

ECLIPSE

Joint Permanent Eclipse Committee
of
The Royal Society and the Royal Astronomical Society.

Chairman—SIR FRANK DYSON, K.B.E., Sc.D., F.R.S.
Secretary—PROFESSOR F. J. M. STRATTON, D.S.O., M.A.

GONVILLE AND CAIUS COLLEGE,
CAMBRIDGE.

December 13. 1932

Dear Sir,

At a recent meeting of the Joint Permanent Eclipse Committee of the Royal Society and the Royal Astronomical Society I was instructed by the Committee to convey to you their thanks for the services so freely rendered by the authorities of McGill University last summer to the eclipse expeditions sent to Canada under the Committee's auspices. It gives me great pleasure to do so.

Yours sincerely,

J. W. Dyson

Chairman, Joint Permanent Eclipse Committee.

The Principal,
McGill University,
Montreal.

Joint Permanent Eclipse Committee
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GONVILLE AND CAIUS COLLEGE,
CAMBRIDGE.

Hermitage Club
Magog, & Co.

July 31 1932

Dear Principal,

I regret that I failed to secure an appointment with you, while passing through Montreal, so that I might pay my respects and also express my gratitude to you for all the help that the Cambridge eclipse expedition had been receiving so freely from McGill University and in particular from Dean Cox. The latter has been helping us in many and various ways ever since last summer and has found for us a very pleasant and, save for the ever-present uncertainty of eclipse weather conditions, suitable camp. I need hardly say that, should you have an opportunity of visiting us we shall be delighted to show you our installation, but these will not be much of interest here for a fortnight at least.

Yours sincerely

F. J. M. Stratton

August 2nd, 1932.

Professor F. J. M. Stratton, D.S.O., M.A.,
Hermitage Club,
MAGOG, Quebec.

Dear Professor Stratton:-

I am sorry I did not see you during your visit to Montreal, but hope that before you go home I shall have that pleasure.

I appreciate the invitation to visit your camp at Magog and hope to be able to accept it. I am glad Dean Eve has been so useful. I have seen something of his enthusiasm.

I hope the weather at the time of the eclipse will be all you desire and that the results will amply recompense you for all the trouble you have taken.

Yours faithfully,

Principal.

CLARKE STEAMSHIP COMPANY LIMITED

QUEBEC

OFFICE OF THE
PRESIDENT

August 4th, 1932.

Sir Arthur Currie, G.C.M.G., K.C.B.,
Principal and Vice Chancellor,
McGill University,
Montreal, Que.

Dear Sir Arthur,

I appreciate your kind favour of
July 30th, and assure you that I was delighted to
be able to co-operate with you in some way towards
the Scientific effort of your University at the
time of the coming eclipse.

Assuring you of my desire at all
times to co-operate in the splendid work you are
doing, I remain,

Very sincerely yours,

Desmond Clarke

DAC/GM

July 30th, 1932.

Dr. A. S. Eve,
Physics Building,
McGill University.

Dear Dr. Eve:-

Herewith two half-fare tickets
for accommodation from Montreal to Cornerbrook
on the "NEW NORTHLAND" sailing August 10th.

I have written to Mr. Clarke
expressing our appreciation.

Yours faithfully,

Principal.

July 30th, 1932.

Desmond A. Clarke, Esq.,
President, Clarke Steamship Company Limited,
QUEBEC, P.Q.

Dear Mr. Clarke:-

May I, on my own behalf and on behalf of the party going to Newfoundland and all others interested in scientific effort, thank you most sincerely for the arrangements you have been good enough to make to transport the party on the "NEW NORTHLAND" on August 10th, and for your generous treatment in the matter of fares, transportation of baggage, etc. Dr. Eve has told me how courteous the office staff has been here.

With this inadequate expression of our sincere appreciation of your courtesy,

I am,

Yours faithfully,

Principal.

CLARKE STEAMSHIP COMPANY LIMITED

QUEBEC

July 29th, 1932.

