



The Official Seal of the Society



The Canadian Astronautical Society

*.....to promote the advancement
in Canada of all the sciences and
technologies embraced by the con-
cept of manned space travel*



The First President (1958) of The Canadian
Astronautical Society Dr. Phillip A.Lapp,
BA.Sc., S.M., Sc.D.

The President

The President, Dr. P.A. Lapp received his B.A.Sc. (Engineering Physics) from The University of Toronto in 1950 and later entered the Massachusetts Institute of Technology where he received his S.M. degree a year later, after writing a thesis entitled "Wind Tunnel Control Systems". A further three years were spent at M.I.T. in the Instrumentation Department, at the end of which time Dr. Lapp received his Sc.D. His doctorate thesis concerned guided missiles and constitutes a well known reference in this field. Since early in 1954, Dr. Lapp has been employed by The de Havilland Aircraft of Canada in the capacity of Senior Project Engineer in the Guided Missile Division, and during this time has been engaged in the analysis and synthesis of advanced weapons systems. Over recent years, Dr. Lapp's diverse interests have led him into several fields and he has made valuable contributions in connection with diffraction grating ruling engines, airborne navigation systems and magnetometer techniques.

Officers of the Society ~ 1958

President

Dr. Philip A. Lapp, B.A.Sc., S.M., Sc.D.
Project Engineer, The de Havilland Aircraft of Canada,
Limited, Guided Missiles Division

Secretary

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Senior Electronic Development Engineer,
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Canadian Arsenals Ltd., Instrument and Radar Division.

Mr. Austen B. Barnes, P. Eng., Development Engineer,
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Engineer, The de Havilland Aircraft of Canada, Limited,
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The de Havilland Aircraft of Canada, Limited,
Guided Missiles Division.

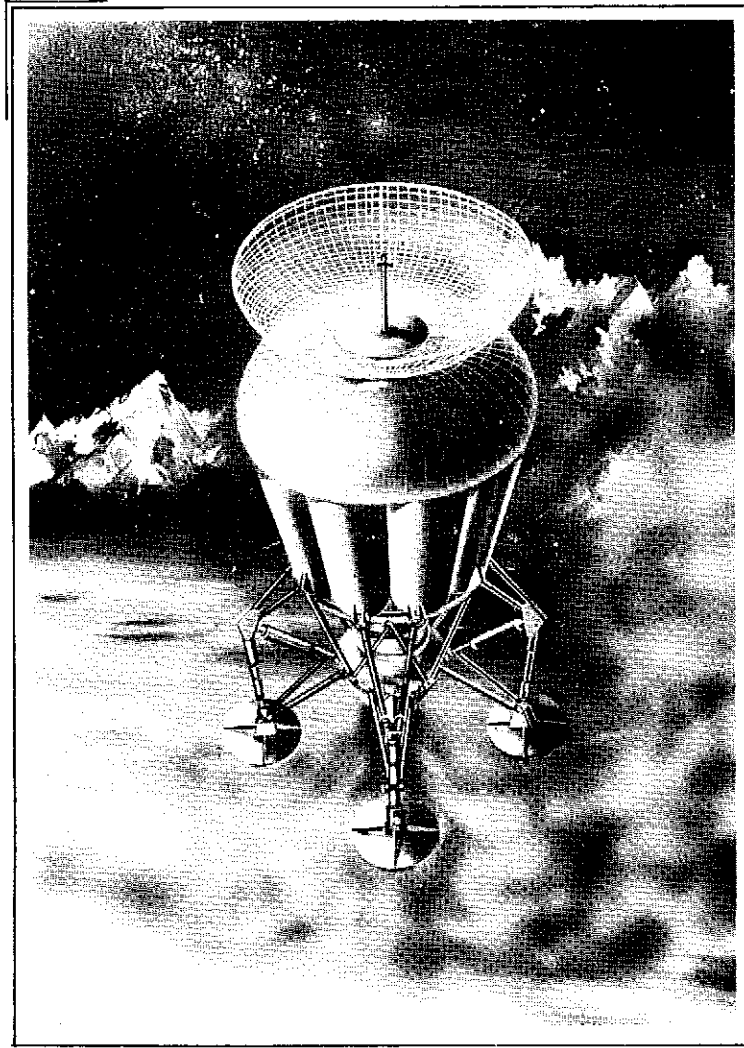
Mr. David C. Wallis, F.B.I.S., Senior Weapon System
Analyst, The Avro Aircraft Company, Limited.

