

### List of Officers.

#### Honorary President.

WILLIAM F. KING, B.A., D.T.S., LL.D.,  
Chief Astronomer, Ottawa.

#### President:

C. A. CHANT, M.A., PH.D.,  
University of Toronto.

#### 1st Vice-President:

W. BALFOUR MUSSON,  
22 Park Road.

#### 2nd Vice-President:

LOUIS B. STEWART, D.T.S.,  
University of Toronto.

#### Treasurer:

GEORGE RIDOUT,  
Nordheimer Building, 77 York St., Toronto.

#### Recorder:

MISS ELSIE A. DENT,  
17 St. James Ave.

#### Secretary:

J. R. COLLINS,  
23 North St.

#### Librarian:

A. SINCLAIR, M.A.,  
125 Cumberland St.

#### Curator:

ROBERT S. DUNCAN,  
516 Ontario St.

### Council.

The above officers, with the following members constitute the Council of the Society:

JOSEPH POPE, C.M.G., F.R.S.C., Ottawa,  
A. F. MILLER, Toronto,  
REV. DR. MARSH, F.R.A.S., Springville,  
ALFRED T. DELURV, M.A., Toronto,  
L. H. GRAHAM, M.A., East Toronto,

*Elected by the Society:*

and the following Past Presidents:

ANDREW ELVINS,  
JOHN A. PATERSON, K.C., M.A.,  
R. F. STUPART, F.R.S.C.,  
Director of the Canadian Meteorological Service.

# The Royal Astronomical Society of Canada



## PROGRAMME FOR THE TORONTO MEETINGS

April - June  
1907

MEETINGS IN THE SOCIETY'S ROOMS  
198 COLLEGE ST., TORONTO

### Papers and Subjects for Discussion.

Session: April - June, 1907.

Meetings begin at 8 p.m.

- April 2:** (in Chemical Building)  
Some Cosmical Aspects of Radioactivity.  
PROFESSOR E. RUTHERFORD, F.R.S.
- April 16:**  
Applications of the Interferometer in Spectroscopy.  
(With experiments and lantern slides).  
L. GILCHRIST, M.A.
- April 30:**  
A few facts about the Great Pyramid,  
J. FREDERICK SHARPE.
- May 14:**  
Recent Applications of Photography to Astronomy,  
(With lantern illustrations).  
DAVID J. HOWELL.
- May 28:**  
Variations in the Leading Features of the Tide in  
Different Regions,  
W. BELL DAWSON, D.SC., F.R.S.C., Ottawa.
- June 11:**  
Critical Temperatures in Relation to Cosmic  
Theories.  
R. S. DEWAR.
- June 18:**  
Open Air Meeting on Observatory Lawn.

### SPECIAL NOTICE.

Should the evening of June 18 be unsuitable for open air observations the meeting will probably be postponed until the next evening. Announcement will be made in the daily papers.

In addition to the papers announced on the opposite page there will be at each meeting:

1. Report on the Sun's Activity.  
By F. L. BLAKE.
2. Review of Important Articles in Current Literature.  
By VARIOUS MEMBERS.

### NOTES.

Free discussion is allowed on each paper and on other timely subjects. This often is a very interesting feature of the evening.

The Society issues an annual *Handbook* containing an account of the astronomical phenomena of the year, and also a bi-monthly *Journal*, containing papers presented to the Society and other interesting features. All publications are free to members.

Miss L. M. Mason, Assistant Librarian, will be in the Library on Tuesday evenings, and on other days from 3.30 to 5.30 p.m.

Anyone interested in Astronomy or Astronomical Physics is eligible for membership.

Annual Fee - - \$2.00.

**Papers and Subjects for Discussion.**

*Session: January - March, 1907.*

Meetings begin at 8 p.m.

**January 8:**

The Society's Annual At-Home.

**January 22:**

Mars: A Review of Some Recent Publications on the Planet.  
(With lantern illustrations).

A. F. MILLER.

**February 5:**

Earthquakes of 1906.

(With Seismograph records and lantern illustrations).

R. F. STUPART, F.R.S.C.

**February 19:**

A Comparison of Lunar and Terrestrial Volcanoes.  
J. EDWARD MAYBEE, M.E.

The Use of 'Esperanto,' the Universal Language, to Astronomers. (With Examples).

R. STEWART MUIR.

**March 5:**

Astrophysical Work at the Dominion Observatory at Ottawa.

(With lantern illustrations).

JOHN S. PLASKETT, B.A.

**March 19:**

Recent Applications of Photography to Astronomy.  
(With illustrations).

DAVID J. HOWELL.

**SPECIAL NOTICE.**

On April 2, Professor Rutherford, of McGill University, will address the Society. The meeting will probably be in the University Chemical Building.

In addition to the papers announced on the opposite page there will be at each meeting:

1. Report on the Sun's Activity.

By F. L. BLAKE.

2. Review of Important Articles in Current Literature.

By VARIOUS MEMBERS.

**NOTES.**

Free discussion is allowed on each paper and on other timely subjects. This often is a very interesting feature of the evening.

The Society issues an annual *Handbook* containing an account of the astronomical phenomena of the year, and will begin in February the publication of the *Canadian Astronomical Record*, bi-monthly, which will contain papers presented to the Society and other interesting features. All publications are free to members.

Miss J. K. Lawson, Assistant Librarian, will be in the Library on Tuesday evenings, and on other days from 3.30 to 5.30 p.m.

Anyone interested in Astronomy or Astronomical Physics is eligible for membership.

Annual Fee - - \$2.00.

The annual At-Home of the Society took place on the 8th of January, and was most successful in point of attendance and in the interest of the proceedings. Reports were received from the Corresponding Secretary and the Treasurer, showing that the affairs of the Society are in a flourishing condition. A synopsis of the President's Annual Address is attached.

The evening closed with an hour of social intercourse and in examining some of the fine plates which were on exhibition from the Paris Atlas of the Moon, Mr. Miller's spectroscope, etc.

MINUTES of a meeting of Council held on the 17th of January, 1907, in the Society's Library, Canadian Institute, Toronto.

Present :       Dr. Chant, in the Chair;  
                  Mr. Ridout;  
                  Mr. Duncan;  
                  Mr. Elvins;  
                  Mr. Sinclair;  
                  Mr. Collins;  
                  Miss Dent.

The subject of the bi-monthly for some time in contemplation was fully discussed, and Dr. Chant and Mr. Collins undertook to assume charge of the publication of the first number, which it is expected will issue early in February. A proposal to publish advertisements was discussed, and it was decided to place the matter in the hands of an advertising agent, Mr. Collins agreeing to find a suitable agent. Mr. Ridout undertook to see Tyrrells with a view to having copies of the periodical on sale. The name of the publication was settled as THE CANADIAN ASTRONOMICAL RECORD.

Dr. Chant reported that the Assistant Librarian desires to retire at the end of the month, and it was decided to engage the services of a clerk who could do necessary typewriting and other general clerical work.

Mr. Ridout suggested that a general stock-taking of the books should be held, and all books be called in, about the first of June, a suggestion which met with general approval.

Moved by Mr. Collins, seconded by Mr. Duncan, and carried, that Mr. William Bain be requested to audit the accounts of the Society.

In view of the proposed revision of the Constitution, Me. Paterson, Mr. Collins, Mr. Musson and the President were appointed to act as a Committee to take charge of the revision.

Moved by Mr. Ridout, seconded by Mr. Collins, that a sum of \$150 be set aside for future use, such fund to be known as the "Reserve Fund," and to be added to from year to year.

REPORT FROM COUNCIL

of a meeting held on the 17th January, 1906, the President in the Chair.

Several items of interest were discussed and disposed of :

(a) The subject of the bi-monthly for some time in contemplation received special consideration. The name of the publication was settled as THE CANADIAN ASTRONOMICAL RECORD; Dr. Chant and Mr. Collins assumed charge of the publication of the first number, which is expected to issue early in February; a proposal to publish advertisements was discussed, also the desirability of having the publication on sale in the book shops;

(b) In view of the desire of the Assistant Librarian to retire at the end of the month, it was decided to endeavour to obtain the services of a clerk who could do typewriting and other general clerical work;

(c) It was considered <sup>desirable</sup> that a general stock-taking <sup>should be held</sup> of the books in the Library next summer, and that, for that purpose, all books should be called in before the first of June;

(d) The question of an Auditor having arisen, it was decided to request Mr. William Bain to audit the Society's accounts;

(e) A Committee, consisting of Messrs. Paterson, Collins, Musson and the President were appointed to take charge of the proposed revision of the Constitution;

(f) The formation of a Reserve Fund was undertaken, and for that purpose \$150 was directed to be set aside, such sum to be added to from year to year.

MINUTES of a Special Meeting of Council held on  
the 22nd of January, 1907.

Present :

Mr. Chant;  
Mr. Musson;  
Mr. Millar;  
Mr. Patterson;  
Mr. Graham;  
Mr. Collins;  
Mr. Elvins;  
Miss Dent.

The Special Meeting was held by reason of the clause in the Report from Council, of the meeting held on the 17th, respecting the name of the new periodical of the Society, having been referred back to Council, with authority to Council to settle such name without further reference to the Society. It was felt by some of the Members of Council who had not been at the Council Meeting on the 17th that the name then decided upon, "The Canadian Astronomical Record," did not identify the publication with the Society, and that some name should be chosen which would render obvious the fact that the publication was the production of the Society. After a full discussion of the subject, it was moved by Mr. Paterson, seconded by Mr. Musson, and carried, That the name of the periodical be THE JOURNAL OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

MINUTES OF A MEETING OF

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

held on the 22nd of January, 1907, the President, Dr. C.A. Chant, in the Chair.

