

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

January 12th, 1909.

The Society's Annual Conversazioni took place to-night at Victoria College.

The business of the meeting consisted of the announcement of the result of the ballot for officers for 1909, as follows :

Hon.
President, Mr. W. F. King, C.M.G.,
Ottawa; President, Mr. W. Balfour
Musson; Vice-Presidents, Prof. Alfred
T. DeLury and Prof. Louis B. Stewart;
Secretary, Mr. J. R. Collins; Treasurer,
Mr. J. Edward Maybee; Recorder,
Miss E. A. Dent; Librarian, Mr. A.
Sinclair; Curator, Mr. Robt. S. Dun-
can; Council—Messrs. J. S. Plaskett,
Ottawa; Rev. D. B. Marsh, Peter-
boro'; A. F. Miller, Toronto; Jos.
Pope, C.M.G., Ottawa; Rev. I. J.
Kavanagh, Montreal.

B. H. ... Toronto.

The result of a ballot whereby certain Fellowships were conferred was also announced. This distinction, which is in recognition of services rendered to astronomical and physical science, was conferred upon Messrs. W. F. King, C.M.G., Ottawa; Professor Clement H. McLeod, Montreal; Dr. Otto Klotz, John S. Plaskett and Robert M. Stewart, of Ottawa.

The President reported that a new Centre of the Society had been formed in Hamilton, with a membership of 35, numbering some of Hamilton's most prominent citizens, ~~with the following officers~~ Mr. G. Parry Jenkins being President.

The President then left the chair, which was taken by Professor DeLury as Vice-President, and Mr. Musson gave an address upon the subject of "The Development of the Stellar Universe," tracing the ~~present~~ development of the

the course of his address Mr. Musson reviewed the more

In the course of his address Mr. Musson reviewed the more generally accepted theories of stellar development, the main conclusion being that although there appears to be evidence of a very strong nature in favor of the theory that the transition from one type of star to another is the result of a gradual and continuous evolutionary process, still development along divergent lines should not be unexpected, and that

mass and environment might be determining factors of very great importance in a star's life history.

Attention was also drawn to the apparently close agreement between mathematical calculation, and the results of observation, in relation to the origin, and development, of binary systems.

pothesis more satisfactorily than when considered as the result of different chemical constitutions.

The meeting, which was largely attended, was held in the chapel of the College, and the adjoining rooms were at the Society's disposal. In one, Mr. L. Gilchrist operated an X-ray apparatus, and Mr. A. F. Miller gave demonstrations with a spectroscope ^{showing} the presence of how different ~~chemical~~ substances is recognized in the heavenly bodies. Refreshments were served at the close of the meeting and a social hour concluded the evening.

MINUTES OF A MEETING OF COUNCIL

held at the Canadian Institute, Toronto, on the 22nd
January, 1909, the President in the Chair.

Present : Mr. Musson;
Mr. Maybee;
Mr. Collins;
Mr. Sinclair;
Dr. Chant;
Mr. Muir;
Miss Dent.

Communications were read from :

The Library of Princeton University, asking for a
set of the Society's Transactions.

Mr. Sinclair was authorized to comply
with this request.

The University of Pennsylvania, asking to be placed
on the Society's Exchange List:

Approved.

Professor Mitchell, Columbia University, stating that
he is to deliver a lecture on an astronomical
subject in London at Eastertime, and expressing
his willingness to give one in Toronto under
the auspices of the Society.

Moved by Mr. Muir, seconded by Mr. Maybee,
that an expenditure of (if necessary)
\$25 be authorized for this purpose :
Carried.

p. 28.

Mr. Musson referred to correspondence which has taken place
with Wesley & Sons, who have been acting as agents for
the Society in disposing of The Journal abroad.
Mr. Musson was asked to write and say that on sub-
scriptions to the Journal received through the Wesley
firm, the usual trade discount will be allowed, and that
if subscribers abroad become members of the Society,

to this means the publications may still be supplied through the
Wesley firm, *a commission for handling will be allowed*
equivalent to the discount when they would have received had the

Mr. Maybee read a letter which he had received from the
Treasurer of the Ottawa Centre, upon the subject of
the collection of fees, and offering to accept any
fees on behalf of the Society if this would facili-
tate the matter here. This led to a discussion as to
the best means of preparing an accurate list of the
members of the Society. Mr. Muir kindly offered to
have the list set up when it is complete on the ad-
dressing machine.

*Journal been
owed to
ordinary
purchasers.*

The President stated that he had received a letter from Mr.
Maybee resigning his office as Treasurer, on account
of pressure of business engagements and poor health.
Much regret was expressed, on account of the resigna-
tion and of its cause. No action was taken.

The Secretary reported officially the result of the ballot respecting the conferring of Fellowships on Dr. King, Professor McLeod, Dr. Klotz, Mr. Plaskett and Mr. Stewart.

The following accounts were dealt with :

App. 23. Subscription to Astrono. Rund., \$3.60. Approved.

App. 24. United Typewriter Co., 6 copies Annual Statement, 60c. Approved.

App. 25. Subscription to Astro-Physical Journal, 1909, \$3.90.
Mr. Sinclair was authorized to write to this publication, to ascertain whether it could be obtained through exchange. In case this cannot be arranged, the appropriation was approved.

App. 26. Caretaker of rooms and messenger, for 1908, \$11. Approved.

Moved by Dr. Chant, seconded by Mr. Collins, that Appropriation 23 be increased by \$30. Approved.

Re Annual Meeting : It was found necessary to increase App. 22 by the sum of \$34.25, the expenses having been as follow :

| | |
|--------------------------------|---------------|
| Postage, | \$5 |
| Victoria College, | 10 |
| Coles' a/c, | 45 |
| Cartage, | 1.50 |
| Tyrrell's a/c, printing cards, | <u>\$7.75</u> |

Total, \$69.25

App. 4, for petty cash, was also found to be insufficient by the sum of \$4, and an increase of this amount was approved.

It was shown that App. 19 should include an item of \$10.75, and this amount was approved.

App. 27. Moved by Mr. Sinclair, seconded by Mr. Muir, that the following books be ordered for the library :
The Solar System--Chas. Lane Poore;
Mars as the Abode of Life--Lowell;
Astronomy of To-day--Dolmage.

~~App. 28.~~
The Editors were authorized to proceed with the next number of the Journal, and a sum not exceeding \$300 was appropriated for the purpose.