Secretarial Address

c/o The De Havilland Aircraft of Canada,
Guided Missile Division
Downsview, Ontario, Canada.

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PROBE ROCKET APPROACHING
SURFACE OF THE MOON

This proposed vehicle is the result of an extensive design study and is intended for making an un-manned survey of the moon.

When close to the moon, the probe is slowed down by forward firing rockets, the speed being automatically controlled by a radio altimeter. (courtesy of The British Interplanetary Society).

Introduction

The Canadian Astronautical Society is concerned with promoting and developing in Canada all aspects of Space Travel involving both manned and unmanned vehicles, and bringing together on a common membership basis persons of many different professions and skills across the country.

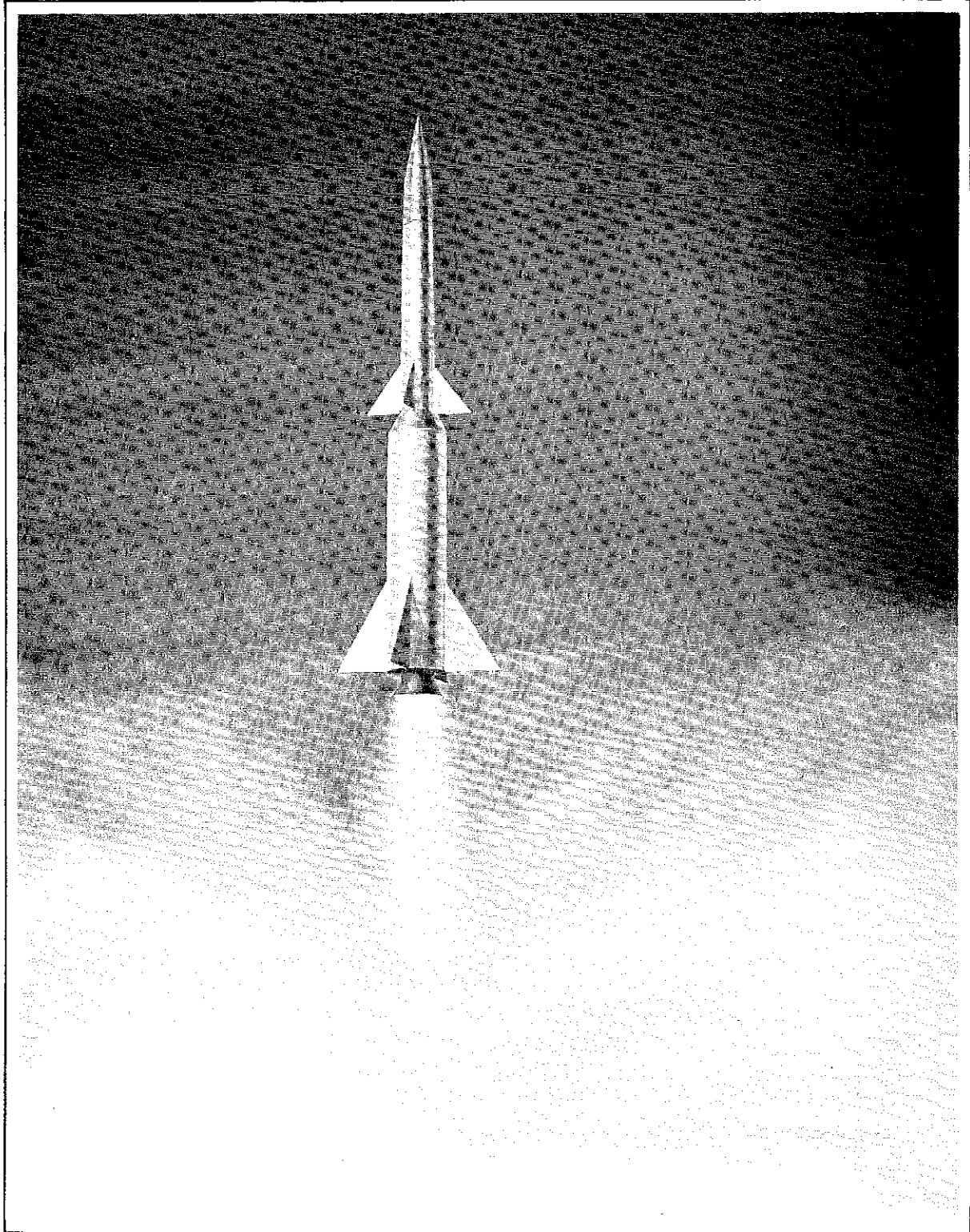
In general, the field of astronautics calls upon all of the sciences and technologies and thereby cannot be defined or encompassed by any one of them alone.