Minutes of the meeting held on the 18th ultimo were read and approved.

A Report from Council of a meeting held on the 17th instant was read:

It was moved by Mr. Paterson, seconded by Mr. Muir, that the Report be adopted, with the exception of clause (a) thereof, respecting the name of the publication to be issued by the Society, and that this clause be referred back to Council for reconsideration, with power to Council to settle the name without further reference to the Society. Carried.

Communications read from :

Mr. Weston Weatherbe, of Barre Centre, N.Y.;  
Oliver Ferrier, Director of the Royal Observatory of Belgium, thanking the Society for its publications and stating that exchanges would be made;  
Captain Donnelly, Kingston.

Elections :

The nominations were read for the second time of  
Miss Helen Paton, Lachute, P.Q. and  
Mr. W.G. McMillan, Toronto.

It was moved, seconded and carried that the Recorder be directed to cast a ballot in favour of the election of both candidates, who were then declared by the President to be duly elected.

Nominations :

The Reverend J.T.W. Claridge, M.A., F.R.A.S., Burton-on-Trent, England,  
proposed by J.R. Collins and J.R. Paterson;

Emmanuel Hahn, 435 Indian Road, Toronto,  
proposed by D.J. Howell and J.R. Collins.

The Librarian's Report was read, showing a large list of new and valuable accessions to the library.

Observations :

A most interesting photograph of the spectrum of Mira, taken by Mr. J.S. Plaskett, at the Dominion Observatory during the recent maximum, was shown, and was the subject of an interesting discussion.

The lecture took the form of a review by Mr. A.F.

Millar of Percival Lowell's new book "Mars and Its Canals,"



Mr. Millar's remarks were confined to giving an account of Mr. Lowell's work without criticism. His view was that the book gave evidence of splendid observational work, and that, whether or not his conclusions be accepted, it was worthy of careful and respectful examination and consideration by every open-minded student of the heavens.

Feb. 5, 1907

C. A. Chant  
President

MINUTES OF A MEETING OF

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA,

held on the 5th of February, 1907, the President in the Chair.

Minutes of the previous meeting were read and approved.

A report of the specially called meeting of Council, held on the 22nd ultimo, was read. The report stated that the name of the Society's new periodical is "The Journal of the Royal Astronomical Society of Canada,"

A verbal report was also given of a meeting held on the 5th instant, at which the subject of the appointment of an assistant in the library was dealt with, and settled by recommending the appointment of Miss Laura Mason. A recommendation was also made that additional shelving, etc., be placed in the library.

It was moved, seconded and carried that the report from Council be approved.

Communications were read from :

J.A. Russell, N.S. ;  
J.S. Plaskett, Dominion Observatory, Ottawa ;  
Professor Leon, Mexico.

Election of Members :

The nominations were read for the second time of

The Reverend J.T.W. Claridge and  
Mr. Emmanuel Hahn.

Moved by Mr. Musson, seconded by Mr. Graham that the Recorder be directed to cast a ballot in favour of the election of both candidates, who were then declared by the President to be duly elected members.

Nomination :

The nomination for membership was read of

F.C. Neal, Esq., M.A., M.D.,  
298 King Street, Peterborough,  
proposed by D.B. Marsh and C.A. Chant;

Lachlan Gilchrist, M.A.,  
201 McCaul Street, Toronto,  
proposed by W.E.W. Jackson and C.A. Chant.

The President reported the unexpected death of Mr. J. C. Hamilton, for many years a member of the Society. It was suggested that a Committee be appointed to draft a Resolution expressing to Mrs. Hamilton the regret of the Society in the taking away of one who was respected by all, and Mr. Collins and Mr. Paterson were asked to act as this Committee.

The lecture was by Mr. R. F. Stupart, Director of the Meteorological Service of Canada, and Past President of the Society, upon the subject of the records made at Toronto and other observatories of the earthquakes of the last year. The apparatus was described, and slides shown of the tracings of the seismograph. Mr. Stupart explained that by study and comparison of such records it may be possible in the future for humanity to protect itself from the devastation produced by earthquakes. The address was exceedingly interesting, and led to a spirited discussion.

Feb. 19, 1907

C. A. F. Hunt  
President

MINUTES of a meeting of Council held on the 5th of February, 1906, the President in the Chair.

present :     Dr.Chant;  
                  Mr.Elvins;  
                  Mr.Musson;  
                  Mr.Collins;  
                  Mr.Ridout;  
                  Mr.Stewart;  
                  Mr.Sinclair;  
                  Miss Dent.

The President reported that, the engagement of Miss Lawson as Assistant in the Library having been terminated, an application had been received from Miss Laura Mason, Toronto, which he was in favour of accepting. The duties of the position were understood by Miss Mason, who was willing to undertake them, the initial salary to be \$3 per week.

Moved by Mr.Graham, seconded by Mr.Musson, that Miss Mason be appointed to fill the position of Assistant in the Library : Carried.

It was also decided to have some extra shelving and a stepladder in the library.

MINUTES OF A MEETING OF THE ROYAL ASTRONOMICAL SOCIETY OF  
CANADA, held on the 19th of February, 1907, the Presi-  
dent in the Chair.

Minutes of the previous meeting were read and approved.

Communications were read from :

Mr. J. S. Plaskett, Dominion Observatory, Ottawa;  
Professor Ritchie, Solar Observatory, Mount Wilson,  
California, offering photographs of the moon  
taken at his observatory.

Professor Mendeleef, the eminent Russian physicist  
whose death has been reported within the last  
few days;

Lewis Swift, Marathon, N.Y., offering volumes of  
magazines and monthly notices.

Elections :

The nominations were read for the second time of

F. C. Neal, M.A., M.D., Peterborough;

Lachlan Gilchrist, M.A., Toronto.

Moved by Mr. Paterson, seconded by Mr. Maybee, that  
the Recorder be directed to cast a ballot in  
favour of the election of these gentlemen, who  
were then declared by the President to be duly  
elected members of the Society.

Librarian's Report was read, showing recent additions to  
the Library.

Reports of Observations & Predictions.

The prediction of Mr. Denning was read that on  
the 3<sup>d</sup> of October next Jupiter would be ap-  
parently moonless, all satellites being either  
eclipsed or in transit.

Mr. Elvins reported that a large group of spots  
has been visible on the sun within the last few  
days, and referred to a newspaper report that a  
large meteor had fallen at Todmorden.

Dr. Chant reported a beautiful display of aurora  
on the 4<sup>th</sup> instant.

A newspaper clipping was read, stating that an  
important magnetic storm had taken place at  
Pittsburg, Pa., during the time of the recent  
large sun-spots.

Notes and Queries :

The President announced that the first number  
of the Journal would be ready for issue about  
the end of the week.

Two papers were given, the first by Mr. J. Edward Maybee, M.E., on "A Comparison of Lunar and Terrestrial Volcanoes," the other by Mr. R. Stewart Muir, on "The use of Esperanto as a means of communication between Astronomers." Both papers were of deep interest. Mr. Maybee's paper was illustrated by lantern slides. Notes of the papers are herewith.

Mar. 5, 1907

C. A. G. Hunt  
President

This paper was intended to set forth briefly what has been learned as to the probable nature and genesis of lunar craters by a careful study of the various types of craters in this world. Masmyth's eruption theory, founded on a study of typical craters of the Vesuvian type has met with considerable favor in the past but it seems most probable that it must give way to the engulfment theory of later years more particularly in view of Pickering's recent work on the Hawaiian craters, with which should be read a chapter on lunar and terrestrial craters in his work on the moon published in 19 .

The Hawaiian volcanoes are mostly of the "lava type" as compared with the majority of terrestrial volcanoes which are largely built up of ejected ashes, scoria, lapilli, lava bombs or mud. Steam is usually the motive power in eruptive volcanoes whereas in lava craters little steam is present and the crater walls are built up by comparatively quiet outflows of liquid lava. The water to form steam is, and probably always has been, very scarce on the moon and for that reason alone it might be expected that lunar craters would not be of the eruptive type and in addition the resemblances between the Hawaiian lava cones and the



lunar formations ~~is~~ <sup>are</sup> so striking that  
it becomes almost a certainty that  
the same forces must have been at  
work in both cases.

In the moon the force of gravity is only  
 $\frac{1}{6}$ <sup>th</sup> of ~~the~~ its force here and in ad-  
dition the earth attraction on the moon  
is about 8 times that of the moon on  
the earth and in past ages was  
probably much greater. There is  
evidence thus created on the  
moon pumping liquid lava up and  
over through cracks and crevices in  
the moons crust would be quite  
sufficient to account for the un-  
usual size of the lunar formations.

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The Esperanto Language.

Read before the Royal Astronomical Society of Canada, Feb 19/07

It is due to this Society that my first words should be those of apology in attempting to engage your attention. Not without some trepidation do I appear before you who are so accustomed to have matters of high scientific value brought to your attention. Relying upon the charity so prevalent and predominant in scientific minds I shall indulge in the hope that the result of my remarks may afford members of this Society a means of corresponding personally with astronomers in many lands without the necessity of acquiring a writing and speaking knowledge of many foreign tongues. An accomplishment very few possess.

