that he may see his way to continue them -

re Wadsworth
on the
Moon.

A paper was received from D. Wadsworth giving very interesting details and drawings of observations of the Moon.

Messrs Dewar and Musson reported a triple Arch or streamers from East and West of a roseate tint, last Thursday evening between the hours of eighteen and nineteen o'clock.

It was announced that at the next -

Announcement. Meeting a paper would be read by
 Mr. G. E. Lumsden on Celestial Photography
 at which meeting the public would be
 invited to attend.

The meeting then adjourned to
 meet Nov. 1895.

John A. Galester Chairman
 Chas. P. Sparling Sec. Secy.

... THE ...
Astronomical & Physical Society
 OF TORONTO

....SPECIAL MEETING....

YOURSELF AND FRIENDS ARE SPECIALLY INVITED TO ATTEND AN OPEN MEETING
 OF THE ABOVE SOCIETY TO BE HELD IN THE

LECTURE ROOM, TORONTO TECHNICAL SCHOOL
 COLLEGE STREET, OPPOSITE MCCAUL STREET

TUESDAY, NOVEMBER 12, AT 20 O'CLOCK



MR. GEO. E. LUMSDEN will read a Paper on.....

"SOME NOTES ON CELESTIAL PHOTOGRAPHY"

Illustrated by Stereoptican Views

CHAS. P. SPARLING,

Sec. Secretary.

An Open meeting of the
Astronomical & Physical Society
was held Nov 12th in the
Electrical room of the Toronto
Technical School.

The Vice-President Mr John A Paterson
M.A. occupied the chair.

Members and friends were present
to the number of over 100

On taking the chair the vice-
president referred to the kindness
of the Technical School board in
having placed their rooms at
the service of the Society

He ^{then} called upon the secretary
to read the minutes of the last
regular meeting after which
the ~~business~~ ^{the} usual business was
suspended

Mr Geo E Lumsden ^{Paper} presented a
paper on "Astronomical Photography"
which was read by ^{dit} the assistant
secretary on account of Mr Lumsden's
having a very severe cold. ~~and~~
The paper was an historic sketch
of the efforts made to photograph
celestial objects from the
earliest times to the present.

After the reading of the
paper Mr Lumsden proceeded

To show the lantern slides belonging to the Society and many which had been loaned by friends.

These were successfully projected on the screen and were much admired.

The meeting adjourned at 22 o'clock & met ~~at~~ on Nov 26 in the physical room of the Toronto University, when, it was announced, M. C. A. Chant B.A. would read a paper on "Electrical Radiation".

J. M. G. Paterson C. P. Sparling
 Chairman Rec. Secretary.

~ THE ~
ASTRONOMICAL & PHYSICAL SOCIETY

OF TORONTO

.... SPECIAL MEETING....

Yourself and Friends are Specially Invited to attend an Open Meeting of the above Society to be held in the

PHYSICAL ROOM, UNIVERSITY COLLEGE
 QUEEN'S PARK

TUESDAY, NOVEMBER 26TH, AT 20 O'CLOCK

Mr C. A. CHANT, B.A., Lecturer in Physics, will read a Paper on
 "ELECTRICAL RADIATION,"
 with experiments showing transmission, reflexion, refraction and
 polarisation of Electric Waves.

CHAS. P. SPARLING,
 Rec. Secretary.

An open meeting of the
Astronomical & Physical
Society was held Nov 16 in
the Physical room of the Loomis
University.

The Vice President Mr J A Paterson
M.A. occupied the chair.

The minutes of the previous meeting
were read and confirmed.
It was then moved that business
be suspended and the time placed
at the service of Mr C A Chant B.A.
who had prepared a paper on
Electrical Notation.

This was carried. The Vice President
then introduced the audience to Mr
Chant reminding the meeting that
the lecture of the previous year
Mr G F Wall had been called to
a wide field of usefulness in the
University of Chicago.

Mr Chant then proceeded to read
the paper prepared for the evening
and assisted by Mr Platt conducted
a series of experiments in illustration
of the transmission, reflection, refraction
and polarization of electric waves.
The experiments were unqualifiedly successful
and Mr Chant was repeatedly greeted
by the enthusiastic applause of the
members & friends present.

The regular meeting of the
Astronomical & Physical Society
held Dec 10th in the Technical
School

The Vice-President Mr John A.
Paterson occupied the chair.

The minutes of the previous
meeting were read and con-
firmed

Dr Kierckman of Toronto Univer-
sity was elected an active
member of the Society

Mr Laurance of Toronto was
nominated for active membership
by Mr S. Michael seconded by
Mr Lindsay

Rev Canon Webb was nominated
for active membership by Rev
C. A. Short seconded by Mr W. B.
Musson.

The Secretary read the following
Communications:-

A cordial letter from the Secretary
of the Astronomical Society of
Wales, covering the transmission
of a set of the publications of
that Society.

From Mr J. A. Copland who forwarded some notes on the Canals of Mars, and which were received & read.