OFFICE OF THE
PRESIDENT

Sir Arthur Currie, G.C.M.G., K.C.B.,
Principal and Vice-Chancellor,
McGill University,
Montreal, Que.

Dear Sir Arthur,

I wish to acknowledge receipt of your favour of the 25th instant and was sorry that your representatives were unable to sail on the "NEW NORTHLAND" on July 26th, as we could have made them quite comfortable on board at that time.

I note now that you are very anxious to have them go on the "NEW NORTHLAND" on August 10th. I am sorry to say that this trip is booked solid; we have even used some of the Officers' cabins, but as I suppose your representatives are young men who would not be too fussy as to their accommodation in case of necessity, we will take them on board the "NEW NORTHLAND" sailing August 10th and accommodate them in a large room forward by fixing up beds in it; they can have their shower bath, etc., in first class accommodation, also their meals, and they can use first class accommodation deck, lounge, smoking room, etc. The only inconvenience would be actual sleeping, and I think that they will even find this accommodation not too rough. Coming back in September, they can take the "NEW NORTHLAND" or "NORTH VOYAGEUR" and will get proper accommodation on this return trip.

I am therefore sending new passes covering the trip of August 10th, and trust that the same arrangement of \$50. for the round trip, inclusive of meals, etc., will be satisfactory.

We shall also take the four trunks of apparatus on the "NEW NORTHLAND" on August 10th free of charge.

I hope you will appreciate that this is the best I can do under the circumstances.

Very sincerely yours,

Diamond A. Clarke

DAC/GM
ENCLS.

July 25th, 1932.

D. A. Clarke, Esq.,
President, Clarke Steamship Company, Limited,
QUEBEC, P.Q.

My dear President:-

I am exceedingly grateful for your letter of July 22nd with the half fare passes enclosed. I am sorry that it is impossible to sail on the "NEW NORTHLAND" to-morrow. The apparatus is not yet ready and cannot be completed anywhere but here. It will be a great disappointment to our people.

The opportunity of making observations of the eclipse in Canada may never come again. Only recently I noted this sentence in the "Proceedings of the Royal Society" - "In the forthcoming eclipse on August 31st, 1932, totality occurs after noon so that it will be possible to make observations over the whole period in which particle and ultra-violet light eclipses are to be expected, and we wish to draw attention to the importance of this opportunity of deciding between the rival theories." Apparently it is an opportunity which scientists cannot afford to miss.

The party hoped to get accommodation on the "NEW NORTHLAND" sailing August 10th - that is the boat they had planned to take. Can you possibly squeeze these two men in on the "NEW NORTHLAND" on August 10th? If so, the University, scientific men in Montreal and elsewhere will be forever grateful.

I return herewith the passes for July 26th.

Yours faithfully,

Principal.

CLARKE STEAMSHIP COMPANY LIMITED

QUEBEC

July 22nd, 1932.

OFFICE OF THE
PRESIDENT

Sir Arthur W. Currie, G.C.M.G., K.C.B.,
Principal and Vice-Chancellor,
McGill University,
Montreal, Que.

Dear Sir Arthur,

I am sorry for the delay in answering your letter, but I have been out of town.

I shall be glad to co-operate with you in the important work you are doing by transporting free of charge your equipment to Corner Brook, Nfld., amounting to approximately 1,000 pounds. I will give your two men each half fare, which would take care of their meals and berth, and which would cost \$50.00 each for the round trip. I trust that this arrangement will be satisfactory to you.

We would take them down on the "NEW NORTHLAND" sailing from Montreal on Tuesday, July 26th, and would bring them back some time during September, after their work has been completed.

I am enclosing herewith passes for the two men and would ask you to kindly fill in the names of the representatives you are sending. I am writing our Traffic Department in Montreal to take the equipment free of charge.