If, however, I present my personal apology, I, on the other hand, have no apology for the subject I have chosen to present for your consideration. I mean the Esperanto language. It may truly be claimed that none of the many attempts to formulate a language which would be universal and applicable to all the needs of every class of the world's inhabitants has been so eagerly adopted by both the educated and the comparatively uneducated classes of every country of the world.

In presenting the claims of the Esperanto language for your attention and consideration let me ask you to dismiss all idea that its author and propagandists intend to supplant or destroy or in any way aim to affect the amour propre of a single individual throughout the world.

The interchange of ideas between individuals of similar and dissimilar speech has ever been the means of advancing the interests of humanity. In so far as such interchange has been impossible or difficult, just so far the barbaric or savage instincts of mankind have been called into play. The various nations of the earth have had ideals varying in degree of utility, beneficence and sublimity to the extent that their

language possessed characteristics, both as to derivation and construction, which afforded an intelligible expression of such ideals. It does not follow necessarily that because a language is either simple or complex in construction, that ideas of a complex nature only can be expressed. Language appears to be simple or otherwise more as a result of the chief racial developments of mankind. The Mongolian, Caucasian and African races have developed as many leading types of language, of which the various nations composing these main divisions have made many diversities. Some appear to be retrograde in their results, others the reverse. Unquestionably the Caucasian races have attained the highest degree of perfection.

Another factor in the development of language has been the constantly increasing interchange of relations of every kind among the nations of the earth, necessitating the adoption, to a degree, of a foreign element in the language of all the parties. These changes and innovations are easily traceable. It is not going beyond the bounds of prudence to state that science must be given credit as the chief promoter of these changes. Commerce is the next factor. In the present condition of the world's vastly intricate and complex relations the need has become apparent for a means of international communication which shall be at once "suitable for the purposes of Commerce, Literature, Poetry, Science and general correspondence and conversation between the people of different nationalities.

The history of mankind affords many examples of persons and events becoming the undoubted cause or medium of highly important changes in the world's progress. Sacred and profane history alike attest this fact. Science, and particularly Astronomy, furnishes many examples, such as:- Ptolemy, Copernicus, Galileo, Kepler and Newton. In no less degree will the world attest that the author of the Esperanto language is entitled to a place in this gallery of fame.

Permit me now to give a short historical sketch of

the Esperanto language and its author.

Dr L. Zamenhof, was born in Bjelostock, a border town between Poland and Prussia, in 1859. From early youth the strange feature of many nationalities in his locality being unable to communicate with each other in a common language appealed to him, and with a devotion equalled in other realms of science and the cause of humanity, he conceived the idea of constructing a language suitable to all nations. Not that the native tongue should be supplanted or abolished, but an auxiliary language constructed capable of expressing the varied common wants. Such a task would appal the stoutest heart and puzzle the most fertile imagination. Dr Zamenhof, after completing his medical studies, began the work of acquiring various European languages, or such a knowledge of them, as would suit his purpose. Gradually the work assumed shape and in 1887 he was ready to publish his work. But, alas, no publisher could be found. By a coincidence, not unusual in the annals of science, M de Beaufront, of Paris, was engaged upon a similar task and was almost ready to publish his work when Dr Zamenhof's plan was communicated to him. With rare magnanimity he gave up his own work and threw himself most energetically into the furtherance of Esperanto.

As you are probably aware, many attempts of a similar nature had been made, with failure written large as the only record. Hence the task of flying against the strong blasts of popular feeling might well deter another attempt being made. All the shafts of ridicule, wit, irony and satire from writers in every country have been hurled against Esperanto. Quietly and unostentatiously the work has progressed until within 20 years almost every country in the world has Esperanto clubs and over half a million of persons are more or less proficient in its use. Two international congresses have been held and the third will meet in Cambridge, England, during August of this year. All proceedings take place in Esperanto and include

besides the usual business of such a meeting, debates, the presentation of plays, and rendering of songs. Over twenty journals are published and compare favorably with magazines of other classes. An opportunity will be given later in the evening of examining some of the publications.

Naturally the construction of the Esperanto language is the most important feature. In this particular Esperanto bears the closest inspection and criticism. In order to fulfil the high aims of its author certain characteristics must be so predominant as to evoke attention and satisfy criticism. Such a language must be (1) unqualifiedly simple, (2) extremely elastic, and (3) undoubtedly easy of acquirement. Esperanto fulfils these conditions perfectly. The alphabet is that used by the majority of European countries-Roman characters. Every letter has one sound and one only under all conditions. There are no exceptions of any kind throughout the whole Esperanto language. The ~~pronunciation~~<sup>accent</sup> is always on the same syllable of all words. The rules of grammar may be written on one side of a sheet of letter paper. ~~This~~<sup>This</sup> small leaflet of four pages contains all the grammatical rules.

The second requirement- that of elasticity- is amply provided for, as by the use of about thirty prefixes and suffixes an infinite variety of words may be formed from a root word. The sample given on ~~this~~<sup>this</sup> sheet will illustrate this feature. Every part of speech has its characteristic ending which never varies. There is but one conjugation of the verb and no irregular verbs. The construction of sentences is exceedingly simple, as owing to the certainty of the endings of words and the distinctive characteristics of the verb in the various moods and tenses, the arrangement of the words by the student can scarcely be subject to a wrong translation.

Ease of acquirement of the Esperanto language both for correspondence and conversation is assured by the fact that to all Europeans there is a familiarity with one's native

tongue. This is accounted for by the fact that the English speaking student recognizes 70% of the words, the Italian 60%, the Spaniard 42%, the Frenchman 80% and the German 40%. This combined with the fact that there are only about 2700 root words in Esperanto renders the international language very simple.

*Esperanto*

In the realms of science and commerce, seek its chief honors. Already the London Chamber of Commerce holds examinations and grants diplomas having a recognized value. The Army and Navy Colleges of France, Russia, Great Britain and the United States have officially recognized the new language and assigned it a place in the curricula. In connection with many of the Universities of Europe and the United States Esperanto has received recognition.

Astronomers in various countries have taken advantage of Esperanto and in the British Esperantist for December last appears an article by M Felix de Roy, a member of the Astronomical Society of Belgium, concerning the employment of Esperanto in astronomical work.

Illustrative of the world wide interest in Esperanto there is published by the British Esperantist Association an "Adresaro" or directory of Esperantists who are willing to correspond with their fellows. A perusal of the names is interesting as exhibiting persons in all walks of life in all countries. A manual can be seen later in the evening. Also a number of postcards from many different countries.

But I shall not weary you further. I bespeak for the Esperanto language your careful investigation. There can not be a doubt as to the experimental stage being passed, The Esperanto language has now entered the next period of its existence- that of active aggression. As surely as the Copernican theory of the universe made its way against all opposition through the sheer force of its real scientific value, so will Esperanto inevitably attain a like position in its field. As

mentioned in the beginning, not to supplant any national tongue with all its history, its sentiment and its local charm, but to become the international tongue which shall pave the way for a marvellous reduction of the antagonisms of the nations, a clearer understanding of the various racial ideals and the hastening of "the parliament of man and the federation of the world."

" 'Tis a consummation devoutly to be wished".

R Stewart Muir.

MINUTES OF A MEETING OF COUNCIL

held on 6th March, 1907, the President in the Chair.

Present : Dr. Chant;  
Mr. Collins;  
Mr. Ridout;  
Mr. Elvins;  
Mr. Stewart;  
Mr. Duncan;  
Miss Dent.

The President explained that the meeting had been called in consequence of the meeting called for the 28th February having been ineffective, for want of a quorum.

An account of R.G. McLean, amounting to \$311, for printing and binding Handbooks, was presented. Moved by Mr. Collins, seconded by Mr. Stewart, that the account be paid. Carried.

An account of \$5 for reprints of Mr. Barr's paper was also passed, and ordered to be paid.

An account of the canvasser for The Journal, his commission for advertisements obtained, was passed and ordered to be paid, amounting to \$

Account of Z.M. Collins for printing The Journal, amounting to \$222.74: payment of \$150 on account was directed.

The President reported that he had received a communication from Mr. Baynes Reed, of the Dominion Meteorological Service, Victoria, B.C., stating that a meeting had been held with a view to starting a local Astronomical Society, and asking for information as to having it a Section of this Society. Dr. Chant was directed to afford the new Society every facility for affiliation.



M I N U T E S

OF A MEETING OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA, held on the 6th of March, 1907, the President in the Chair.

Minutes of the last previous meeting were read and approved.

It was announced by the President that the second number of The Journal would be ready for issue about the 4th or 5th of April next.

Mr. Musson and Mr. Muir expressed their pleasure in the first number, just issued.

Mr. Boyce asked that the second number contain some particulars relating to the pendulum experiment exhibited at Dr. Chant's open University Lecture some weeks ago.

Communications were read from :

Mr. Ellis, Swansea, enclosing several items of current astronomical interest;  
G. P. Jenkins, Secretary of the Hamilton Society;  
Miss Florence Hamilton, thanking the Society for the Resolution and wreath sent in memory of the late J. C. Hamilton;  
J. W. Odell, Cobourg;  
Mr. Henry Harrison, Jersey City;  
Dr. Lewis Swift, Marathon, N. Y.  
E. Baynes Reed, Meteorological Office, Victoria, B. C., stating that a meeting had been held there with a view to establishing an Astronomical Society, and asking for information as to making the new Society a Section of this Society.  
F. Napier Denison, Victoria, B. C.