Members representing the various professions work together in a common framework within an astronautical context and by means of free interchange at the General Meetings and through the medium of the Society's Proceedings become aware of one another's problems thus stimulating fresh avenues of thought and new lines of approach. In this way the primary objectives of the Society are achieved.

The Society, which presently has a membership in the early hundreds is essentially a professional organization, but, as set forth in the Objectives, interested members of the general public are encouraged to join so that over the years Canadian citizens will be able to follow and understand the essentials of the dawning Space Age.

In keeping with other professional societies, a Student Section has been established and by means of lectures, design studies, technical films and visits, Student Members are given the elements of astronautics under the direction of experts in the field.

Twenty-five countries in the world have astronautical societies and these form the membership of The International Astronautical Federation. The annual congresses of this body constitute events of major scientific importance. The firm establishment of The Canadian Astronautical Society gives assurance that in future the voice of Canada will be heard at these important gatherings.



The Canadian Astronautical Society

"CHARM" Research Rocket Project.

History and Status of the Society

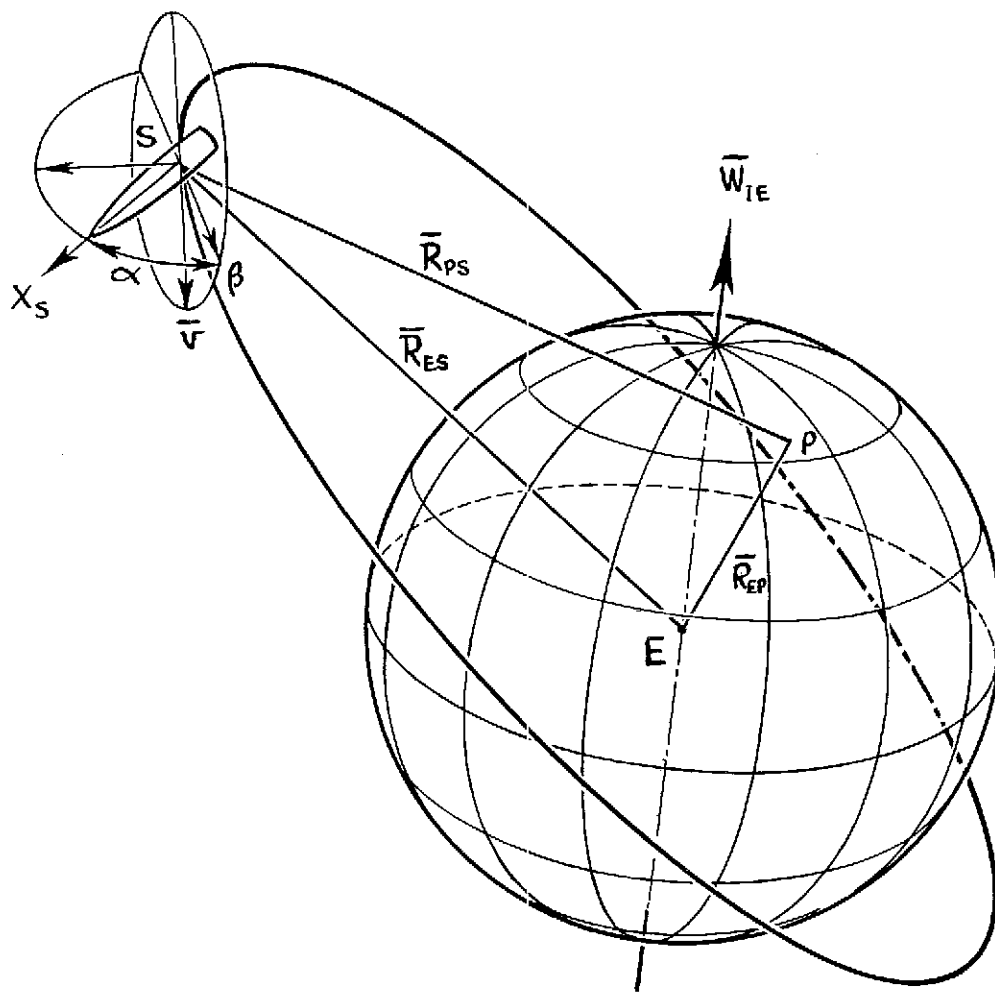
The Canadian Astronautical Society was founded in 1957 by engineers in the Guided Missiles Division of The de Havilland Aircraft of Canada, Limited, for three main reasons. (1) A great potential interest in astronautics seemed to exist. (2) Canada was unrepresented at The International Astronautical Federation. (3) Developments in military rocketry made it plain that space travel is rapidly approaching realization and Canadian scientists and engineers must not be denied the means of interchange and research in this broad field.