The meeting then adjourned.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

MINUTES of a meeting held on the 26th of January, 1908,
the President in the Chair.

The Minutes of the last two meetings were read and approved.

Election :

The nomination was read for the second time of Mr. Thomas Wright, and the election was duly completed.

Nomination :

*Robert Hartley, 16 Adelaide St W. Toronto
proposed by Messrs Collins & Miller.*

Mr Miller's paper dealt with "The Precession of the Equinoxes: its Cause and Effect." Mr. Miller ^{described} gave an ~~ac-~~count of different ⁱⁿ methods employed to determine the equinoxial points ~~and moments of equinox, when the sun crosses~~ the equator. He stated that the North Pole will continue to approach Polaris for 196 years, at the end of which time it will be less than half a degree south from that star. Polaris will continue to be the nearest lucid star to the pole for 3,000 years to come. In 3,800 years the pole will be within three degrees of β Cephei, and in 5,300 years within $1\frac{1}{2}$ degrees of α Cephei. In 7,000 years it will enter the Constellation of Cygnus; In 8,200 years it will pass 5 degrees north of α Cygni, etc. Mr. Miller also gave a list of constellations which will be lost to view in latitude 43 degrees 40 minutes ^{n.} at the time of half the precessional period, and a list of southern constellations which will be brought above the horizon of places in latitude 43 degrees 40 minutes ^{n.} by the precessional change in 12,886 years. The effect of proper motions of the stars was also touched upon, and it was stated that although the places of many of the stars will be greatly affected by

the proper motions, neither Polaris, α Cygni nor Vega will greatly depart from their present positions in half the precessional period, 13,000 years. Arcturus, which has a greater proper motion than any other bright star in that region will move towards the south-west at the rate of 1 degree in 1600 years. The star α Ursae Majoris will move so much as to change the constellation greatly. Sirius will move some 5 degrees south and west, and it will be that much further below the horizon in addition to the precessional effect. On the completion of a whole precessional period Sirius will be more than ten degrees further south and west than at present, and will never again be so well placed for observation from this latitude as at present. In addition, the effect of the sun's motion and its own motion of recession should materially reduce its brightness in 25,765 years. In 13,000 years the constellation of Orion will have greatly changed. The Belt will no longer be a line of three stars. ϵ Orionis will be below δ instead of beside it, and delta will have moved upwards and near to ζ . These three stars will then form a triangle instead of a line. Sirius will be on Orion, along with Betelgeuse and Rigel. α Centauri (the 3rd brightest star in the sky and the nearest) will pass over β Centauri and become one of the stars of the Southern Cross, which will be a cross no longer; Canopus will not greatly change its position in 13,000 years.

Minutes of Meeting of R.G.S.C.
Canadian Institute Dec 9/09

The President in the chair

The minutes of last meeting were read and confirmed

Correspondence

Dr King Ottawa
G. H. Darling Sec Hamilton Centre of the Society
Carl Engler " Ottawa " "
Miss E. Fry " Peterboro " "
The University of Pennsylvania, Philadelphia

Nominations

Robert Hartley 16 Adelaide St W. Toronto

The Librarian made his Report, stating that ⁵⁷⁶ Publications had been received during the year.

Paper for the evening

"Solar Activity during December 1908" ^{contributed} by Prof Luis G León and Mrs León, of Mexico. The contents of the paper had carefully watched the sun's surface, ^{nearly every day} during the months of December and sent numerous drawings of sun-spots and faculae, ^{they had noted} more than one spot had been seen to develop and disappear at a considerable distance in from the limb. ^{considerable} discussion followed the reading of the paper

Minutes of Council Meeting R.A.S.C.
Library Feb 16/09

Those present, were Messrs - Musson, Muir, Miller,
Mayhew, Duncan, Collins

Moved by Mr Miller, seconded by Mr Muir,
(sect no 29) That \$300⁰⁰ of the Society's funds, now on hand
be transferred to the reserve fund (carried)

Moved by Mr Miller, seconded by Mr Muir,
That \$25⁰⁰ be set aside to cover the expense of
a gold medal, to be presented to the university
of Toronto (carried)

The Secretary was instructed to
advise the President of the University of the fact

The Estimates passed

The question of the name of the presiding officer of the various
lectures was discussed. It was thought well that some
uniformity in this respect, ^{was} desirable

Moved by Mr Miller, seconded by Mr Muir,
That the Editor be instructed to procure tenders for
printing the Society's journal, to be submitted to
a meeting of Council on Mar 27 (carried)

Feb 23/09

The Regular Meeting of the R. & S. C.
was held in the Physics Building of the University
of Toronto. The President in the chair

Professor J. C. McLeish gave a lecture on
"Some Recent Verifications of the Atomic Theory of Matter"
The lecture traced the development of the atomic theory
from its beginnings to the present time giving
particular attention to recent work pointing to
the conclusion that matter is discontinuous

Special reference was made to Rutherford's
work whereby he was enabled to calculate the number
of particles that are actually torn from the chemical
atoms during radioactive discharges. The method
of doing this was explained by diagrams and by experiment
Liquid air was passed from thermal flashes
and was ~~not~~ allowed to evaporate to illustrate
the compressibility of the constituent particles

Previous helioidal particles were exhibited under
the microscope in such a way that the particles
in solution became visible by the specialized action
of light.

A vote of thanks was moved by Mr. Patterson
and seconded by Mr. Watson

Mar 2/09

A meeting of Council of R.A.S.P.,
was held in the library on Mar the 2nd
those present were

Murray
Murray, Mayne, Simons, DeLong,
Miller, Elvins, Chant, Collins, Stupart

As Dr. Murray became a member of Council by
virtue of his office of presiding officer for Peterboro Centre
Dr. A. L. Watson was elected to a member of
Council

A number of tenders for printing the "Journal"
were considered but it was decided to leave
the matter of printing with the present printer
\$500. dollars was authorized to be spent on publications
for Mar-April and May-June numbers of Journal
(\$300 each issue)

accounts for Carleton \$2⁰⁰ and ^{\$}Engineering of Physics Building
was paid. also \$285⁰⁰ for lantern slides to the Reading
The matter of Treasurer was discussed

APPROPRIATIONS PASSED AT MEETING OF COUNCIL 2nd.MAR.,1909.