From Mr H. B. Witton of Hamilton who had very kindly forwarded a number of photographs of the moon and a copy of Beer and Madler's map.

From Dr M. A. Veder of Lyons N. Y. thanking the Society for the good wishes which had been expressed towards him, but conveying the information that he was obliged to give up, for various reasons, his researches regarding the Aurora.

From W. N. Greenwood of Lancaster Eng covering the transmission of a paper on the unification of Time, which was received & read.

Letters were also read from Dr Wadsworth and Dr Donaldson on observations of the moon.

As the subject for the evening's discussion was ~~the~~ "lunar work" the chairman called upon those who had prepared notes or made drawings, & favour the

meeting.

Dr Wadsworth read a short paper on the study of the moon, giving some valuable hints to amateur observers, and presented two diagrams illustrating the occultation of a star by the moon. He had brought also two drawings of the Mare Crisium made by Miss E. M. Brook of Sincal. These were much admired.

M^r Elias also presented a sketch of the Mare Crisium and showed several lantern slides on the screen.

M^r Kurudin also presented drawings and read notes of his observations which he had exchanged with Drs Wadsworth and Donaldson.

A lantern slide of a lunar map executed some years ago by M^r Winton was also shown upon the screen and the photos he had sent were passed around for inspection.

A very interesting evening was thus spent, the discussion becoming general.

On motion of M^r Sargny the date for the next meeting was fixed for Dec 23rd as the regular ~~meeting~~^{date} would fall upon Christmas eve.

The meeting then adjourned
 the Tuesday
 for the Reading.

M^r Howard moved the appointment of a committee to prepare ~~an address~~^{resolutions} to Dr Smith and Dr Meredith on the occasion of their retirement from office.

The committee appointed consisted of M^r Howard, M^r Elvin, ~~the~~ M^r Patterson and M^r Spaulding.

The Regular meeting of the
Astronomical & Physical Society
held Dec 23rd in the Technical
School Hall

The vice President M^r John A. Paterson
M.A. occupied the chair.

The corresponding secretary read
a letter received from M^r R. D.
Brown of Ottawa asking information
regarding astronomical literature;
also a letter from Dr. Pickering
of Harvard College Observatory, concerning
the transmission of two photographs
of star clusters.

Rev Canon McNabb of Howland and
Toronto, and M^r L. Lawrence of 60 Yonge
St Toronto were duly elected active
members of the Society.

Nominations were then ^{called} ~~received~~ for
the officers of the Society.

Before proceeding with this order
of Business M^r Laiday reported
the proceedings of the Council meeting
held in the afternoon, and stated
that the President of the Society,
Dr. Haratto W. Smith L.C., and the
vice-president Dr. E. A. Meredith
desired to withdraw from active
official duties and had requested
that their names be not put
forward in nomination for the
ensuing year.

The result of the nominations was as follows:-

Hon. President Hon. G. W. Ross LL.D.
 President Mr John A Paterson M.A.
 Vice-Presidents Mr Arthur Harvey F.R.S.E.
 Mr C. A. Chant B.A.
 Mr R. F. Stupart Director of
 South Observatory

Corresponding Secretary Mr G. L. Lumsden

Treasurer Mr J. Todhunter
 Secretary Mr C. P. Spurling
 Asst Secy & Editor Mr T. Lindsay
 Librarian Mr G. G. Pursey
 Mr W. D. Musson

Foreign Correspondent Mr John A. Copland

Members of the Council

Miss J. K. Cairns

C. A. Chant

A. T. Dehury

A. Harvey ✓

~~D. J. Hall~~

W. D. Musson ✓

J. Phillips

G. G. Pursey

R. F. Stupart ✓

Rev C. H. Shortt

Nominations were then closed

The Librarian's report was read by the assistant secretary. The photographs forwarded by Mr Pickering were shown to the members present.

A paper for the evening had been prepared by Mr. J. H. Collins on "Theories of Gravitation". As the attendance was unusually small the chairman requested Mr. Collins to postpone the reading of his paper till the next meeting, when a larger number of members and friends would be present. This was agreed to by Mr. Collins.

A paper on Problems in Seismography by Mr. S. E. Neal of India was then presented and taken as read.

Mr. M. Turnbull then asked for an opportunity to address the meeting on the subject of a popular observatory for Toronto. This being allowed a short paper was read and some diagrams exhibited, illustrating a method of mounting a reflecting telescope which was a modification of Dr. Henry Draper's method.

~~On motion of Mr. Turnbull~~ It was decided after hearing Mr. Turnbull to refer his paper to the committee appointed to consider the establishment of a popular observatory.

Mr. Lindsay gave notice that
 he would move at the next regular
 meeting, an amendment to the
 constitution to enable the ex-
 presidents and vice-presidents
 of the society to hold seats in
 the council by virtue of office.

~~The meeting then adjourned to~~

the meeting then adjourned till
 January 7th at 2 o'clock

John A. Palmer - Mr. Lindsay
 for the Resolutions.