Early meetings were attended by only a handful of enthusiastic engineers and at this time Dr. P.A. Lapp was elected President by acclaim. In March of 1958 the first meeting at which a large number of persons from many other companies and organizations was convened. At this meeting a motion was un-animously carried that the Society should be legally incorporated as a non-profit making professional organization with limited liability and active in the field of astronautics. An application for Letters Patent was immediately drawn up and lodged with the Department of the Secretary of State where it is currently under consideration.

The Objectives of the Society provide for experimental as well as theoretical studies and consequently an experimental program was initiated. The main project involves the design, development and construction of a complete high altitude research rocket system including all ground instrumentation and handling equipment. Excellent progress has been made to date on a purely voluntary basis and conditional upon the authorities making available the facilities of a military range, the rocket will be ready for firing late in 1959.

The winter and spring session terminated on June 4th, 1958, and during the session a total of ten meetings were held and these included addresses from recognized experts of very high standing. Exhibitions of rocket equipment built by members were also featured.

The Society is in close contact with many other professional bodies including astronautical societies in the United States, Europe and South Africa. Exchanges of technical data have been arranged and recognition around the world has been gained. Articles describing the Society have also appeared in technical journals in several countries.



Specialist Sections

Although the Society is characterized by great diversity of professional representation it is desirable to bring together members with common interests and skills so that advanced studies in particular fields may be undertaken with the maximum effort. In order to bring this about, a number of specialist sections have been formed within the Society and these are described briefly below.

Space Dynamics Group

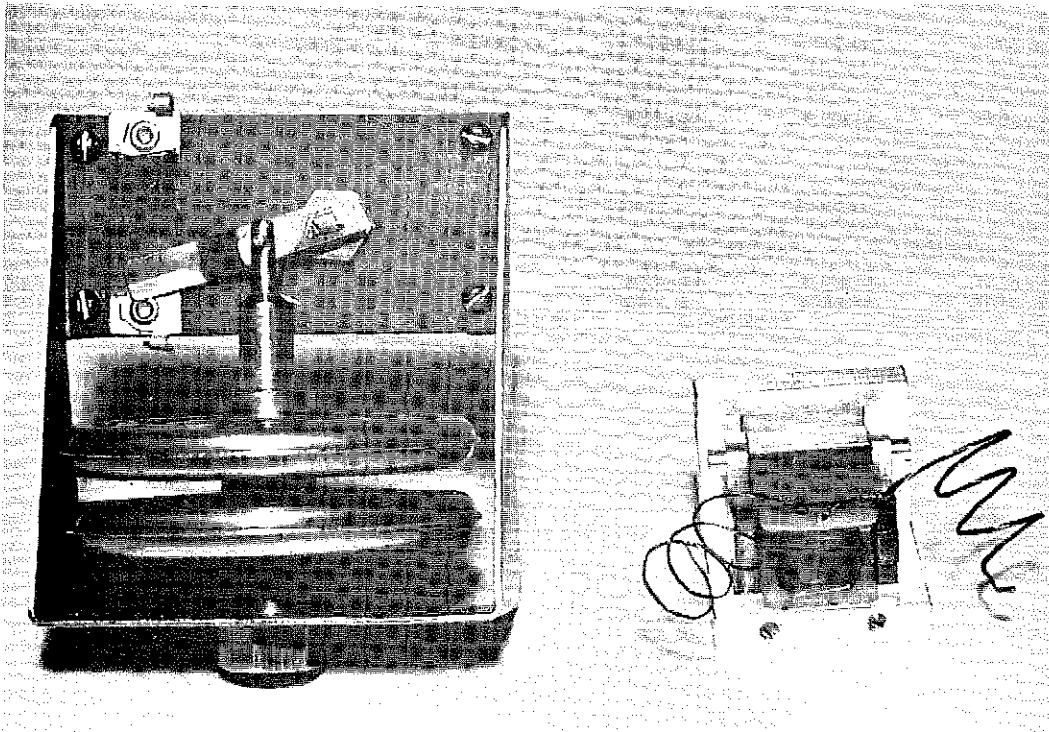
This group is presently operated under the direction of Physicist Mr. H.S. Kerr and primarily concerned with the motions of satellites and vehicles in space. In addition to the theoretical activities, this group maintains an active experimental team which performs detailed measurements on the artificial satellites presently circling the earth. The group is officially accredited to The Smithsonian Astrophysical Observatory and forms one of Dr. Whipples', "Moonwatch" observer groups 200 of which extend completely around the world.