- 42 - Mar-Apr, and May-June No.of Journal \$ 600.00
- 43 - Caretaker \$ 2.00, engineer \$ 2.00, for services
at University at meeting of Feb.23rd.
- 44 - Lantern slides \$ 1.05, and \$ 1.80

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

Minutes of a meeting held on the 9th of March, 1909, at the Canadian Institute, the President in the Chair.

Minutes of the meeting of February 9th were read and approved.

Notes of Dr. MacLennan's lecture on the 23rd of February were read by Mr. Collins.

Communications were read from :

President Falconer, of Toronto University, upon the subject of the Gold Medal given by the Society in Astronomy;

Mr. John Ellis, Swansea;

Reverend Father Kavanagh, Loyola College, Montreal;

Mr. W. W. Payne, asking for plates to illustrate in Popular Astronomy an article by Dr. Klotz.

Mr. Ryckman, notifying of change of address;

Mr. Joseph Pope, Ottawa, respecting the use of the Crown on the Society's seal, and stating his opinion that as the Society has never been authorized to assume that device, its appearance on the seal is improper.

Reports were given of two Council meetings.

Election :

Robert Hartley, 26 Adelaide Street West, Toronto;

This election was completed in the ordinary manner.

Nominations :

Newton L. Forster, Trafalgar, Ont,

Proposed by Messrs. Collins and Sinclair;

M. L. Atkinson, 50 Leopold Street, Toronto,
proposed by Mr. John Ellis and Mr. Collins.

Charles P. Sparling, Toronto,
proposed by Mr. Musson & Professor DeLury.

(In the case of Mr. Sparling the general rule was suspended and his election declared complete.)

The Report of the Librarian was read by Mr. Sinclair.

A short address was given by Mr. Collins on Some Simple Problems of Vision, Curvature of the Sky, Horizon Level, etc.," and with the aid of blackboard diagrams some very interesting points were dealt with. This opened the way for a vigorous discussion on some of the points raised, the figure of the earth, refraction, etc., in which Messrs. Paterson, Sharpe, Miller, Musson and Elvins took part. A question asked by Mr. Elvins, as to the practical meaning of the mathematical term "fourth dimension of space" was answered by Professor DeLury.

Alfred DeLury
March 1895

MEETING OF COUNCIL held March 9th, 1909.

present : Mr. Musson in the chair;
Mr. Collins;
Mr. Sinclair;
Mr. Miller;
Mr. Paterson;
Miss Dent.

Mr. Pope's letter referred to at the meeting to-night was read, and in view of its contents it was decided, on motion of Mr. Sinclair seconded by Mr. Miller) to discontinue the use of the Crown in the Society's seal.

It having become necessary, owing to Mr. Mabee's resignation, to elect a new Treasurer, it was moved by Mr. Miller, seconded by Mr. Paterson, that Mr. C. P. Sparling be elected to that office. Carried.

Minutes R.A.S.C. Mar 23/09

A Regular Meeting of the R.A.S.C. was held in the Society rooms 190 College St on Mar 23rd. The Vice President Professor H. Long in the Chair.

The minutes of the last meeting were read and approved also Report from Council.

The Bureau of the University of Toronto

J. B. McFarlane
R. Wightman and Mr John Ellis

Elected - Newton L. Forster Tropicana Ont -
M. L. Atkinson 50 Leopold St Toronto.

Under Observations

Mr J. H. Graham described an ^{unusual} observation of the setting sun he had recently made from Scarborough Heights, when the sun appeared as a double object just above the western horizon - a phenomenon due no doubt to atmospheric refraction.

The Paper for the evening was by

R. F. Stewart Director of the Meteorological Service of Canada on "The Winds of the Globe"

The lecturer gave a short résumé of the history of meteorological science its development to the present time. It was explained how the various general air currents were located and mapped over a large portion of the globe and showed how by

the change of following the direction of motion of the barometric disturbances over large areas the meteorologist is able to predict with some success the conditions of weather for different

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

April 6th, 1909.

The meeting to-night was held in the Chemical Building of the University, the President in the chair.

Professor Mitchell gave an account of the work in which he had taken part as a member of the United States Government Eclipse Expedition to Spain, and the work accomplished by the expedition. The lecture covered not only the 1905 eclipse in Spain, but his experiences in Manila, in observing the eclipse of _____, and the ~~result~~ result of that expedition. The lecture was illustrated with many fine slides from photographs taken by the lecturer, and incidentally the manners and customs of the two countries and their people were described entertainingly.

On account of wet weather, the audience was small, but their appreciation of the address was evidenced by a vote of thanks moved by Dr. Chant and seconded by Mr. Boyce, ~~xxx~~

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

MINUTES of a meeting held at the Canadian Institute on the
20th of April, 1909.

In the absence of the President the Chair was taken by
Mr. John A. Paterson, K.C., Past President of the Society.

Minutes of the meetings of 23rd March and April 5th
were read and approved.

Correspondence : Letters were read or referred to from --

G. Parry Jenkins, President of the Hamilton Centre;

Dr. Marsh, President of the Peterborough Centre;

Dr. W. F. King, Honourary President;

Dr. Klotz, Ottawa;

The Royal Society of Canada, announcing its annual
meeting, to be held May 24-27, and inviting the
Society to send delegates to the meeting. This
matter was left to be dealt with by Council.

The Report of the Librarian was read by the Assistant
Librarian.

Predictions :

Mr. Collins referred to approaching phenomena of
interest.

Observations :

Under this head, Mr. Miller reported an interesting
observation recently made, at a time when the full moon
and Jupiter were near one another on the heavens,
in which the planet, with a magnifying power of
300, appeared larger than the disc of the full moon,
the two objects being seen at the same time, one
with each eye.

Reference was made by Mr. Paterson to the recent death of
Mr. John Phillips, for many years a member of the So-
ciety, and a contributor to its programmes, having re-
ference especially to the problem of the genesis of
the moon. Mr. Paterson bore witness to his thirst for
inquiry and knowledge and his love of the truth. ~~His~~
Mr. Paterson proposed, seconded by Mr. Miller, and carried
that the President and Secretary be deputed to send
a message of sympathy from the Society to Mr. Phil-
lips' family.