I presume that the sailing of the "NEW NORTHLAND" on July 26th will not be too early, as the next sailing of the "NEW NORTHLAND" is on August 10th, which I understand will be too late, and besides the trip of August 10th is already practically booked up, but we still have some space available on the trip of July 26th.

We have another steamer, the "NORTH VOYAGEUR" leaving Montreal on August 2nd, but this steamer is completely booked, as it is going on the Grenfell Mission, and we would be unable to take your representatives on this particular trip.

You could have your representatives get in touch with Mr. S. E. Wharton, our General Passenger Agent, 19 Dominion Square Building, to whom I am sending copy of this letter for arrangement of their accommodation.

-2-

I sincerely trust that this will be satisfactory to you, and I am very glad indeed to be able to assist in some small way in this work that you are undertaking.

Faithfully yours,

Desmond A. Clarke

DAC/GM
Encls.

June 28, 1932.

D. A. Clarke, Esq.,
56 St. Peter St.,
Quebec, P. Q.

Dear Mr. Clarke,

The Physics Department of McGill is extremely anxious to carry out some fundamental experiments in radio-telegraphy at the time of the total eclipse of the sun on August 31, 1932. The optical shadow crosses the Province between Montreal and Three Rivers, but that particular phase of the eclipse which interests us takes place many miles to the east and the best locality for the work would be somewhere on the Labrador Coast, or in Newfoundland.

The electrical companies in Montreal interested in the work have donated or lent us apparatus for the occasion, but we are experiencing difficulty in raising money for transportation. The forthcoming total eclipse will provide an opportunity for useful experiment which will not be repeated under such favourable conditions for a great number of years. It therefore occurred to me that perhaps your Company might be willing to donate transportation from Montreal to Cornerbrook, Newfoundland for two men and a limited amount of apparatus, leaving Montreal about the beginning of August and returning about the middle of September. (The apparatus would be packed in four cabin trunks and would weigh about 1000 lbs.)

I recognize that this request is a little unusual and if you feel that the Clarke Steamship Company cannot help us, do not hesitate to say so. The University is so pressed for money in these days of financial stress, that it has been impossible to meet all the additional requests growing out of the scientific work in connection with the eclipse.

Ever yours faithfully,

Principal.

July 21, 1932.

D. A. Clarke, Esq.,
56 St. Peter St.
Quebec, P. Q.

Dear Mr. Clarke,

I wrote you on June 28th with reference to a contribution the Clarke Steamship Company might make in the matter of transportation in connection with radio-scientific investigations during the total solar eclipse of the sun, from Montreal to Cornerbrook, Newfoundland, for two men and certain apparatus.

In order to have the apparatus installed in plenty of time the party must leave here not later than August 7th.

Since a courteous acknowledgement of my letter from your office stating that you would write me personally, I have heard nothing further. I sincerely hope it will be possible for the Clarke Steamship Company to assist in this very important work. If you are not in a position to give full measure of assistance asked, could you make a contribution in allowing reduced rates, such as half fare both ways and free freight?

Ever yours faithfully,

Principal.



OFFICE OF THE PRIME MINISTER

PROVINCE OF QUEBEC

Quebec
May
Second
1932.

Sir Arthur Currie,
Principal,
McGill University,
Montréal.

Dear Sir Arthur,

I am in receipt of your letter of the 27th of April regarding the total eclipse of the sun which will take place on the 31st of August next.

I am not sure that it will be wise to make that day a Bank holiday, but there will be no difficulty in giving a half holiday to all our employees and requesting the people of our Province to put out all lights during the time of the eclipse.

Yours sincerely,

L. A. Tasselman

April 27th, 1932.

The Honourable L. A. Taschereau,
Premier of the Province of Quebec,
QUEBEC, P.Q.

My dear Mr. Taschereau:-

I beg to enclose herewith copy of a resolution received by me from the Royal Astronomical Society requesting that all employees be given an opportunity to witness the total eclipse of the sun to take place on the afternoon of Wednesday, August 31st, between the hours of 1 and 4 p.m., and that all lights be extinguished in the regions to be darkened by the eclipse.