Analysis Group

Composed almost entirely of professional mathematicians and physicists this group carries out all the analysis, data reduction, and numerical work concerning the various projects undertaken by the Society. To date work carried out includes derivation of aerodynamic parameters concerning the high altitude rocket, calculation of trajectories, performance calculations including drag integrations, fin design and calculations concerning large paraboloidal radio telescope antennas. Over and above this work the group initiates and tackles theoretical problems of its own.



STATIC TEST OF "CHARM" ROCKET MOTOR



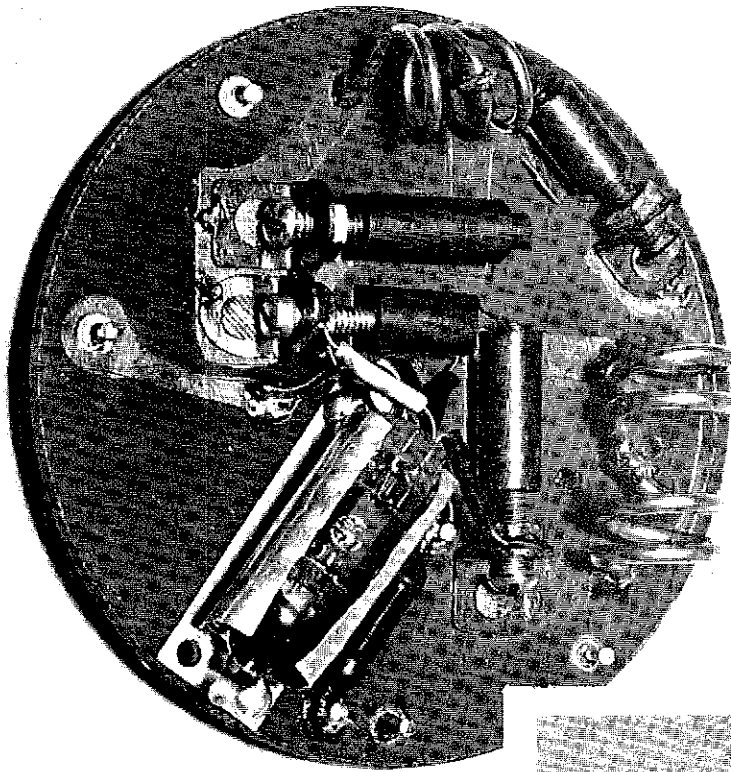
PRESSURE TRANSDUCER AND ACCELEROMETER
FOR "CHARM" RESEARCH ROCKET

Propulsion Group

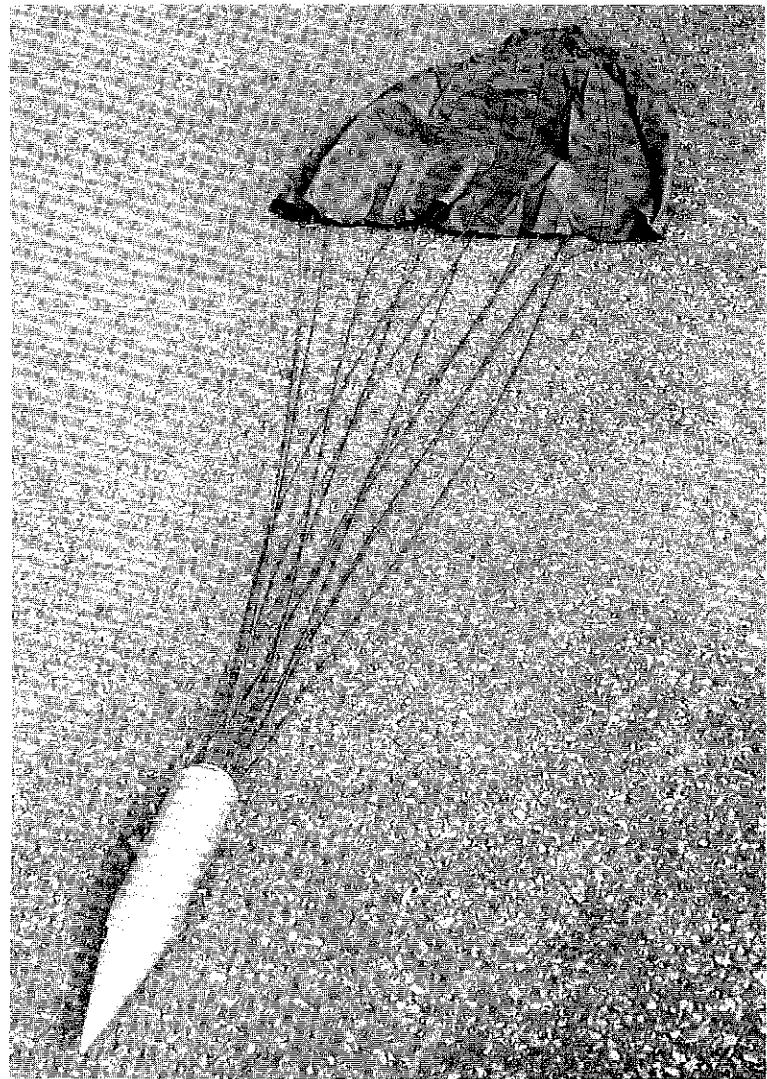
All aspects of propulsion in space and near space conditions are investigated by members of this group whose interests lead them into the fields of chemistry, thermodynamics, plasma