Report from Council : a verbal report was given by the President of the business transacted at the meeting held before the opening of the present meeting.

Nominations :

E. Baynes Reed, Meteorological Office, Victoria, B. C., proposed by Dr. Chant and Miss Dent.

F. Napier Denison, Meteorological Office, Victoria, B. C., proposed by Dr. Chant and Miss Dent.

Margarethe J. Jansen, Ph. D., University of Toronto, proposed by Dr. Kirschmann and Dr. Chant.

Miss I. M. Walker, 116 George Street, Hamilton, proposed by G. Parry Jenkins and J. R. Collins.

The Librarian's Report was read.

Dr. Chant reported that at a largely attended meeting held in Peterborough on the 26th of February, a local organization, intended to be a Section of this Society, was formed, and that Dr. Marsh expects the new Society to have a membership of one hundred

Predictions, etc.

Predictions of current astronomical phenomena were read by Mr. Collins.

It was reported that Mercury had been observed several times within the last week.

Notes and queries :

### 1 Terrestrial Magnetism

Mr. Elms, presented a note showing that a cycle existed in the variation of the magnetic needle at Greenwich, ~~and~~ coincident with a cycle of the periods of the planets of Mars, Jupiter and Saturn multiplied into each other, both periods being about 650 years. Mr. Elms hoped to explain his views of the cause in a paper shortly, which are the result of studies commenced in the "Toronto Daily Telegraph" in 1868.

The lecture was a paper contributed by Mr. J. S. Plaskett of Dominion Observatory, upon "Astrophysical Work at the Dominion Observatory at Ottawa, which, on account of Mr. Plaskett's inability to be present, was read by Dr. Chant. It consisted of an account of the equipment of the Obser-

vatory for the class of work in question, and of the  
work performed at Ottawa. The paper was illustrated by  
lantern slides.

March 19, 1907

C. Chant  
President

## MINUTES

of a meeting of The Royal Astronomical Society of Canada, held on the 19th of March, 1907, the President in the Chair.

The Minutes of the last previous meeting were read and approved.

Communications were read from :

Professor Ritchie, of the Solar Observatory,  
Mount Wilson, California;

Mr. J. S. Plaskett, of Dominion Observatory, complimenting the Society on the appearance of the first number of The Journal, and upon the subject of certain proposed changes in the Constitution of the Society;

J. T. W. Claridge, Burton-on-Trent, England;

E. B. Frost, Director of Yerkes Observatory;

W. H. Pickering, of Harvard College Observatory;

F. A. McDiarmid, Dominion Observatory;

Reverend Father Choquette, St. Hyacinthe College;

The Honourable Chief Justice Moss.

All of these referred to the publication of the first number of The Journal.

### ELECTIONS :

The nominations were read for the second time of :

Mr. E. Baynes Reed, Victoria, B. C. ;  
Mr. F. Napier Denison, Victoria, B. C. ,  
Miss I. M. Walker, Hamilton;  
Miss Margarethe Jensen, Ph. D., Toronto.

It was moved by Mr. Sinclair, seconded by Mr. Elvins and carried, that the Recorder be directed to cast a ballot in favour of the election of all candidates, who were then declared by the President to be duly elected.

### NOMINATIONS :

Harry P. Mills, Student, 19 Winchester St., Toronto,  
proposed by C. A. Chant and E. A. Dent;

Professor William H. Day, Ontario Agricultural  
College, Guelph,  
proposed by C. A. Chant and E. A. Dent;

P. E. Clarkson, D. D. S., 495 Bathurst Street, Toronto,  
proposed by C. A. Chant and E. A. Dent;

Miss Bessie Ross, 61 Delaware Avenue, Toronto,  
proposed by C. A. Chant and E. A. Dent.

The Report of the Librarian was read, showing the additions which have recently been made, also a number of Harvard bulletins, respecting a Comet recently discovered by Giacobini.

Predictions of phenomena were read by Mr. Collins.

On account of Mr. Howell's inability to present his paper on "Recent applications of Photography to Astronomy," Mr. Elvins was called upon to fill the vacancy in the programme, and he responded by giving an address on his views respecting the Tides.

April 16  
1907

C. A. F. Hout  
President

MINUTES OF A MEETING OF COUNCIL

held at the Canadian Institute, March 27th, 1907, the  
President in the Chair.

Present :

Dr. Chant;  
Mr. Sinclair;  
Mr. Ridout;  
Mr. Musson;  
Mr. Collins;  
Miss Dent.

The account of the printer for printing the first number of The Journal was the subject of a lengthy discussion.

Moved by Mr. Ridout, seconded by Mr. Sinclair, that the balance of the account, amounting to \$77.99, be paid : Carried, Mr. Musson dissenting.

In view of the fact that the expenses connected with The Journal had exceeded the estimated cost, it was agreed that, as a matter of prudence, the third issue should not be published until the Government Grants are approved.

Mr. Collins presented a statement of his expenses for postage, and the same was approved.

The subject of the necessity of the revision of the Constitution was discussed, but no action was taken, the Committee charged with the matter not having yet reported.

REPORT FROM COUNCIL

of a meeting held at the Canadian Institute, March 27th, 1907, the President in the Chair.

The only item of importance dealt with was the account for printing the first number of the Journal, upon which a balance of \$77.99 was due. It was directed that this balance be paid.

April 2nd - 1907.

The meeting tonight took place in the Chemical Building of the University, in view of the necessity for providing accommodation for a large number to hear Professor Rutherford. His Honour the Lieutenant-Governor was in the Chair, & in honour of the occasion the entire evening was given to the lecture, on the subject of "Some Cosmical Aspects of Radioactivity," & no business was transacted. A full report of the lecture was taken & will appear in *The Journal*.

**Papers and Subjects for Discussion.**

Session: April - June, 1907.

Meetings begin at 8 p.m.

- April 2: (in Chemical Building)  
Some Cosmical Aspects of Radioactivity.  
PROFESSOR E. RUTHERFORD, F.R.S.
- April 16:  
Applications of the Interferometer in Spectroscopy.  
(With experiments and lantern slides).  
L. GILCHRIST, M.A.
- April 30:  
A few facts about the Great Pyramid,  
J. FREDERICK SHARPE.
- May 14:  
Recent Applications of Photography to Astronomy,  
(With lantern illustrations).  
DAVID J. HOWELL.
- May 28:  
Variations in the Leading Features of the Tide in  
Different Regions,  
W. BELL DAWSON, D.SC., F.R.S.C., Ottawa.
- June 11:  
Critical Temperatures in Relation to Cosmic  
Theories.  
R. S. DEWAR.
- June 18:  
Open Air Meeting on Observatory Lawn.

**SPECIAL NOTICE.**

Should the evening of June 18 be unsuitable for open air observations the meeting will probably be postponed until the next evening. Announcement will be made in the daily papers.

In addition to the papers announced on the opposite page there will be at each meeting:

1. Report on the Sun's Activity.  
By F. L. BLAKE.
2. Review of Important Articles in Current Literature.  
By VARIOUS MEMBERS.

**NOTES.**

Free discussion is allowed on each paper and on other timely subjects. This often is a very interesting feature of the evening.

The Society issues an annual *Handbook* containing an account of the astronomical phenomena of the year, and also a bi-monthly *Journal*, containing papers presented to the Society and other interesting features. All publications are free to members.

Miss L. M. Mason, Assistant Librarian, will be in the Library on Tuesday evenings, and on other days from 3.30 to 5.30 p.m.

Anyone interested in Astronomy or Astronomical Physics is eligible for membership.

Annual Fee - - \$2.00.



MINUTES of a meeting of THE ROYAL ASTRONOMICAL SOCIETY OF CANADA, held on the 16th of April, 1907, at the Canadian Institute, the President in the Chair.

Minutes of the previous meeting were read and approved.

Communications read from :

J. Miller Barr, St. Catharines, expressing regret for his inability to be present at Prof. Rutherford's lecture, and pleasure in the first number of The Journal;

M. L. Harrison, St. John, N. B., asking for a copy of the Hand Book.

J. S. Plaskett, Dominion Observatory, upon the subject of the grant to the Society from the Dominion Government;

Joseph Pope, Ottawa, respecting postal arrangements for mailing the Society's publications; also respecting the Dominion Grant;

Royal Society of Canada, giving notice of its Annual Meeting;

Dr. W. S. King, Dominion Observatory, respecting contributions from the Ottawa Section to The Journal;

Revd. T. H. E. Espin, Tow Law, England, acknowledging receipt of the first number of The Journal and sending notes of his observations of double stars;

Dr. D. B. Marsh, Springville, Ont., respecting the Society recently formed at Peterborough, and reporting a membership of 43;

Revd. Father Kavanagh, covering a photograph of the spectrum of  $\alpha$  Ceti taken at Stoneyhurst College Observatory.

It was suggested by the President and approved of, that Dr. King and Mr. Pope be requested to represent the Society at the coming meeting of the Royal Society, and the Secretary was requested to communicate with them on the subject.

Moved by Mr. Musson and seconded by Mr. Collins, that the President be requested to comply with the desire of Dr. Marsh that he assist the Peterborough Society by lecturing there on the 3rd of May. Carried.