The lecture was by Professor A.T. DeLury, Vice-President of the Society, upon the subject of "Comets and the Computation of their Orbits." Professor DeLury explained the nature of comets, and their relation to the solar system, mentioning several of the most famous comets and their characteristics, in particular Biela's and Halley's. He described the form of orbit travelled, and how the orbit might be changed by the attraction of some great body on the comet. Finally he took up the method followed in computing a comet's orbit, and explained the difficulties met with and overcome. The lecture was followed with the closest interest, and at its close Mr. Paterson expressed the high appreciation of the Society in having the extremely difficult subject so clearly treated.

The Reverend Mr. Short, at one time a member of the Society, and recently of Japan, was present, and on being called upon, said a few words. ~~XXXX~~ He stated that the Japanese are now giving a good deal of attention to astronomical matters, as is evidenced by the publications of their observatories, and expressed his pleasure in meeting his old friends in the Society again.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

MEETING OF COUNCIL

held on the 27th of April, 1909, at the Canadian Institute, the president in the Chair.

Present : Mr. Musson;
Mr. Miller;
Mr. Sparling;
Mr. Muir;
Mr. Stewart;
Mr. Paterson;
Mr. Sinclair;
Mr. Collins;
Mr. Dunkin;
Dr. Watson .
Miss Dent.

The following accounts were presented and disposed of :

App. 45. Mr. Muir, for placing new addresses on addressing machine, \$9.01. Moved by Mr. Sinclair, seconded by Mr. Paterson that this account be paid.

App. 39. Newsome & Gilbert, printing letter paper, \$18, and the University Press, printing circulars and envelopes, \$6.08, amounting together to \$24.08. It was moved seconded and carried that Appropriation No. 39 be increased by the sum of \$30, which will provide for the payment of the above two accounts.

Carswell Co., binding volumes of Astrophysical Journal \$5.05. (Mr. Musson will make inquiries as to this account.)

App. 46. Clerical work done for the late Treasurer, \$1.50. Payment was ordered.

App. 47. Re Mitchell lecture, a fee of \$2 to the caretaker of the building where the lecture was given. Payment ordered.

App. 48. Moved by Mr. Sinclair, seconded by Mr. Sparling, and carried, that an appropriation of \$50 be made for binding. Carried.

App. 49. Moved by Mr. Collins, seconded by Mr. Miller, that the sum of \$12 be appropriated for books for the library.

App. 50. An appropriation of \$15 for stamps was authorized.

App. 51. Re the Society's seal, it was decided that as the device of the Crown was one to which the Society had no right, it should be cut from the seal and replaced by a star, at a cost of \$2.

Correspondence :

The Director of the Nautical Almanack office, Washington, offering publications of his Department.

A. Stanley Williams, Hove, England, offering his zeno-graphical papers. It was directed that the publications of the Society be forwarded to Mr. Williams, in return for his courtesy.

M.Felix de Roy,Antwerp,Belgium;

The Director of Allegheny Observatory,asking the Society's publications. It was moved by Mr.Sinclair and seconded by Mr.Muir that a complete set of the publications be forwarded to the Observatory. The Revd.E.Navarro Neumann,S.J.,Grenada,Spain;

The Observatory de Pachuca,Mexico; publications ordered to be sent.

Charles Shortland,Golden Valley,respecting the loan to him of astronomical maps,etc. Mr.Collins undertook to write to Mr.Shortland on the subject.

The Royal Society of Canada,giving notice of its meeting May 24-27,and asking that delegates of this Society be appointed to attend. The Secretary will ask Dr.King and Mr.Pope to represent the Society.

The British Association for the Advancement of Science a circular letter,asking assistance in obtaining funds from the British Government for publication.

Mr.Sinclair reported on the needs of the library as to binding,which led to App.48 being made. Mr.Sinclair also recommended the purchase of the following books :

The Astronomy of the Bible--Maunder;
Mars as the Abode of Life--Wallace;
The Childrens' Book of Stars--Mitton.

He also asked that the library be supplied with good dictionaries of the French,German,Italian and Spanish languages,his recommendation being that two be obtained this year and two if possible next year.

Mr.Collins mentioned the following new books as being worthy of consideration :

Scientific Ideas of To-day,--Prof.C.D.Gibson;
Science and Hypothesis--Poincare.

It was moved,by Mr.^{Collins}~~Paterson~~,seconded by Mr.Miller, that the sum of \$12(App.49) be appropriated for books.

Mr.Sinclair referred to the great inconvenience to which the officers of the Society are put for the need of a telephone,and asked that another effort be made to move the Institute to install one,it being the general opinion that the rental paid by the Society is high enough to cover this necessity.

The Auditors' Report was read. As certain clauses therein called for special consideration,the opinion of Mr. John A.Paterson,K.C.,had been asked and was presented. It was then decided that in future the minutes of meetings of Council should be read and ratified at the next regular meeting of the Society at executive headquarters. This decision was taken on a motion to that effect made by Dr.Watson,seconded by Mr.Muir, and carried.

The Treasurer reported that there were members of the Society who were in arrears in respect of fees, and were still receiving the publications. A form of account for his use was approved and ordered to be printed. It was moved by Dr. Watson, seconded by Mr. Miller, and carried, that the Treasurer in such cases send due notification to delinquent members, and that if there is no response within sixty days, the names should be reported to the Librarian, in order that they may be dropped from the membership and mailing list as a matter of routine, and without further reference to the Society.

The Librarian referred to the attitude of Messrs. Wesley & Son, the European agents for the Journal, who are said to be charging a fee therefor larger than is warranted, in view of the fact that they receive a trade commission from the Society. Mr. Sinclair was authorized to write to the firm and ask an explanation.

Mr. Muir referred to a motion made by him at a previous meeting of Council, respecting the supply of reprints to contributors, and ~~expressed his desire to have it rescinded. He moved, seconded by Mr. Miller, that reprints be furnished to contributors, if desired, at the expense of the contributor. Carried.~~ *del*
Council allowed previous action to stand, however, that is, so that reprints furnished to contributors are so furnished at their own expense.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

MINUTES of a meeting held on the 4th of May, 1909, at the Canadian Institute, the President in the Chair.

Minutes of the previous meeting were read and approved.

A report from Council of accounts passed at the Council meeting held on the was read and approved, on the motion of Dr. Wonder, seconded by Mr. Collins.

Communications were read from :

The Coast Geodetic Survey of Washington, asking publications;

Popular Astronomy, thanking the Society for the use of cuts;

The Royal Society of Canada, respecting its May meeting.