dynamics and indeed into any field where propulsion methods and techniques can be further developed. In the experimental field, the group designs and develops combustion chambers and rocket motors including the various ignitor devices and is responsible for all static firing tests. Fuels are also produced under carefully controlled conditions and the full properties of these are established before use.

Mechanical Group

Any project operated by the Society requiring detailed mechanical design including stressing is carried out by this group. Drafting and the building of detailed scale models are also undertaken. In the purely theoretical field the vistas are very wide and hypothetical designs of space vehicles with extremely high structural efficiencies occupy the attention of the members.



MINIATURIZED RADIO TRANSMITTER
FOR "CHARM" RESEARCH ROCKET



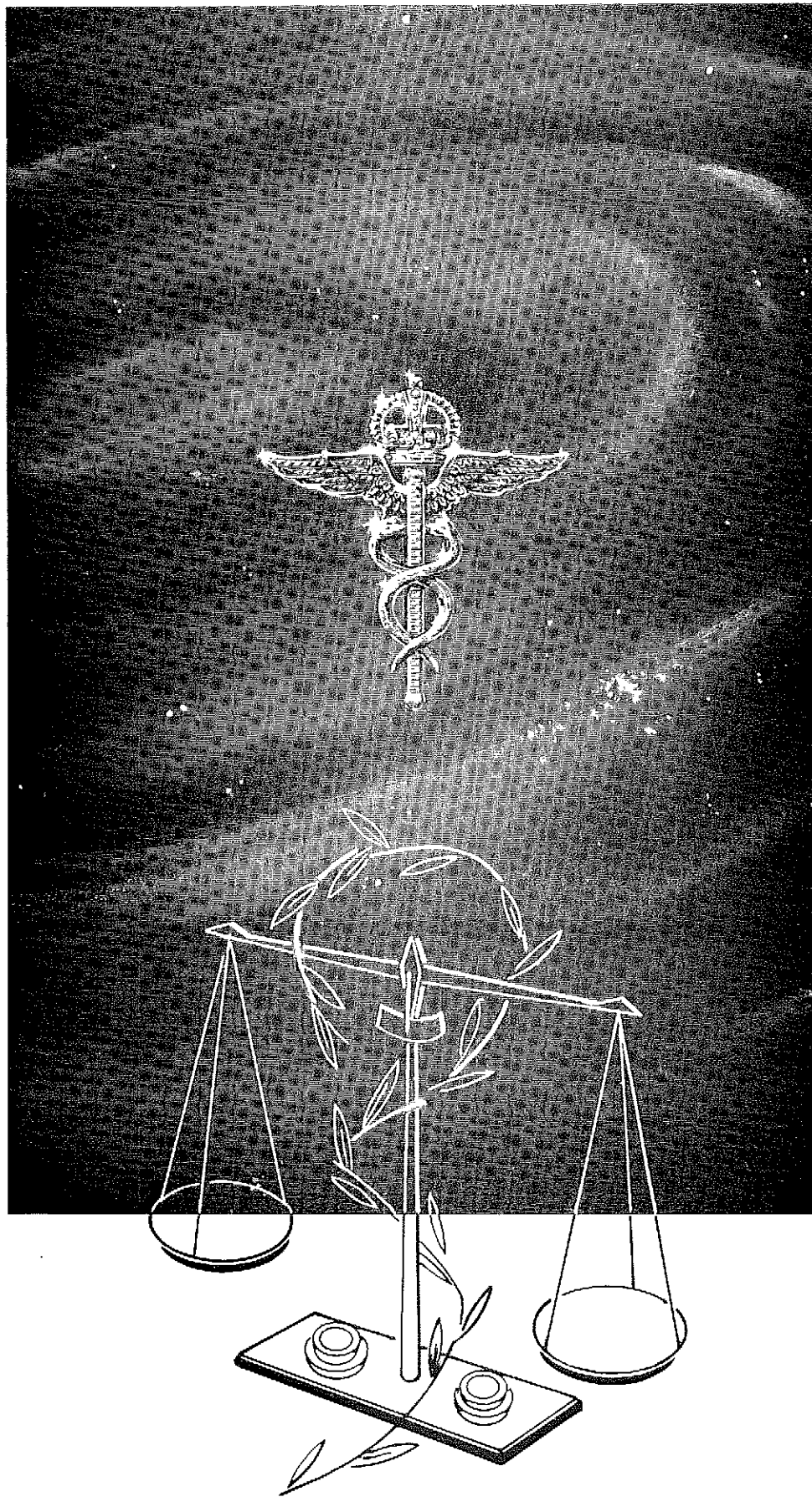
DUMMY PAYLOAD WITH PARACHUTE
FOR "CHARM RESEARCH ROCKET