Elections :

The nominations were read for the second time of :

Harry P.Mills ,Toronto;  
Professor Wm.H.Day,Guelph;  
R.D.Clarkson,D.D.S.,Toronto;  
Miss Bessie Ross,Toronto.

Moved by Mr.Collins,seconded by Mr.Gilchrist,that the Recorder be directed to cast a ballot for the election of all candidates,who were then declared by the president to be duly elected.

Nominations : proposed by C.A.Chant and E.A.Dent :

Robert Tyson,10 Harbord Street,Toronto;  
Miss M.Woolley,15 Delaware Avenue,Toronto;  
Thomas S.Plaskett,489 Manning Avenue,Toronto;  
Mrs.H.S.Saunders,21 Harbord Street,Toronto;  
E.Pugsley,B.A.,Port Rowan;  
Stewart Bucke,B.A.,Port Rowan;  
Miss I.A.Templeton-Armstrong,Port Rowan.

Moved by Mr.Collins,seconded by Mr.Boyce,that the By-law requiring two weeks' notice be suspended in this case,on account of the delay which has occurred in presenting the nominations,due to there having been no business transacted at the last meeting. ~~Carried.~~ *Unanimously agreed -*

Moved by Mr.Elvins,seconded by Mr.George Ridout,that the Recorder be requested to cast a ballot in favour of the election of the seven nominees,who were then declared by the President to be duly elected members of the Society.

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

The paper was by Mr.L.Gilchrist,M.A.,on "Applications of the Interferometer in Spectroscopy," and was illustrated with experiments and lantern slides.

*April 30, 1907*

*C.A. Chant  
Pres.*

MINUTES OF A MEETING OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA, held at the Canadian Institute on the 30th of April, 1907, the President in the Chair.

Minutes of the previous meeting were read and approved.

Communications read :

Mr. E. B. Waite, Chicago, Ills.;

Mr. Joseph Pope, Ottawa, respecting the Government grant to the Society;

The British Association for the Advancement of Science, requesting the appointment of a delegate to represent this Society at its meeting to be held in August next;

In respect of the last communication, it was decided to leave the matter of the choice of a delegate to the President and Secretary.

Report from Council :

A verbal report was given of a meeting of Council held earlier in the evening, at which certain accounts were passed.

Nominations :

E. B. Waite, 4217 Ellis Avenue, Chicago, Ills.;  
proposed by C. A. Chant and J. R. Collins.

George W. Robertson, B.A., University of Toronto,  
proposed by C. A. Chant and E. A. Dent;

Professor J. Matheson, M.A., Queen's University, Kingston,  
proposed by C. A. Chant and E. A. Dent;

Professor N. F. Dupuis, M.A., F.R.S.C., Queen's University, Kingston, proposed by C. A. Chant and E. A. Dent.

Report of the Librarian read, reporting recent additions to the library.

Predictions of phenomena were read by Mr. Collins.

*The lecture was by Mr. J. Frederick Shupe, on a subject about the Great Pyramids. Notes are attached. The paper was of the deepest interest & gave rise to a spirited discussion. <sup>It</sup> was expressed by several speakers that Mr. Shupe would continue the subject in another paper.*

*May 14, 1907.*

*C. A. Chant  
President*

Mr. Sharpe quoted from various authorities on the subject, showing that the building contained in its shape & measurements various astronomical & cosmical facts, such as the length of the day & of the solar year, the size & configuration of the earth, its distance from the sun & showing a knowledge of these subjects on the part of the architect equal to that possessed by architects of the present day; that ~~although~~ built before the time of the patriarchs its mechanical & architectural excellence was equal to if not superior to anything of modern times & that these facts were taken by many of the best philosophers of the day to indicate that the Pyramid was planned & built under Divine inspiration, while the numerous allusions to it in the Bible both in the Old & New Testaments would tend to bear out this theory.



## MINUTES

of a meeting held at the Canadian Institute on the 14th of May, 1907, the President in the Chair.

Minutes of the previous meeting were read and approved.

Communications were read from :

Miss Christobel Robinson, Secretary of the Local Council of Women, thanking the Society for the use of its lantern;

Dr. Klotz, asking that Sir William McGregor, Governor of Newfoundland, be placed on the Society's mailing list;

W. H. Eastman, Grand Rapids, making inquiries respecting material to be published in The Journal.

Report from Council :

A verbal report was given of the meeting of Council held earlier in the evening.

Elections :

The nominations were read for the second time of :

E. B. Waite, Chicago;  
Professor J. Matheson, M.A., Queen's College, Kingston;  
George W. Robertson, University of Toronto;  
Professor N. F. Dupuis, M.A., F.R.S.C., Queen's College, Kingston.

Moved by Mr. Muir, seconded by Mr. Ridout, and carried, that the Recorded be directed to cast a ballot for the election of all candidates, who were then declared by the President to be duly elected.

Nominations :

W. E. Groves, Ryerson School, Toronto;  
proposed by L. M. Dent and E. A. Dent;

W. A. Eastman, Grand Rapids, Mich;  
Professor William Findlay, Ph.D., McMaster Univ.  
Dr. T. H. Whitelaw, B.A., Edmonton, Alta.,  
proposed by C. A. Chant and E. A. Dent.

Librarian's Report was presented.

Reports of Committees :

The Committee on the revision of the By-laws reported progress.

Predictions :

Predictions of phenomena were given by Mr. Collins and Dr. Chant.

The President referred to the recent death of Mr. Todhunter, for many years an active member of the Society, and the donor of a telescope.

Mr. Miller on behalf of Mr. Townsend presented the Society with a piece of meteoric iron, being part of a specimen already in the possession of the Society, and the Secretary was directed to write to Mr. Townsend thanking him for his gift, and asking for a history of the meteorite.

The President stated that Mr. Joseph Pope and Dr. King has consented to act as the Society's representatives at the approaching meeting of the Royal Society of Canada.

Mr. Muir suggested that notifications in the form of post cards be sent out as reminders to the members of Dr. Dawson's lecture, to be given on the 28th instant.

The lecture was given by Mr. David Howell, and dealt with "Recent applications of Photography to Astronomy". Notes of the paper are herewith.

May 28/07

C. B. Hunt  
President

## SOME RECENT APPLICATIONS OF PHOTOGRAPHY IN ASTRONOMY.

In a brief survey of papers on photographic methods and work in astronomy given before the Society, reference was made to some of its very early meetings, and several slides of photographs made in those early days were shown. They served to emphasize the progress made by the Society.

Some of the disadvantages of photography in astronomy and spectroscopy given by Schriener over fifteen years ago in his book on stellar photography were quoted.

The development of photographic lenses to almost meet theoretical requirements has removed some of these disadvantages. Many other difficulties had been overcome by the introduction and improvement of colour sensitizing dyes whereby gelatine dry plates could now be obtained that were fairly evenly sensitive to the whole visible spectrum. A number of these dyes were mentioned and their optical characteristics given and illustrated on the screen by photographs of the spectrum obtained on plates prepared with them. Improvement had also been made in the preparation of the plates whereby a somewhat finer grain was possible. Special dyes for colour filters had been introduced whereby the part of light not required could be cut off and without increasing the exposure to the same extent as had been necessary up to very recently.

A detailed description of filter yellow K, one of the latest of these, was given with a series of comparison spectograms made under varying conditions, and in comparison with the older dyes, showing great improvement in this yellow dye for its special purpose.

These improvements had been quickly utilized in astronomy. In photographing stellar spectra, in photographing the solar corona and other eclipse phenomena, and in obtaining more correct photographs than had hitherto been possible.



A description of the spectro-heliograph of the Yerkes Observatory and the method of working was given. A number of the resultant photographs were thrown on the screen.

A description of the photographing of Mars at Flagstaff Observatory was also given, whereby results were given which confirmed some of the detail shown on the drawings by Percival Lowell and others. These photographs were projected on the screen with <sup>the</sup> drawings, for comparison.

Prediction was made that when the advances made in photography were fully utilized in astronomy greater and more accurate results would be obtained.

MINUTES OF A MEETING OF COUNCIL

held on the 14th of May, 1907, the President, Dr. Chant, in the Chair.

Present :       Dr. Chant;  
                  Mr. Graham;  
                  Mr. Stewart;  
                  Mr. Ridout;  
                  Mr. Collins;  
                  Miss Dent.

An account was presented for the making of shelving, in the library, step-ladder, express charges, etc., amounting to \$23.50. Moved by Mr. Collins, seconded by Mr. Stewart, that the account be approved and passed.

Account presented of R.G. McLean, for electrotyping eleven pages of the Hand Book for future use, amounting to \$9.75 : it was decided that the account was not entirely satisfactory, and the Secretary was directed to ask for an itemized ~~statement~~ statement.

The estimates for the cost of issuing Nos III and IV of the Journal were then discussed. It was shown that No. II cost about \$200, and No. III is expected to cost about \$180 and No. IV about \$165.

Moved by Mr. Stewart, seconded by Mr. Graham, that the amounts mentioned be appropriated for the issue of Nos. III and IV, and that the expenses be limited to those amounts.

Dr. Chant stated that certain work had been performed for the Society by a copyist, and recommended that a book or some remuneration be made therefor. Dr. Chant was authorized to attend to the matter.

Dr. Chant was also authorized to comply with a request of Dr. Klotz, that the name of the Governor of Newfoundland be placed on the Society's mailing list.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

MINUTES of a meeting held on the 19th of May, at the Canadian Institute, the President in the Chair.

