

THE
ROYAL ASTRONOMICAL SOCIETY
OF
CANADA

SELECTED PAPERS AND PROCEEDINGS

1902 AND 1903

EDITED BY ARTHUR HARVEY, F.R.S.C.

TORONTO:
Z. M. COLLINS,
PUBLISHER TO THE SOCIETY.
1904.

SUMMARY OF PROCEEDINGS

FOR

1902 AND 1903.

The first meeting of the Astronomical and Physical Society of Toronto, under its new constitution and by-laws, was held on the evening of the 25th of February, 1890."

These words preface the first annual publication of the Society, which had existed for five prior years as an unincorporated group of observers, united by a common love for the practical study of astronomy. It is a volume of 40 pages, and has been followed by eleven others, of which the last two bore the altered title of "The Toronto Astronomical Society." The most recent was therefore entitled "Transactions of The Toronto Astronomical Society for the year 1901, including the Twelfth Annual Report," and contained 164 pages.

It had been felt for some time that the name of the Society was too local for a body which had valued members in other cities and desired to bring together for their general good all Canadians who were interested in astronomical science, and its series of reports was the main ground of the Society's reliance that the distinguishing mark of Royal approval it humbly prayed for would be bestowed upon it. The official petition and the Royal sanction to its new title are as follows —

TO HIS EXCELLENCY

THE GOVERNOR GENERAL OF THE DOMINION OF CANADA.

THE PETITION OF THE TORONTO ASTRONOMICAL SOCIETY HUMBLY SHEWETH,

1. THAT your Petitioner was founded and became THE ASTRONOMICAL AND PHYSICAL SOCIETY OF TORONTO for the purposes of (a) advancing and popularizing in Canada the study of astronomy and cosmical physics ; (b) the diffusion of practical knowledge of these branches of science, and (c) the acquiring real and personal property mainly for these objects, including a library and instruments.

2. THAT in 1900 the name of your Petitioner was changed to that of THE TORONTO ASTRONOMICAL SOCIETY.

3. THAT your Petitioner encourages research and original work and regularly publishes Transactions for distribution to members and scientific bodies throughout the world.

4. THAT your Petitioner has promoted the formation in Canada of other societies with similar aims, of which several are working in affiliation with your Petitioner.

5. THAT your Petitioner has a steadily increasing library consisting of well selected standard works, maps, charts, globes, etc., and that its librarian is authorized within certain bounds to permit the general public to use it for the purpose of reference.

6. THAT your Petitioner has by purchase and donation acquired refracting and reflecting telescopes and other instrumental apparatus.

7. THAT the membership of your Petitioner is composed of Honorary Fellows, Corresponding Fellows, Life Fellows, Fellows and Associates ; that the Honorary and Associate Fellowship is conferred only as a mark of recognition of the distinguished services of scientific men who have been invited to accept election ; while Fellowship is conferred only on Associates who have in the opinion of the Council of the Society, entitled themselves to the election by reason of their merits as original workers, observers and otherwise. A list of the distinguished scientific men who have accepted Honorary and Corresponding Fellowship will be found in the volume of the Society's Transactions of 1901 presented herewith.

8. THAT, except in the months of July and August, your Petitioner holds fortnightly meetings, at which papers are read and discussed ; that during July and August, as well as at other times throughout the year, your Petitioner holds open-air meetings for practical out-of-door work, to which the general public, educational and other bodies are invited, and that public

lectures are given under the auspices of the Society in various universities and schools and other institutions of learning.

9. THAT your Petitioner is in correspondence with more than one hundred societies and observatories in many countries, with which it exchanges its Reports, and is recognized in Canada and elsewhere as the representative Canadian Astronomical Society.

10. THAT your Petitioner having decided to change its name to that of The Astronomical Society of Canada has instructed its Council to solicit from His Majesty the King the privilege of prefixing to that new name the word "Royal"; for your Petitioner believes that such gracious permission would strongly stimulate its efforts in the promotion and diffusion of Astronomical Science and that its influence in this direction would be greatly extended thereby throughout His Majesty's Dominions,

YOUR PETITIONER THEREFORE PRAYS that Your Excellency may be pleased to lay at the foot of the Throne this its humble prayer for the privilege of prefixing the word "Royal" to its name, and your Petitioner as in duty bound will ever pray

R. F. STUPART, PRESIDENT.
January 7th, 1903.

J. R. COLLINS, SECRETARY.

OTTAWA, 27th February, 1903.

Sir,

Referring to the recent petition of the Toronto Astronomical Society of Toronto to be allowed to use the prefix "Royal," I have now the honour to inform you that the Governor General has received a despatch from the Secretary of State for the Colonies acquainting His Excellency that His Majesty the King has been graciously pleased to grant permission to the Toronto Astronomical Society to adopt the title of the Royal Astronomical Society of Canada.

I have the honor to be, Sir,
Your obedient servant,

JOSEPH POPE,
UNDER-SECRETARY OF STATE.

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

President Toronto Astronomical Society.