Nominations :

Miss L.G. Cawsey, 358 Givens Street, Toronto, proposed by Dr. Watson and Mr. Sinclair.

I.R. Pounder, 568 Manning Avenue, Toronto, proposed by Dr. Chant and Mr. Musson.

Stanley Johnstone, 10 Toronto Street, Toronto, proposed by J. Frederick Sharpe and Mr. J.R. Collins.

Predictions :

Mr. Collins gave notice of current phenomena of interest, and a newspaper item respecting the discovery of two new satellites beyond Neptune was read.

Librarian's Report:

Mr. Sinclair reported the recent additions to the Library.

Notes and Queries :

Mr. Collins referred to articles of astronomical or general scientific interest in the magazines.

The lecture was by Dr.A.D.Watson,upon the subject of "Halley's Comet,with special reference to its approaching appearance. " Dr.Watson's paper dealt with the origin of such bodies and the appearance of ~~xxxx~~ Halley's Comet at different times,as recorded. He also spoke of the enormous labour necessary to arrive at knowledge of the comet's orbit,and to the precision with which it had been predicted. The causes which are responsible for changed in its appearance were touched upon,and the course of its journey on the heavens during the winter and spring of 1910 was outlined.

The address was followed by an interesting discussion, in which Messrs.Muir,Miller and Musson took part. Mr. Muir asked a question respecting the spectroscopic observation of comets,and Mr.Miller gave his experience. Mr. Muir stated that one of our members,Mr.Elvins,remembers the last appearance of Halley's Comet. Mr.Miller kindly offered to give a demonstration with the spectroscope before the Society in the near future.

W. S. Musson

The address was by Mr.H.P.Mills ,on Terrestrial and Stellar Temperatures. Mr.Mills gave a history of the development of instruments for the purpose of determining heat ,and described the methods followed in constructing and the characteristic features of many different instruments. This was followed by interesting information respecting the determination of the amount of heat radiated by the stellar bodies. The lecture was illuminated by many lantern slides and a most elaborate and valuable collection of different classes of thermometers and other apparatus. At the close ,Mr.Muir expressed the Society's appreciation of Mr.Mills' very interesting address and of his trouble in collecting and explaining so many seldom-seen instruments.

W B Munson

for Randall J.P. Collins

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| 29 | Reserve Fund | \$ 300.00 |
| 30 | Gold Medal for 1909 | \$ 25.00 |
| 31 | Grant to Ottawa Centre for 1909 | \$ 100.00 |
| 32 | Grant to Hamilton Centre for 1909 | \$ 150.00 |
| 33 | Grant to Peterboro Centre for 1909 | \$ 75.00 |
| 34 | Journal - Jan-Feb.number | \$ 300.00 |
| 35 | Insurance | \$ 10.00 |
| 36 | Rent from 1st.Jan.to 30th.Sept. | \$ 150.00 |
| 37 | Postage | \$ 30.00 |
| 38 | Post Cards | \$ 22.00 |
| 39 | Stationery | \$ 15.00 |
| 40 | Printing cards for meetings(in 1908) | \$ 4.50 |
| 41 | Petty Cash for Asst.Librarian | \$ 10.00 |

Note Appropriation No.1 increased sufficiently to cover accounts of Jones Engraving Co. for engravings in Nov.Dec.number of Journal - Amount not stated.

The Toronto Astronomical Society.

—o—

Toronto,

19

I am directed by the Toronto Astronomical Society to inform you that you have been elected to be an Associate thereof, and that you will be entitled to the enjoyment of full privileges as such Associate upon the payment to me of the sum of _____, and upon signing the enclosed copy of the Roll of Membership, which, I trust, you will be good enough to send, or to hand, to me at your earliest convenience.

I am to add that the By-laws of the Society provide that if your said first fee be not paid within two calendar months of the date hereof, your election as such Associate will, for that reason, become null and void.

Yours truly,

Treasurer.

The Toronto Astronomical Society.

—o—

Roll of Membership.

—o—

I, the undersigned, having been elected an Associate of THE TORONTO ASTRONOMICAL SOCIETY, do hereby promise and declare that I will be governed by the Charter and By-laws of the said Society as they are now formed, or as they may be hereafter altered, amended or enlarged; that I will advance the objects of the Society as far as shall be in my power; that I will attend its meetings as regularly as shall be possible and will take an active and abiding interest in its welfare and prosperity, and that if I become an officer thereof or a member of the Council, I will faithfully and to the best of my ability discharge the duties of the office conferred on or of the trust reposed in me: Provided, however, that whenever I shall signify in writing to the Treasurer of the Society that I am desirous of withdrawing my name therefrom, I shall (after the payment of any fees which may be due by me at that period, and after giving up in good condition any books, instruments or other property belonging to the Society, in my possession or entrusted to me) be free from this obligation.

Witness my hand, this

day of

19

A meeting of the R.A.S.C. was held in the
Society's rooms 148 College St on Tuesday evening
June the first - (June 1st) The president in the chair

Charles Shottland Golden Valley Ont
was elected a member of the Society

Correspondence was reported from
Mr Otto Klotz, Ottawa and
Secretary British Astronomical Association

The Librarian reported the receipt of a number of
Publications of learned Societies and periodicals

This was announced as the last "indoor" meeting
for the summer

on Friday evening June 25th
an open air meeting
the public were invited was held on the lawn of the
University of Toronto, several telescopes were provided
visitors to the number of one hundred attended
The principal objects for study were, the planets
Jupiter, and the moon

W. B. Mason JR

ROYAL ASTRONOMICAL SOCIETY
OF CANADA.

Council Meeting held in the rooms of the Society
Tuesday June 18/07

The President in the chair

The following items were authorized

- No 41 - Increased by \$50⁰⁰ to cover purchase of books
No 42 - " " 600⁰⁰ " " July-Aug & Sep-Oct numbers
" 52 - Five dollars (not to exceed) for cleaning library
" 53 - \$1⁰⁰ for dry cells
" 54 - Printing wrappers &c - \$9.75
" 55 - " Cards 3.75
" 56 - \$6⁰⁰ (not to exceed) library chair
" 57 - Subscription Astronomical Journal \$5 an

There present were

Musson, Norris, Sinclair, Miller,
Duncan Stewart Collins

W.C.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

of Council
MINUTES of a meeting held on the 24th of September, 1909,
at the Canadian Institute, the President in the
Chair.