Minutes of the last previous meeting were read and approved.

Communications were read from :

Dr. W. F. King, Ottawa, upon the subject of the Constitution.

J. Miller Barr, St. Catharines;

W. H. Lowry, Peterborough;

W. H. S. Monck, M. A., F. R. A. S., Dublin;

Frederick Sharpe;

J. S. Plaskett;

Dr. Otto Klotz.

Also bulletins of Harvard College and Yerkes Observatories.

Minutes of the Council meeting held on the 12th instant were read and approved.

The subject of the appointment of delegates to represent the Society at the meeting of the Royal Society of Canada to be held at Ottawa was dealt with, and it was decided to ask Dr. King, Mr. Pope and Mr. Muir to attend as the representatives of the Society. A motion to this effect was made by Mr. Paterson, seconded by Dr. Chant, and carried.

Nomination :

Mr. R. L. Hutchinson, Director of the Meteorological Observatory, St. John, N. B.,  
proposed by Mr. R. F. Stupart and Mr. W. B. Musson.

The Report of the Librarian was read by Mr. Sinclair, who reported that the Assistant Librarian had communicated with the publishers of Popular Astronomy, suggesting that the Society be placed on the Exchange List of the Magazine, instead of on the ordinary paid up subscription list, and that the request had been granted, effecting a saving of the annual cost of the magazine.

Predictions :

Predictions of approaching phenomena were read by Dr. Chant.

Observations :

Mr. Miller reported that he had again observed the darkening of the terminator of Venus to which he referred at the last meeting, though it was not so deep a shadow as he had previously seen. He stated that he considered it probable that the shadow was at times exaggerated by the tremor of the atmosphere.

Notes and queries :

Mr. Musson gave a list of interesting papers which have lately been given before the Royal Astronomical Society and other scientific bodies, and of articles of general scientific interest which have appeared in recent numbers of the magazines.

A proposal having been made that a Question Box be instituted, the idea was received with such favour that within a few minutes six or seven questions had been handed to the Chairman. Replies will be forthcoming at the next meeting. One of them, asking the reason of sun-spots appearing black, was answered by Mr. Miller.

The paper was one contributed by the Reverend J. T. W. & Claridge, M.A., F.R.A.S., Burton-on-Trent, England, and was read by the Recorder. The paper gave a short account of the life and work of the great astronomer Sir William Herschel, and will appear in due course in The Journal. At its close several portraits of the Herschel family were thrown on the screen.

*W B Musson*

Minutes of a meeting held on the 28th of May, 1907, the President in the Chair.

Minutes of the previous meeting were read and approved.

Communications :

The Bursar of the University of Toronto covering cheque for \$100, the amount granted by the Governors of the University as a subscription to The Journal;

Mr. J. S. Plaskett, adding certain names to the list of Ottawa members, etc.;

Wesley & Sons, London, requesting copies of No. II of The Journal;

The High Commissioner for Canada, sending two copies of volumes I and II of the Survey of the Heavens by Photography, the work of the International Conference held at Paris in 1887.

Elections :

The nominations were read for the second time of :  
Dr. T. H. Whitelaw, B.A., Edmonton, Alta.;  
Professor William Findlay, Ph.D., Toronto;  
W. A. Eastman, Grand Rapids, Mich.;  
W. E. Groves, Toronto.

Moved by Mr. Mills, seconded by Mr. Howell that the Recorder be requested to cast a ballot for the election of all candidates, who were then declared by the President to be duly elected.

Nominations :

A. P. Miller, Vermillion, Ont.;  
proposed by George Ridout and C. A. Chant;

R. M. Wallace, 489 Church Street, Toronto,  
proposed by R. Stewart Muir and C. A. Chant.

Predictions :

Mr. Paterson referred to the expected appearance of Halley's Comet in 1910;

Mr. Collins read predictions of phenomena.

Notes and Queries :

Mr. Miller referred to remarks made by him at the last meeting and made more clear some of his statements respecting the photographing of the sun's disc;

Mr. Stupart, in reply to a question as to the cause of the cold weather which has prevailed all the spring, stated that meteorologists all over the world are wrestling with the problem of the variation and prediction of weather conditions. he was inclined to think that the temperature of the northern hemisphere generally had been below the average during the last few months, though in the tropics a higher average had prevailed.

Mr. Sharpe asked whether the statement appearing in the newspapers during the last week was ~~verified~~ verified, that the gulf stream was 150 miles north of its ordinary course. Mr. Stupart replied that any change in ~~atmospheric~~ atmospheric pressure would change the course of the stream.

The subject of the presentation of the usual medal at the University of Toronto was referred to by the President, who stated that it was assumed that the medal should be continued this year, to which no objection was taken.

THE LECTURE was given by W. Bell Dawson, D.Sc., F.R.S.C., Ottawa, upon the subject of "Variations in the Leading Features of the Tide in Different Regions." The paper, which will appear in The Journal, was followed with the closest attention by the large audience, and was followed by an interesting discussion in which Mr. Paterson, Mr. Elvins, Mr. Muir, Captain Rodout and Mr. Inrig took part.

It was moved by Mr. Paterson, seconded by Mr. Muir, and carried, that the thanks of the Society be tendered to Dr. Dawson for his interesting and valuable address.

*A. Elvins*

June 11/07  
 General meeting R.A.S.C.  
 Mr. Elwin in the Chair

Mr. Robert Huron was unable to present  
 his paper on "Critical Temperatures in Relation  
 to Cosmic Theories"  
 General topics were discussed

Communications were read from  
 J. Miller Barr St Catharines  
 H.S. Howell Galt  
 Dr. W. F. King Ottawa

June 18<sup>th</sup>

An open meeting of the society  
 was held at the lawn of the Observatory.  
 a large number of the public & availed  
 themselves of the opportunity to observe  
 the the moon's surface and a number  
 of interesting celestial objects.

W. B. Murrison

W. B. Murrison.

An open meeting of the society  
 was held at the lawn of the Observatory.  
 a large number of the public  
 availed themselves of the opportunity  
 to observe the moon's surface and a number  
 of interesting celestial objects.

Report of Council R.A.S.C. Sept 29/04

present

Mr Chant, Mr Paterson, Mrs Munson,  
Mr Redout, Mr Sinclair, Mr Collins  
Mr Elvins.

Accounts for printing <sup>binding</sup> in the neighborhood  
of \$350.00 were passed.

The Treasurer reported the receipt of the grant  
from the Provincial Government of \$600.00 which he  
had placed to the credit of the Society's account  
in the Imperial Bank.

As the question of better quarters for meetings  
and the library was discussed and

Mr Paterson, Mr Sinclair, Mrs Munson & Mr Collins  
were appointed a committee to look into the  
matter and report at the next meeting of Council.

A letter from Secretary of Ottawa relative  
to proposed change of constitution was read  
~~but~~ as the Committee having the  
matter in hand had not reported - further  
discussion was held over.

J. Collins  
Secretary



A meeting of R.A.S.C. was held in the room in the Canadian Institute on Sep 17<sup>th</sup> 1907  
Prof Stewart in the chair

Communications were read from the Librarian of New York Public Library and a number of others in regard to the publications of the Society

Reports of general Observations were read & discussed  
Mr Miller described his observations made on the planet Mars and had been able to make out many of the finer markings seen on the planets surface with large telescope

Prof Hiragama of Tokio Art Observatory was elected a corresponding Fellow

Paper of the evening by W. B. Dresser on some notes on the nebular theory a number of lantern slides illustrating the paper were shown

Nominations

for President  
J. R. Allen



of Mr. Sharpe's paper are attached hereto. It was followed by a most interesting discussion, in which Messrs. Paterson, Elvins and Ridout took <sup>part</sup> ~~place~~. Mrs. Denison's paper also led to a description by Dr. Chant of the marvellous changes in the form of the sun as seen at sunset from Lick Observatory, illustrating his remarks with blackboard sketches.

The meeting then adjourned.

Oct. 15  
1907

C. A. Chant  
President

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

Minutes of a meeting held at the Canadian Institute,  
October 15th, 1907, the President in the Chair.

Minutes of the previous meeting were read and approved.

Communications :

Dr. King, Dominion Observatory, Ottawa;

Reverend Father Kavanagh, Loyola College, Montreal.

Stanley Lindsay, Montreal.

Joseph Pope, C.M.G., who is about leaving for Japan.  
Mr. Pope will endeavour to obtain photographs of the  
Observatory at Tokyo, and to call upon the Society's  
Corresponding Fellow in Tokyo.

Mr. R.F. Stupart, enclosing a telegram announcing the  
discovery of a comet by Mellish of Madison Observatory,  
in the Constellation Monoceros.

Nominations :

Miss Marie C. Strong, 97 Yonge Street, Toronto;

Miss L.M. Mason, B.A., 27 Admiral Road, Toronto;

Mrs. G.P. Ham, 372 Shaw Street, Toronto;

Mrs. E.J. Clarke, Nordheimers, King St. E., Toronto;

all proposed by C.A. Chant and E.A. Dent.

Walter Keast, B.A.,

proposed by C.A. Chant and J.R. Collins.

James Young, Magnetic Observatory, Toronto,

proposed by J.R. Collins and C.A. Chant.

Report of the Librarian was read by Mr. Sinclair.

Predictions :

Mr. Collins gave notice of approaching ~~xx~~ phenomenon.