Application was thereupon made to the Hon. the Chief Justice of the Common Pleas Division of the High Court of Justice for Ontario, to sanction the change of the title of the Society, and the following letter was received :—

O R D E R

UNDER R.S.O., CHAP. 211, SECTION 20.

WHEREAS it has been made to appear to me that the Toronto Astronomical Society was incorporated under the provisions of The Act respecting Benevolent, Provident and other Societies, and that it is desirous of changing the corporate name under the provisions of the said Act to that of "The Royal Astronomical Society of Canada," and that such name is not desired for any improper purpose or is otherwise objectionable.

AND WHEREAS it has been further made to appear that His Majesty the King has been pleased to permit the Society to use in its new name the word "Royal."

NOW THEREFORE, I, the HONORABLE SIR WILLIAM RALPH MEREDITH, Chief Justice of the Common Pleas Division of the High Court of Justice of Ontario, BY VIRTUE of the authority in me vested by The Act respecting Benevolent, Provident and other Societies, DO HEREBY CHANGE the corporate name of the Toronto Astronomical Society to that of THE ROYAL ASTRONOMICAL SOCIETY OF CANADA.

W. R. MEREDITH,
CHIEF JUSTICE.

OSGOODE HALL. Toronto, March 3rd, 1903.

The Society felt, on receipt of His Majesty's gracious compliance with its prayer, that the honor it had obtained would but impose upon it new duties and greater responsibility to all those among us who are specially interested in the progress of astronomy, and it is their hope to receive the earnest co-operation of all the Canadian troop of Urania's votaries, as it will be their endeavour to deserve it.

Under the Council's order, this first Report under the new name has to embrace the Transactions of two years. From the list of papers it will be seen how abundant the material is. It has therefore been necessary to omit the business details heretofore annually given (which can, after all, be found in the Minute Book, and have usually the most ephemeral interest), also to issue, in many cases, rather a review of the subjects touched upon than the papers themselves in full, though often desired.

PAPERS.

1902

- Jan. 7th—"Astronomical Notes of the Past Year." Mr. G. E. Lumsden, F.R.A.S.
- Jan. 15th—"The Making of a Great Telescope." Dr. J. A. Brashear, F.R.A.S.
- PROF. DE-LURY'S SPECIAL COURSE.
- Jan. 21st—"The Cosmos as Understood by the Ancients."
- Jan. 27th—"The Development of the Copernican Theory."
- Feb. 4th—"The Newtonian Advance to Physical Astronomy."
- Feb. 11th—"Special Consideration of the Solar System."
- Feb. 18th—"La Place's Nebular Hypothesis and Stellar Evolution."
- Feb. 25th—"The Planets," with lantern illustrations. Rev. Robert Atkinson,
- Mar. 11th—"Phenomena of Polarized Light," with lantern illustrations. Mr. G. R. Anderson, M.A.
- Mar. 25th—"The Spectroscope in Astronomical Research," with lantern illustrations. Mr. A. F. Miller.
- April 8th—"The Pressure of Light in its Astronomical Aspect." Prof. G. F. Hull, Ph.D., Dartmouth College, N.H.
- April 22nd—"The Apex of the Sun's Way." Mr. John A. Paterson, M.A.
- May 6th—"The Transit Instrument and its Adjustments." Mr. F. L. Blake, D.L.S.
- "Solar Radiation." Mr. Arthur Harvey, F.R.S.C.
- May 20th—"Variable Stars." Mr. W. B. Musson.
- June 3rd—"Lunar Ring-Plains." Mr. G. E. Lumsden, F.R.A.S.
- June 17th—"An Evening at the Observatory, with a short lecture on "The Constellations." Rev. R. Atkinson.
- Sept. 9th—"Cause of the 25-day Period in the Magnetic Curve," Mr. A. Elvins, Past President.
- Sept. 13th—Lawn Party held on the grounds of Mr. John Ellis, at Swansea, from 4 to 10 p.m. In the evening telescopes were provided for observation.
- Sept. 23rd—"Astronomical Work for the Autumn." Mr. J.H. Weatherbe.
- Oct. 7th—"The Application of the Stellar Universe of Kelvin's Theory of the Ether." Mr. J. R. Collins.
- Oct. 21st—"Ancient Lunar Coast Lines." Mr. Lumsden, F.R.A.S.
- Nov. 4th—"Astronomy in Canada." Prof. W. F. King.
- Nov. 18th—"New Developments in Wireless Telegraphy." Mr. C. A. Chant, M.A., Ph.D.
- Dec. 2nd—"Vagaries of the Mariner's Compass." Mr. A. Harvey, F.R.S.C.
- Dec. 16th—"Stellar Motions." Mr. A. F. Miller.

1903.