Present : Mr. Musson;
Mr. Collins;
Mr. Sparling;
Mr. Elvins;
Mr. Miller;
Mr. Stewart;
Mr. Paterson;
Dr. Watson;
Miss Dent.

APPROPRIATIONS :

The following appropriations were made :

- No. 58. The Journal, November-December. Proposed by Mr. Paterson, seconded by Dr. Watson, that \$300 be appropriated for this purpose.
- No. 59. Mr. Giddens, attending to mail, one year, \$1. Approved.
- No. 60. Reserve Fund : Moved by Mr. Miller, seconded by Dr. Watson, that \$300 be added to the Reserve Fund, this sum being derived from fees from Toronto members, and the civic grant of \$100. Carried.
- In order that the Reserve Fund might be placed on a permanent basis the suggestion was made that it be invested as soon as possible in some approved municipal or other good bonded security, and Mr. Miller and Mr. Sparling were appointed a committee to look into the subject of a suitable investment.
- No. 61. Postage, \$15 : Approved.
- No. 62. Expenses amounting to \$3, incurred in connection with a recent visit to Toronto of Prof. Percival Lowell.
- No. 63. Necessary expenses in connection with the opening lecture of the season, to be given by Prof. Frost, Director of Yerkes Observatory; amount not fixed.

Moved by Mr. Paterson, seconded by Mr. Sparling, that the Librarian be authorized to order three dictionaries, English, French-English and German-English, at a cost not to exceed \$15.

It was also decided to order a copy of a biographical dictionary."American Men of Science," Edition of 1910.

Mr,Elvins asked that a copy of "Climate and Time," by James Croll.be bought for the library. This was approved.

A copy was directed to be ordered of an Index to be published next year of the Sidereal Messenger,Popular Astronomy and the Astro-Physical Journal,also of "The Value of Science";by Poincare.

The Treasurer was directed to send to the Department of State an account for two years' subscription to the Journal.

An account of the Students' Book Department for books, amounting to \$6.45,was approved.

An account of \$53.44 for engraving was approved,to be paid out of App.No.42.

The Librarian was authorized to comply with a request of the Department of Commerce and Labour,Washington,for a set of the Society's Transactions,etc., and to send to the Library of Columbia University certain numbers of Transactions desired to complete its set.

The Canadian Institute having offered to install a telephone if the Society would bear half the cost,it was decided not to undertake this expense this year.

It was shown that the name of Dr. Turby, Belgium, had inadvertently been dropped from the list of Honourary Members, and ^{ions}directors were given that the name be at once reinstated.

A letter from the Peterborough Centre was read, dealing with a name which that body desires to repudiate. This letter was handed to Mr. Paterson for reply.

The subject of the form of the Annual Meeting was discussed. It had been suggested that an attempt be ~~ma~~ made to have the proceedings more popular in character ~~th~~ than they have heretofore been, by means of a liberal use of lantern slides, etc. It was finally ~~xxxxxxx~~ decided that it would be expedient to separate the Annual Meeting from the Conversazioni.

By special arrangement Professor Edwin B. Frost
Director of the Yerkes Observatory of the University of Chicago
addressed the Society at the opening meeting for
on "Some Phases of Work in a modern Observatory"
in the Mining Building of the University of Toronto
on Saturday evening Oct 14th 1915 Professor Alfred Baker
in the Chair

Nominations

Miss Minnie Johnston
112 Taylor St Toronto

Miss Marguerite Comer
109 Pembroke St "

Miss L.B. Durand
237 Huron St "

Professor Frost = Dr. J. E. Hart, Berlin.

Reviewed the work now being done in modern
Observatories illustrated by a number of unperfected
 lantern slides

a vote of thanks ^{rendered} to the lecturer was moved }
by Peterson, P. J. Grant and Van Vollen

M.C.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

MINUTES of a meeting held at the Canadian Institute on the 26th of October, 1909, the President in the Chair.

The Minutes were read and approved of the last two previous meetings.

Communications were read from :

Dr. Turby, Belgium;
A. Stanley Williams;
Mrs. Syer, offering a large telescope for sale;
M. Laurant, Ottawa, asking a copy of the Hand-Book.
Charles Shortland, Golden Valley, returning slides borrowed from the library;
The American Academy of Social Science;
The British Association for the Advancement of Science;
The Reverend Father Kavanagh, Loyola College, Montreal;
Mr. R. M. Stewart, Ottawa, asking back numbers of The Journal for a new member;
The Astronomical Association of Western Canada, Winnipeg;
The Secretary of the Ottawa Centre, notifying of changes in membership list;
Henry Harrison, Jersey City;
Professor Percival Lowell, respecting a lecture to be given by him in December;
Miss Minnie Johnston, Toronto, requesting membership;
J. S. Plaskett, Ottawa, respecting a paper to be given by him upon the subject of his work at the Dominion Observatory;
R. E. DeLury, Dominion Observatory, Ottawa;
G. Parry Jenkins, President of the Hamilton Centre;
A letter to Mr. Elvins from Professor Lowell was also read, in which very high praise and appreciation was expressed of some of Mr. Elvins' early astronomical note-books and drawings.

Elections :

Miss L. B. Durand, 237 Huron Street, Toronto;
Miss Minnie Johnston, 12 Taylor Street, Toronto;
Miss Marguerite Corner, 109 Pembroke Street, Toronto;
Dr. J. E. Hett, Berlin.

The above were declared duly elected members of the Society.

Librarian's Report :

Mr. Sinclair read a lengthy report of the additions to the library during the last few months.

Under the heading of "Predictions" an interesting discussion took place respecting the approaching appearance of Halley's Comet. The comet was first sighted at Heidelberg by Professor Wolf in almost exactly the position predicted for it.

Under "Observations" Mr. Wallace gave a most interesting account of his experiences in making a reflector, and his encouraging success.

Mr. Muir stated that during the last few months he has been observing Mars and Saturn with the Todhunter telescope, and that he had seen several very fine auroræ.

Mr. Miller reported his observations of Mars during the late opposition with his fine reflector, describing in detail the appearance of the surface of the planet, and the peculiarities of the markings, comparing ~~his~~ his impressions with his earlier observations.

Mr. Elvins spoke upon the subject of some of his early observations of Mars, and regarding the displays of aurora seen within the last few weeks.

Through the kindness of Mr. Stupart, a diagram was shown of the Observatory record of the magnetic storm of the 25th of September last.