A letter was read from Mr. A.F. Miller, reporting  
that  $\alpha$  Ceti is now visible to the naked  
eye, being on the 5th instant of the 5th  
magnitude; also a letter from the Director  
of Harvard College Observatory, stating that  
the maximum of the star is due about 15th  
November.

Observations :

Mr. Elvins reported that the sun to-day has three large groups of spots.

Mr. Graham inquired as to the time when reports may be expected of the work done by the great observatories during the recent opposition of Mars.

Mr. Collins drew attention to a recent photograph of the "Owl Nebula" taken by Professor Moulton, comparing it with one taken many years ago, ~~ix~~ ~~ixixix~~ which would indicate that the nebula had undergone considerable change.

A set of slides were shown of the last partial eclipse of the moon, in July last, taken by the Reverend Dr. Marsh of Springville, and presented by him to the Society.

The address of the evening was given by Dr. Chant, and took the form of an account of his recent experiences during a two months stay at Lick Observatory. The address was finely illustrated by many slides from photographs taken by Dr. Chant, and ~~xxx~~ was heard with close attention and deep interest by the large audience. A report of his work while at the observatory will appear in The Journal.

Oct. 24  
1907.

C. A. Chant  
President

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

Minutes of a meeting held on the 29th of October,  
1907, the President in the Chair.

Minutes of the previous meeting were read and approved.

Communications :

S.Lindsay, Montreal, thanking the Society for a copy  
of the Journal;

Prof. John A. Miller, Swarthmore College Observatory,  
Pa.,

J.S. Plaskett, Ottawa, forwarding a copy of the pro-  
gramme of the Ottawa Section of the Society;

Miss Laura Mason, resigning her position as Assist-  
ant Librarian, having been appointed to a position  
in the University Library.

Dr. Chant expressed his regret at receiving  
Miss Mason's resignation, and spoke very ap-  
preciatively of her work in the library, and  
her unfailing courtesy and methodical manner  
of performing her duties.

Bulletins of Harvard College Observatory, respecting  
observations of Mellish's Comet, ephemeris, etc.

It was stated that the comet had been ob-  
served at the Dominion Observatory, Ottawa.

Reference was also made to Mr. Mellish, the  
discoverer of the comet, and his work, and at-  
tention was invited to an article in Popular  
Mechanics in which he described how he made  
his telescope.

Elections :

The following nominations were read for the second  
time :

James Young, Magnetic Observatory, Toronto;  
Miss Marie C. Strong, Toronto;  
Miss L.M. Mason, B.A., Toronto.  
Mrs. G.P. Ham, Toronto;  
Mrs. E.J. Clarke, Toronto;  
Walter Keast, B.A., Toronto.

It was moved by Mr. Collins, seconded by Mr.  
Tyson, that the Recorder be requested to cast  
a ballot in favour of the election of all  
applicants. Carried. The President then  
declared all to have been duly elected.

Nominations :

Nominations :

Dr.W.M.Wunder,229 College Street,Toronto;

Miss Susan Gamble,Eglinton,Ont.  
both nominated by E.A.Dent and C.A.Chant.

Report of the Librarian was read by Mr.Sinclair,showing  
recent additions to the library.

Predictions of phenomena were read by Mr.Collins.

The lecture was by Mr.A.R.Hassard,and dealt with the  
approaching Transit of Mercury. Mr.Hassard's paper~~x~~ was  
extremely interesting,and was illustrated by lantern  
slides, It was expressed in simple language,and was pre-  
faced by a vigorous protest against the terminonogy em-  
ployed by many writers of scientific works. A copy of  
the introduction of Mr.Hassard's paper is attached.

Nov. 12, 1907

C.A.Chant  
President

## The transit of Mercury of 1907.

In this paper I intend to use what is most uncommon in nearly all scientific papers, namely language which I think will be comprehended by people, whose education, while reasonably far advanced, is still of a non-technical character. I have never understood why it is that my own profession, namely that of the law, rarely employs an expression of combination of words which cannot be understood by everyone; and yet nearly every other calling in life, in which advanced education is partially an essential, requires the use of language that even its own creators very frequently fail to understand. One cannot have a simple cold without physicians finding it necessary to exhaust half the modern and ancient languages of Europe to give it a name, and prescribe for it a dubiously useful dose of medicine; and the same may be said of almost every other educated calling. One can understand the necessity or defence for mysterious language, if it be required to conceal an exorbitant charge, as for example the price of a chemist's preparation, or a plumber's repair of a water tank leak. But why it is necessary to import into our great experimental sciences, language so technical that every time it is employed, the author pauses to give it an unsatisfactory semi-explanation, transcends all human calculation and rational comprehension. Spelling "centre" with the "e" before the "r" and comparing things "to" instead of "with" other things, are the unnatural companions of the wretched "gramme" and "metre" and "litre." When the greatest of the sciences, - the law, - that science which was great and stately long before the Druid had forsaken the site of the future London, which had recorded forensic triumphs when the greatest of Athenians was thundering against the conqueror of Macedonia, and which had hung its crowning laurels in the Roman Forum when the most eloquent of all the Romans was delivering his scholarly denunciations of the Catalinian conspirators, when this great calling can splendidly dispense with almost every vestige of technical phraseology, surely a not inferior science, whose learning should be readily accessible to hundreds of millions of human beings, ought to be able to dispense with needless and tiresome technicalities as well. When we read as Schuster in his "Theory of Optics," says at page 15, that "a uniform circular motion is equivalent to the superposition of two simple periodic motions at right angles to each other, the amplitude being the same and the phase difference a right angle," one is quite prepared to admit with the same author as he says on page 178, that "the direction of the elastic force for any displacement is parallel "to" the normal of the ellipsoid of elasticity," when considered with reference to the propagation of light in crystalline media, "and that the four vectors representing the direction of vibration, the elastic force, the ray and the wave normal are co-planar." I have said enough not to convince the listener or reader, but to indicate my own perhaps immature opinions. Briefly they are these. Whenever a teacher cannot explain his science to others with simplicity, his inability denotes one of two grave defects. Either he is imperfectly acquainted with his subject, and mystifies the portion he does not understand, or his familiarity with the English tongue is lamentably incomplete. With this slight preface, I shall proceed to consider the 1907 Transit of Mercury. If in so doing I err on the side of literary simplicity, and speak so that my hearers may readily understand me, I ask to be pardoned for having made such a serious scientific mistake.

Nothing here on the Transit!



MINUTES OF A MEETING OF COUNCIL

held at the Canadian Institute, November 1st,  
1907, Dr. Chant in the Chair.

Present : Dr. Chant ;  
          Mr. Collins ;  
          Mr. Sinclair ;  
          Mr. Stupart ;  
          Miss Dent .

The following accounts were approved of and ordered to  
be paid :

Jones Engraving Co., engraving cuts, 2  
accounts, \$6.22

Mr. Reading, lantern slides, \$1.70

Students Book Dept., Astronomical Year Book, \$1.36

W. Irwin, brokerage charges on parcel, \$2.10

Mr. Tyson, typewriting Constitution, \$2.75

Legge Bros. Engraving Co., engraving, 2  
accounts, \$5.47

The subject of Miss Mason's resignation was discussed, and the Secretary was requested to write to her, stating that the Council appreciates very highly her work in the library and regrets to receive her resignation. It was moved by Mr. Stupart, seconded by Mr. Sinclair, that Messrs Musson and Ridout be asked to undertake to engage a new assistant.

A copy of a Memorial addressed to the Dominion Government, requesting an increase of the grant to the Society was read.

The subject of the expediency of continuing the publication of the Society's Handbook was discussed, and Dr. Chant was instructed to proceed with the preparation of the copy, with a view to making arrangements for printing, settling the cost, etc.

The Report of the Committee on the revision of the Society's Constitution was presented by Dr. Chant. After a somewhat lengthy discussion of the changes involved, it was decided to take no action until word has been received as to the views of the Ottawa and Peterborough Sections.

The meeting then adjourned.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

Minutes of a meeting held on the 12th of November at the Canadian Institute, the President in the Chair.

Minutes of the previous meeting were read and approved.

Communications read from :

Philadelphia Observatory, asking for information respecting the publications of the Society;

Mr. R. Wightman.

Mr. J. S. Plaskett, transmitting the names of new members of the Ottawa Section.

Bulletins of Harvard College Observatory, respecting observations of Mellish's Comet.

Dr. W. F. King, respecting the Handbook and revision of the Constitution.

Report from Council.

A Report of a meeting of Council held on the was read and adopted.

Elections :

The nominations were read for the second time of  
~~Miss Susan Campbell and Mr. W. F. King~~

It was moved by Mr. Graham, seconded by Mr. Musson that the recorder be directed to cast a ballot for the election of both candidates, who were then declared to have been duly elected.

Nominations :

Mr. J. S. Porter, Stayner,  
nominated by W. B. Musson and J. R. Collins.

A. H. D. Ross, M.A., M.F., University of Toronto,  
nominated by E. A. Dent and C. A. Chant.

R. F. Martin, 78 Harbord Street, Toronto,  
nominated by E. A. Dent and C. A. Chant.

Report of the Librarian was read.

Predictions :

Mr. Collins read predictions of phenomena, and a Harvard College Bulletin relating to the present phase of the ring of Saturn.

Mr. Elvins stated that there are very large spots on the sun at present, the group ~~which he had~~ to which he had invited attention a month ago having again come into view. Mr. Chant and Mr. Collins confirmed this.