Electronics Group

In the theoretical field the Electronic Group are concerned with space communication and telemetering and with the automatic control and instrumentation of space vehicles and ground control installations. Automatic tracking techniques also occupy their attention. In the experimental program, the group is very active and has embarked upon the design and construction of telemetering and tracking systems, firing circuits and various other electric and electronic devices required by the high altitude research rocket system.

Recovery Group

This group was formed primarily to investigate means for safely recovering the instrumented payload of high altitude rockets. Considerable theoretical and experimental activities have been undertaken and analogue computer techniques and payload drops from light aircraft are planned for the near future. This group is necessarily a small one owing to its rather limited area of interest but the problems involved are sufficient to keep it fully occupied for some years to come.



Space Medicine Group

The medical contribution to the field of astronautics is one of the most vital since man himself is the most fragile of all the bodies it is possible to hurl into space. Working closely with the physicists and engineers the medical doctors will seek solutions to the many important problems that remain to be solved. Required vehicle performance and flight paths on the one hand and man's ability to withstand external forces and strange environments on the other, represents the meeting ground of the Space Medicine and other groups in the Society.

Space Law Group

Flights into space made by the different nations bring to light new problems affecting behaviour in space and the sovereignty of territories on the surface of the earth. The concept of sovereign air space loses its meaning and difficult legal implications result. The Space Law Group will be concerned with these and other problems and by interchange with other Space Law groups around the world, be able over the years to suggest and explore new legal concepts.

Branches of the Society

The Society intends to sponsor the formation of semi-autonomous Branches across the country at appropriate geographical locations. The central headquarters, presently in Toronto, will provide the secretarial facilities required by the Branches and also make available the use of the library and space in the Proceedings. The activities of the Branches will be determined by the Branch Chairman and his committee and various projects will be undertaken. Participation in the major studies of the Society on a national basis may also take place if this is advantageous.

Library

The Society's library has been established and contains a modest number of books concerning rockets and astronautics. In addition there are a substantial number of copies of Proceedings of other national astronautical societies. The contents of the library have been made available entirely by means of voluntary donations by members and other societies. Though small at the moment, the library is expected to grow considerably since it has a very important part to play in the achievement of the Society's Objectives. Any book or periodical in the library is available for loan to members for up to three weeks without renewal of the loan request.

Proceedings

The Proceedings of The Canadian Astronautical Society are planned to conform closely with the publications of other professional bodies and will maintain the highest technical standards. For the benefit of non-specialist members articles will be included which explain various aspects of astronautics in a simple way without resort to complex mathematical arguments. At some future time it is hoped to be able to follow the lead of the British Interplanetary Society which publishes a companion "popular" magazine to its formal Proceedings. Early copies of the Society's Proceedings will be on a quarterly basis, the first issue being due for publication late in 1958.