W. J. Munn

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

MINUTES of a meeting held at the Canadian Institute on the
9th of November, 1909, the President in
the Chair.

Minutes of the previous meeting were read and approved.

Correspondence was read from the following :

G. Parry Jenkins, President of the Hamilton Section
of the Society, thanking the Society for as-
sistance in preparing the programme;

The Reverend Father Kavanagh, Loyola College Montreal,
respecting a paper to be given by him;

Mr. William Bruce, Hamilton, who has a fine telescope,
and who asks for information respecting opti-
cal problems;

The Secretary of the Ottawa Centre, enclosing pro-
gramme.

Professor DeLury referred to the fact that the Secretary
had received an announcement to the Society of
the death of Professor Simon Newcombe, and
moved that the Secretary be instructed to
communicate with Mrs. Newcombe and to convey
to her and her family the sympathy of the
Society in her great loss, and its high appre-
ciation of his splendid services to astronomi-
cal science. The motion was seconded by Mr.
J. S. Plaskett and carried.

Mr. Sinclair read the report of the Librarian, showing
valuable additions to the library within the
last fortnight. Particular reference was
made to Sir William Huggins' new book, which
came to the Society with the compliments of
the author. Mr. Musson referred to the work
of Sir William and Lady Huggins and their
magnificent contributions to astro-physics.
Mr. Muir moved that a vote of thanks be con-
veyed to ~~the~~ Sir William Huggins for his gift.
The motion was seconded by Mr. Graham and passed.

Predictions : Mr. Collins referred to approaching phen-
omena of interest, and to the fact that although
clouded skies have been the rule this fall
there have been intervals of very fine "see-
ing."

The lecture was by Mr. J. S. Plaskett, of the Dominion Observatory, Ottawa, upon the subject of the classes of work done there, and the methods employed. This work includes spectroscopic work on the sun, the spectra of stars, the motion of stars in the line of sight, determining the velocity of motion, the measurement of spectroscopic binaries, and determination of the orbits of binaries. Mr. Plaskett referred to the fact that β Cepheus is a binary with a period of about four hours. The address was illustrated with many lantern slides showing the splendid equipment of the Observatory, and illustrations of the results of the investigations held there, and was followed by an interesting discussion. A hearty vote of thanks to the lecturer was passed at the close of the meeting, on motion of Professor DeLury, seconded by Mr. Miller, and at considerably past the usual closing hour the meeting was adjourned.

W. B. Musson

Dominion Observatory Ottawa
Work at the Dominion Observatory
Lecture by J. R. Plankette B.A., a member of the staff,
before the Royal Astronomical Society last night (Nov 9th /09)
in the Canadian Institute

The work at the Dom. Obs. may be classified under the following heads.

- (a) Geophysics embracing terrestrial magnetism - determination of the magnetic declination & dip and horizontal intensity - determination of the force of gravity in various parts of the country, and seismology or the keeping tabulating and discussing of sensitive records of earthquake shocks.
- (b) Meridian work embracing the determination of the latitude and longitude of selected stations throughout the country, the determination and maintenance of accurate standard time including a system synchronously controlled electric clocks through all the departmental buildings at Ottawa, and the ^{accurate} determination of the absolute positions of certain stars by means of the meridian circle.
- (c) Astronomical & Astrophysical work embracing the measurement of the position angle & distance of double stars, the position of comets and the time of occultation of stars by the moon. It includes the photography of selected regions of the sky and of comets and especially the photography of the spectra of stars for the determination of their radial velocity. These latter stars are mostly spectroscopic binaries and ~~more~~ when a sufficiently large number of measurements have been obtained the character of their motion around one another can be determined.

This division also includes work in solar research embracing daily photographs of the sun's surface for determining the size & position of the disturbed regions as spots and faculae and ~~spectrograms~~ spectrograms obtained to determine the character and period of the solar rotation as well as other researches in this important and practical subject.

(d) The delimitation and marking of the international boundaries. This work has been in progress for many years and is being actively prosecuted. Besides marking and unmarking of the boundary lines between Canada & the United States, surveys are made and maps prepared of a strip of country on each side of the boundary.

(e) The Geodetic Survey of Canada. This is perhaps the most important practical work carried on ~~at~~ in connection with the Observatory. It has been in operation about 3 years and already a good start has been made for a primary survey of the whole country.

In division (c) the most time is devoted to the determination of the radial velocities of stars and through them of the elements of the orbits of spectroscopic binaries. Although the Observatory has only been in operation a short time and with a telescope much smaller than any other engaged in this work it has already accomplished ~~at least as~~ probably as much as any other in this

2
line of determining orbits having obtained
9 out of about 40, ^{that are now} known, and is now
doing more than any other observatory
in this work.

Out of the 9 orbits determined several
have rather abnormal features some
indicating the presence of three bodies
instead of two and having other interesting
features.

It is by ^{us} the continuation of such work
~~that~~ and by the continual additions to
our knowledge thus obtained that we
may finally hope to obtain a better
idea of the construction of the universe
and it is impossible to foretell in
advance how great a practical bearing
such a work may not have.

①

Council Meeting R.A.S.C. Nov 16/09

Members present

Henry Musson, Chant, Leury, Sinclair, Stewart,
Muir, Collins, Miller

Nominations of Officers & Members of Council for 1910

| | | |
|---------------|------------------------------|---------|
| Hon President | Mr W. F. King C.M.G., Ottawa | |
| " | Professor Alfred J. Leury | Toronto |
| 1st Vice " | Professor L. B. Stewart | " |
| 2nd " " | J. S. Plaskett B.A. | Ottawa |
| Treasurer | Chas V. Sparling | Toronto |
| Librarian | A. Sinclair M.A. | " |
| Recorder | Miss Elsie A. Hunt | " |
| Secretary | J. R. Collins | " |
| Curator | Robt S. Duncan | " |

Members of Council (not to be chosen)

| | |
|-----------------------------|-------------------------|
| Joseph Pope C.M.G., Ottawa. | A. F. Miller Toronto |
| Rev J. J. Kavanagh Montreal | R. Stewart Muir " |
| Mr A. D. Watson Toronto. | R. M. Stewart Ottawa |
| Frederick Epilchrist " | L. H. Graham Toronto |
| Wm Bruce, Hamilton | H. B. Collier Peterboro |

②

R.A.S.C. Council Meeting

The Finance Committee - Mary Miller, Sparling, & Minson reported in favor of investing the reserve fund (\$872.00) in a Canada Permanent Bank - carried -

Proposed by A. Sinclair & R. Collins } a Stanley Williams was elected a corresponding member

The following appropriations were authorized.