- Jan. 13th—Experiments with Physical Apparatus. Mr. A. F. Miller.
- Jan. 20th—Address by R. F. Stupart, President.
- Feb. 3rd—"Celestial Measurements." Prof. A. T. DeLury.
- Feb. 17—"Stellar Motions." Mr. A. F. Miller.
- March 17—"The Astronomy of Milton." Mr. John A. Paterson, M.A.
- March 31st—"The Diatonic Scale." Mr. Geo. A. Anderson, M.A.
- April 14th—"Is the Moon a Dead World?" Mr. J. E. Maybee, M.E.
- April 28th—"Stellar Motions." Mr. A. F. Miller.
- May 12th—A. R. Wallace's "Man's Place in the Universe," Discussion by Messrs. Lumsden and Collins.
- May 26th—"The Adjustment of the Equatorial Telescope." Mr. F. L. Blake, D.L.S.
- June 9th—"Rotation: a misleading term as applied to the Sun." Mr. Arthur Harvey, F.R.S.C.
- June 23rd—"Helmholtz." Rev. R. Atkinson.
- Sept. 15th—"An Evening with the Spectroscope." Mr. A. F. Miller.
- Sept. 29th—"Pleasures of the Telescope." Dr. A. D. Watson.

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| Oct. 13th—"Stonehenge." Mr. J. C. Hamilton, LL.D. | Vibrations." C. A. Chant, M.A., Ph.D. |
| Oct. 27th—"Radium and Astronomical Physics," Mr. J. R. Collins, | Dec. 8th—"Women's Work in Astronomy," Miss Elsie A. Dent. |
| Nov. 10th—"Uranoliths (aerolites) with special reference to that which fell at Mazapil, Mexico. Arthur Harvey, F.R.S.C. | "How I Built and Equipped my Observatory at Hamilton," Rev. D. B. Marsh, Ph.D., D.Sc. |
| Nov. 24th—"The Nature of Ether | Dec. 22nd—"Notes on a visit to Greenwich Observatory. John A. Paterson, M.A., K.C. |

The committee appointed to take charge of the publication has done its work without the least clashing of opinion, and while each member is aware that improvement in the future is possible and requisite in the particular branch he is responsible for, all hope that under the peculiar circumstances their work will be satisfactory to the members.

The list of papers for the two years is remarkable, they think, for its variety, and in the selection they were forced to make, they were not guided by what they might think the superior merits of any of the essays or theses, but by the desire to choose subjects which had not been touched upon in recent issues. This method of selection should give an inkling of the most recent work and add the most interest to the series of Transactions taken as a whole.

Our last year was saddened by the loss of one of our members, who was of the original coterie above spoken of, was long our Corresponding Secretary, resigned that place to take, for the now customary term of two years, the President's chair, and all too soon thereafter was removed by a premature decease. Mr. G. E. Lumsden unfortunately left behind him no likeness which adequately represents his features with the habitual expression of *bonhomie* with which we were familiar. The best is a photograph taken by his daughter, which is reproduced. The Society offered, by an address, its sincere condolence to Mr. Lumsden's family, and in a note to these pages are given the remarks made by the seconder of that address,* which was appropriately moved by Mr. Andrew Elvins, who is looked up to as the father of the Society.

It only remains to record, here, the names of the officers for 1903; those for 1904 will be found on a previous page.

Honorary President—The Hon. RICHARD HARCOURT, M.A. LL.D., K.C., M.P.P., Minister of Education.

President—R. F. STUPART, F.R.S.C.

First Vice-President—C. A. CHANT, M.A., (Tor.), Ph.D. (Har.)

Second Vice-President—W. B. MUSSON.

Treasurer—J. E. MAYBEE, M.E.

Secretary—J. R. COLLINS.

Recorder J. E. WEBBER.

Librarian—A. McFARLANE, M.A.

Curator—ROBERT S. DUNCAN.

Editor—ARTHUR HARVEY, F.R.S.C.

REMARKS BY MR. J. C. HAMILTON, M.A., LL.B.

* It is difficult to realize that one has gone whom it seemed most desirable to retain as our mentor and guide, who was rightly esteemed for learning, and who wielded a beautiful influence not only in this Society but throughout the land.

Well developed thought and accuracy in result marked his course. His life of singular purity and almost austere simplicity was devoted to duty and science.

Among Mr. Lumsden's neighbors, of whom for some years I was one, no one was more esteemed, more willing to speak a pleasant word or do a kind act.

He was always ready to point out the great stars and constellations, and to aid the visitor in using the telescope on his premises. His gentle enthusiasm, as he dwelt on the beauty and magnificence of the firmament, induced many to pursue such charming studies. When weary after the day's labours, he found recreation in scientific pursuits, the change of mental occupation giving rest.

He delighted chiefly in regarding the wonderful surface of the moon, the rings of Saturn, and Jupiter with his belts and revolving satellites. Once, discussing such themes, he told me that his worthy father had the like inclinations, and that when, in his old age, a friend suggested that it seemed strange to find him still intent on nature's problems, the reverend man answered happily; 'I believe that in heaven we will continue the studies begun on earth, and I wish to know all I can before I depart.'

As we consider his well rounded work and completed life, the words of Ovid come to us, expressive of our feelings,—

"Jamque opus exegi
Parte tamen meliore mei super alta perennis
Astra ferar."

"Completed is my work
My better part shall live for aye
Borne up beyond the stars."