Meetings

The Annual General Meeting

Held in January each year, the Annual General Meeting is open to the entire membership and in keeping with other societies is the time at which major business matters of the Society are carried out by the usual constitutional procedures. In the future it is hoped that a Convention can be combined with this important meeting, allowing for the reading of technical papers and interchange between members from all population centers across the country.

General Meetings

These meetings are held each month during the fall, winter and spring sessions. Open to all members, they feature lectures by prominent speakers, technical films and exhibitions of technical apparatus. The meetings are arranged such that members have adequate time to indulge in informal discussions and thereby exchange views and information.

Group Meetings

Chairmen of the various specialist groups convene meetings from time to time in order that specific projects may be co-ordinated and reviewed. Minutes of these meetings are printed and circulated so that all interested members are kept informed in regard to progress.

Branch Meetings

Branch meetings will be patterned on the headquarters meetings described above.

Objectives

1. To investigate and promote the advancement of all branches of scientific study comprising the field of astronautics, including for example, such areas as:
 - (a) Propulsion and space travel.
 - (b) Flight dynamics and structural design.
 - (c) Instrumentation and automatic control.
 - (d) Communications and telemetry.
 - (e) Navigation and geodetics.
 - (f) Astronomy and astrophysics.
 - (g) Space medicine and psychology.
 - (h) Space law.
2. To coordinate and conduct experimental and theoretical research in the field of astronautics.
3. To maintain a recognized high professional standing in the science embraced by astronautics, and to interpret and disseminate knowledge and advanced developments in the field, for the benefit of the public at large.
4. To establish, maintain and jealously guard a high level of professional integrity concerning the operations of the society and those professionals taking part in its technical operations, and those also engaged in the sciences and technology of astronautics.
5. To enter into any arrangement with any Government or authorities (supreme, municipal, local or otherwise), or any companies, firms or persons that may seem conducive to the attainment of the Society's objectives, and to obtain from such Government, authority, company, firm or person, any charters, contracts, decrees, rights, licences, privileges, and concessions which the Society may think desirable, and to carry out, exercise and comply with any such charters, contracts, decrees, rights, licences, privileges and concessions.
6. To cooperate and affiliate with other national and international societies interested in the field of astronautics.
7. To promote scientific interest in astronautics in the minds of young people, and to give them proper guidance and advice in all associated sciences.
8. To hold meetings of the Society for reading and discussing all matters relating to practical and theoretical aspects of astronautics.
9. To publish proceedings, reports, notes, pamphlets, drawings and photographs connected with astronautics.
10. To establish and maintain library facilities for the benefit of its members in the field of astronautics.
11. To provide whenever possible, when requested, lectures, demonstrations, exhibitions, concerning the field of astronautics to interested groups.
12. To protect and indemnify members of the Society from and against any unfounded claims, and to afford its members legal advice and assistance in connection with their research and experiments.
13. To make grants of money, books, medals, apparatus, or otherwise, for the purpose of promoting invention and research in the sciences relating to astronautics.
14. To raise money by means of membership fees, and the encouragement of voluntary contributions by members and external persons and organizations to be utilized in carrying out the objectives of the Society.

Grades of Membership

HONORARY FELLOW

Appointed by the Society in honour of exceptional contributions to public service or any arts and sciences related to the field of astronautics.

FELLOW

Appointed by the Society in recognition of significant contributions to any arts and sciences related to the field of astronautics, and having previously held Associate Fellowship of the Society for a period of at least one year.

ASSOCIATE FELLOW

Must have had ten years or more experience in any arts and sciences related to the field of astronautics, and been in responsible charge of activities within this field, or have made an established contribution to new knowledge or techniques applicable to astronautics.

MEMBER

Must have been engaged in any of the arts and sciences related to the field of astronautics for eight years or more, and have acquired a recognized standing in this field, or may be a graduate of a recognized institute of higher education, and have had four years or more experience engaged in any arts and sciences related to the field of astronautics.

ASSOCIATE MEMBER

A person having sufficient technical knowledge and experience to enable him to participate usefully in the theoretical or experimental activities of the Society.

ASSOCIATE

A person of twenty-one years of age or more with a genuine interest in any arts and sciences related to the field of astronautics.

STUDENTS

A person of at least eighteen years of age, with genuine interests in any arts and sciences related to the field of astronautics, and currently undergoing a course of instruction recognized by the Council.