- 64 C.B. Stanton Wilson Co \$1000 printing Programmes
- 50 Treasurer Postage Stamps increased by \$5.00
- 48 Binding Books for library increased by \$22.85
- 65 necessary expense for Annual Meeting Jan 4/1910
- 66 Treasurer Stationery \$15.00
- 67 Mr Plaskett personal expenses

The Secretary was instructed ^{when sending out ballots} to notify voters that ballots of those over a year in arrears of fees, would not be counted
M.C.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

Minutes of a meeting held at the Canadian Institute,
November 23rd, 1909, the President in the Chair.

Minutes of the previous meeting were read and approved.

Communications were read from ;

G. Parry Jenkins, President of the Hamilton Centre;

J. Miller Barr, St. Catharines;

J. S. Plaskett, Ottawa;

J. S. Darling, Hamilton.

Minutes of the meeting of Council held on the 16th
instant were read and adopted.

The Report of the Librarian, showing recent additions
to the Library, was read.

Under the head of predictions, Mr. Collins referred to
approaching phenomena of interest.

Under Observations, Mr. Wallace reported his observa-
tions of Venus and Mars, and Mr. Miller stated that
he had observed Mars on every possible occasion dur-
ing the last few weeks, but that it is now receding
so that the detail visible at the time of opposition
cannot now be seen with his telescope. He also re-
ported that Mira is at present between the 5th and
6th magnitude.

The Reverend Robert Atkinson, of ^{Chesley} ~~Tara~~, who was present,
spoke of the pleasure he felt in being present at
a meeting of the Society during an absence of sever-
al years, and stated that he is still observing with
his three-inch telescope

The lecture was by Mr. Lawrence V. Redman, B.A., upon the
subject of some recent developments in Physics with
regard to Colloidal Particles, with experimental de-
monstrations. Notes of the lecture are attached.
An interesting discussion followed, in which Messrs.
Atkinson, Musson and Collins took part. It was mov-
ed by Professor DeLury and seconded by Mr. Elvins, that
a vote of thanks be tendered to the lecturer for the
trouble he had taken in presenting the subject so
attractively, and as an expression of the high appre-
ciation of the Society of the value of such an ad-
dress.

W. V. Musson

Paper by Lawrence V Redman B.A.
R. A. S. C. Nov 23/07

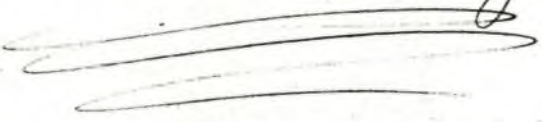
Colloidal Systems - Matter viewed
under the Ultra Microscope

The history of colloids ^{was rehearsed} beginning
with the Purple of Cassius, and the gold
dissolved in glass. Graham's classification
and Faraday's researches were also
mentioned. Then followed Leigmondy's
and Seidentopf's discovery of the
ultra-microscope. This new instrument
shows particles one-twentieth the
size of ^{the smallest} those seen in the microscope.
and ~~scientists~~ ^{Physicists} are now working in
the hope of using ultra-violet rays
and extending the power of the
ultra-microscope ~~so as to see~~
fifty diameters which should then
show the molecule of hydrogen.

The motion of the particles was shown from slides. The Brownian movements and the oscillating motions of the particles were illustrated showing the resemblance of

Finally the ^{motion} of the particles to the motion of the stars. In the later part of the lecture ^{it was shown} that all bacteria ^{Recent discoveries prove} could be treated like colloids in that they ^{are} precipitated like colloids by the addition of certain quantities of electrolytes.

Then the lecturer showed slides of arsenic sulphide illustrating the recent discoveries of Ostwald in connection with Titan's fainting, showing that it was by means of a precipitated colloid used as a base on the canvas and by the superposition of a colloid (in solution) upon this base that such excellent colors were produced by the great painter.



THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

Minutes of a meeting held in the Mining Building Laboratory of the University of Toronto, December 7th, 1909, the President in the chair.

Minutes of the last previous meeting were read and adopted.

The only business transacted was the reading of the nomination of

R. Hamlyn, 445 Church Street, Toronto,

proposed by Professor Chant and Mr. J. R. Collins.

The lecture was by Mr. Saul Dushman B.A., on "Methods of Attaining and Measuring High Temperatures." Notes of Mr. Dushman's address will be attached hereto.

W B Munson

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

MINUTES of a meeting held at the Canadian Institute on the 21st of December, 1909, the President in the Chair.

Minutes of the previous meeting were read and adopted.

Communications were read from the following :

The Ottawa Centre, sending a list of officers for the coming year; and notifying of the death of two members;

The Registrar of Victoria College, granting the use of the chapel and hall for the evening of 18th January, for the Annual Conversazioni;

Dr. Percival Lowell, transmitting his paper to be read this evening;

The Royal Astronomical Society, sending a number of valuable Memoirs and Monthly Notices;

Election :

the nomination was read for the second time of Mr. R. Hamlyn, and the election was duly completed.

Librarian's Report:

In the absence of the Librarian, his report of recent additions to the library was read by Mr. Graham.

Predictions:

Mr. Collins read a list of approaching phenomena of interest.

Observations:

Under this heading, Mr. Sharpe referred to an interesting spectacle seen on the previous evening, when the moon, Saturn and Mars formed a conspicuous triangular figure on the heavens.

The paper of the evening, on the Planet Jupiter, by Professor Percival Lowell, was read by Mr. Collins. It will appear in full in The Journal. The paper was illustrated with interesting photographs taken of the planet at Flagstaff Observatory, from which lantern slides had been made.

The address was followed by an interesting discussion, in which Dr. Watson, Mr. Muir, Mr. Pursey, Mr. Miller and Mr. Elvins took part. Mr. Elvins' remarks were especially interesting, as he gave reminiscences of his observations of Jupiter made some thirty years ago, and stated that he had at that time come to the conclusion that there was at least one more satellite of the planet than was at that time known. He entered into correspondence with Professor Barnard on the subject, and asked him to search for satellites, and he believes the discovery of the fifth satellite was in some measure due to his suggestion.

W. B. Musson
J. R. L.