Notes and Queries :

Mr. Chant mentioned that Mr. Muir had made a gift to the Society of a machine to address its notices, publications, etc., which will be of great assistance, and thanked Mr. Muir for the Society.

The lecture was by Professor L. B. Stewart, on "Variations in Latitude." Professor Stewart referred to the work of Kestner, the International Geodetic Association, and in particular to the work of Professor Chandler of Cambridge, in investigating the subject, and stated that the result of the research was that the period of variation ~~is not 273 days~~ has been determined as 427 days and that the motion is believed to be confined to an area of about 60 feet in diameter.

Nov. 26, '07

C. A. Chant  
President

MINUTES OF A MEETING OF COUNCIL held at the Canadian Institute on the 12th of November, the President in the Chair.

Present : Dr. Chant;  
Mr. Sinclair;  
Mr. Musson;  
Mr. Elvins;  
Mr. Collins;  
Mr. Ridout;  
Mr. Graham;  
Mr. Stewart;  
Miss Pent.

The subject of engaging an Assistant in the Library was discussed, and on motion of Mr. Ridout, seconded by Mr. Musson, it was decided to engage Miss Louise Mason, on the same terms as those under which Miss Laura Mason has been employed.

Mr. Sinclair complained of the lack of proper heating in the library, which is frequently not warm enough to work in with comfort. Mr. Sinclair was asked to speak to the caretaker of the building, and if no arrangement can be made for heating the room better, a complaint will be made to the Institute. Mr. Sinclair was also authorized to have the Assistant leave the Library at any time that it is too cold for her to work there.

A letter from Dr. King was read, respecting the Dominion Grant.

A further letter from Dr. King was read upon the subject of the revision of the Constitution and the view of the Ottawa Section in respect of the draft as approved by the Revision Committee. As the views expressed by Dr. King were regarded as somewhat too sweeping, it was decided to ask him and Mr. Plaskett to come to Toronto for the purpose of conferring with the Council, in the hope that a verbal discussion might conduce to an ~~amenable~~ agreement.

The meeting then adjourned.

A Council meeting of the R.A.S.C.  
was held in the library on Friday evening  
Nov 22/07 to consider especially the proposed revisions  
of the constitution, and to receive nominations  
for Officers and Members of Council for 1908  
Those present were

Mrs. Chant - Collins - DeBury - Duncan  
Elvins - Graham - Miller - Musson  
Paterson & Sturpart.

Communications were read from the King of Ottawa  
reporting on behalf of ~~the~~ members there a definite  
reply to several questions raised regarding the status  
of various sections and the general government of  
the whole society. The secretary was instructed was  
instructed to ascertain the views of the Ottawa Section  
on the location of quarters and to state that the Council  
was unwilling to consider any proposition that would  
involve or imply the removal of the Society's headquarters  
from their present location. When this point was  
definitely settled the other points could be discussed.  
(Moved - by Mrs. Paterson & Mrs. Musson)



THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

MINUTES of a meeting held on the 26th of November, 1907,  
at the Canadian Institute, the President in the Chair.

Minutes of the previous meeting were read and approved.

Communications were read from :

The Accountant of the Department of State at Ottawa,  
asking a statement of account for publications;

A.H.U. Colquhoun, Deputy Minister of Education, asking  
a copy of the Transactions of the Society for  
1906-7.

Stanley Lindsay, Montreal, asking information re-  
specting Mellish's Comet, the recent Transit of  
Mercury, the Handbook for 1908, etc.

Reports from Council :

Two reports of meetings of Council were read, the  
first of a meeting held on the 12th instant, and  
the second of a meeting held on the 22nd. The  
latter embodied the recommendations of Council  
respecting the officers of the Society for 1908,  
and an opportunity was given for new nominations  
to be made. As none were offered, the two Reports  
were adopted, and the President declared the per-  
sons named in the recommendation of Council as  
the Society's officers for 1908.

Mr. Musson said a few words ~~to~~ thank <sup>the</sup> the Society for  
his nomination as President.

Mr. Elvins suggested that the retiring President be  
not permitted to leave his office without an ade-  
quate expression of the thanks of the Society for  
the able manner in which he has filled it, and Mr.  
Inrig paid his tribute to the unfailing patience  
and courtesy ~~xxx~~ which Dr. Chant has always ~~xxx~~  
displayed as chairman of the meetings.

Elections :

The nominations were read for the second time of  
A.H.D. Ross, M.A., M.F.; Univ. of Toronto;  
J.S. Porter, Stayner;  
R.T. Martán, Toronto.

Moved by Mr. Paterson, seconded by Mr. Tyson, that the  
Recorder cast a ballot in favour of the election of  
the three candidates, who were then declared to have  
been duly elected.

Nomination :

T. Harold Parker, B.A., Ivy P.O., Ont.,  
proposed by C.A. Chant and E.A. Dent.

Librarian's Report was read, showing recent additions to the library; also Bulletin 318 of Harvard College Observatory, respecting the recent Transit of Mercury.

Predictions :

Predictions of approaching phenomena were read by Dr. Chant.

Observations :

Dr. Chant stated that he had observed the transit of Mercury at the Observatory with Mr. Blake, and described the method by which the image of the sun was projected for observation.

Mr. Paterson read an interesting extract from World Wide entitled "Are new moons being formed?" an hypothesis suggested by the recent formation of "knots" in the rings of Saturn. Mr. Elvins spoke of the danger of mistaking satellites seen against the ring when at its thinnest phase for knots in the ring itself. Mr. Inrig stated his opinion that Saturn is illuminated by light received from its own rings.

Mr. Hassard mentioned that in observing Jupiter on the 22nd, two of the satellites were so close that one was almost eclipsed by the other.

The paper was a review by Mr. Collins of some of the modern theories of the constitution of matter. Further reference to Mr. Collins' address will be made in the Journal.

*C. Chant*  
President

*Dec. 10, 1907.*



THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

Minutes of a meeting held on the 10th of December, 1907,  
the President in the Chair.

Minutes of the previous meeting were read and approved.

Communications from :

Stanley Lindsay, stating his desire to become a member  
of the Society.

Professor Bickerton, New Zealand, upon the subject  
of his "impact theory."

Report from Council.

A report of a meeting of Council held on the 8th  
instant was read and received.

Election :

The nomination of Mr. T. Harold Parker, B.A., Ivy P.O.  
was read for the second time. Moved by Mr. Muir,  
seconded by Mr. Sinclair, and carried, that the Record-  
er be directed to cast a ballot in favour of Mr.  
Parker's election, and the election was declared  
to be complete.

Nominations :

Stanley Lindsay, 469 Sherbrook Street, Montreal,  
proposed by J. R. Collins and C. A. Chant.

James McEachren, 148 Mutual Street, Toronto,  
proposed by A. Elvins and R. Stewart Muir.

The Report of the Librarian was read.

Notes and Queries :

Mr. J. F. Boyce read a paragraph from World Wide, bear-  
ing on the subject of the theories advanced in  
Mr. Collins' paper on the Constitution of Matter.

Mr. Muir spoke of the term "perturbation" as applied  
to a planet, and asked as to its application and  
explanation, and Mr. Elvins and Dr. Chant discussed  
the meaning of the term.

Mr. Elvins invited attention to Taylor's book on  
The Planetary System

Mr. Boyce suggested that an evening be devoted to  
a paper on the celestial globe.

The paper of the evening was by Mr. W. E. Jackson, M. A., on "A Review of Some recent Views on the Canals of Mars," with particular reference to a discussion which has been been carried on for some time in the Astrophysical Journal between Professor Lowell and Professor Newcombe. Mr. Jackson explained the grounds upon which the arguments on both sides were based, and gave an interesting resume of the discussion.

After the lecture a series of very fine slides were shown of Spiral Nebulae, being from photographs taken at Lick and Yerkes Observatories.

December 17  
1907

C. A. F. Hunt  
President

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

MINUTES

of a meeting held on the 17th December, 1907, at the Canadian Institute, the President in the Chair.

Minutes of the previous meeting were read and approved.

Communication read from :

Dr. W. F. King, Ottawa.

Elections :

The nominations were read for the second time of Messrs. James McEachren, Toronto, and Stanley Lindsay, Montreal.

Moved by Mr. Muir, seconded by Mr. Sinclair, that the Recorder be directed to cast a ballot in favour of the election of both candidates, who were then declared to be duly elected.

Librarian's Report :

The report of the Librarian was read. Mr. Sinclair also presented the result of a ~~compilation of~~ compilation and index of the subjects dealt with in the papers given before the Society during a period of seventeen years,

Phenomena, etc., were referred to by Mr. Collins.

Observations : Mr. Collins stated that he and Mr. Hassard had been observing Jupiter, and had made interesting drawings.

Notes and Queries :

Mr. Muir asked as to the method to be followed in tracing the path of a planet on a map of the heavens, and Mr. Collins and Dr. Chant offered suggestions.

Mr. Muir also inquired as to the method to be followed in drawing an ellipse, and as to adjusting the primary and secondary points, and was answered by Dr. Chant.

The paper was by Mr. John A. Paterson, K.C., on "The Apex of the Sun's Way." Mr. Paterson's address was a summing up of the most recent investigations in the subject, and it was stated that the solar system is believed to be moving towards a point in the Constellation of Hercules at a rate of twelve miles per second.

The paper was followed by an interesting discussion.