I also forward you herewith a plane showing the sections of the Province which will be affected.

I strongly support the proposal of the Royal Astronomical Society that a half holiday be granted. None of the inhabitants of the Province of Quebec will, it appears, ever have another opportunity to see this magnificent and awe-inspiring phenomenon, and I feel that as many as possible should do so on this occasion. I earnestly trust that you may be able to declare a holiday as proposed by the Royal Astronomical Society.

Yours faithfully,

Principal.

MC GILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS LABORATORY

1932 April 20.

Sir Arthur Currie
McGill University -

To Colonel B:

Prepare letter for
me to Taschereau.

Dear Sir Arthur Currie,

I enclose a Resolution to be put before
the Royal Astronomical Society of Canada (Montreal
Centre) on Thursday evening April 21.

If you would make a similar request
in the name of McGill University and all those
interested in education in this Province, I have
no doubt but that it would be a great help in
convincing the Prime Minister that this is an
important occasion.

The chance of a total solar eclipse being
visible from any one spot on the Earth's surface
is only once in between 300 and 400 years, so
that I think it is worth while making some
effort to arouse public interest.

Our own interest is, naturally, centred
in the possibilities which this eclipse offers to
us to make some observations, spectroscopically

and otherwise, that will add to knowledge
of the nature of the sun's atmosphere, and
the influence of sunlight upon the earth's
atmosphere; but I do not feel that
we should neglect the more general
aspect - namely the opportunity - which
the occasion offers to thousands of people
to see an impressive celestial spectacle.

Faithfully yours,

Richard D. Ogden

May 6th, 1932.

Dr. A. V. Douglas,
Physics Building,
McGill University.

Dear Miss Douglas:-

You will be interested in
reading the enclosed copy of a letter from the
Prime Minister.

Yours faithfully,

Principal.

May the ninth,
1932.

Honourable L. A. Taschereau,
Prime Minister,
Quebec. P. Q.

My dear Prime Minister,

Let me thank you for your letter of the 2nd of May in which you inform me that you will proclaim the 31st of August a half holiday and request the people of the Province to extinguish all lights during the eclipse of the sun which takes place on that day. I am sure that your courteous co-operation will be much appreciated by all.

Ever yours faithfully,

Principal.

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192 44
Dominion Astrophysical Observatory,
Victoria. B.C.

July 16, 1932

Dear Sir Arthur,

I enclose the rough
sketch of eclipse plans, as requested.

We are considering two plans as
regards location

① to go with the Greenwich
and Ottawa parties at Parent, Que
on C.N.R. or

② fly farther north to point
on high land in centre of eclipse
region. Owing to saving in time
needed in field if we fly, the cost
is nearly the same in each case

with ²⁴545 from National Research Council, Washington, we still need ²⁴350 for the venture. This could be wiped out by a 'plane from the Government. Dr Eve & I discussed this, and he spoke with Gen. MacNaughton in Ottawa. The flying hours have been cut a great deal; but it seems possible that the problem can be solved in this way, by calling it an 'emergency'. I do not strongly favour the public appeal suggested by Dr. Douglas. ²⁴The Associated Screen News will pay 200 up for a good thing, if we get a good thing!

I assure you that we will be in a position to do first class work at the eclipse, and shall appreciate any aid you can give us.

The venture in Victoria is a great success. Unfortunately we shall have to leave soon, but already the results are conclusive and very pleasing to Dr.

Plaskett.

We expect to go back via
Los Angeles, Grand Canyon, Denver
etc. starting from Vancouver on
morning of July 20*.

Yours faithfully
J. S. Foster.

* Due Montreal Aug 4. 9:00 A.M.

Mc Gill Plans to Photograph the Flash Spectrum and the Corona at the Total Solar Eclipse August 31st. 1932.

(1) Members of Party:

- (i) J.S. Foster, Ph.D., F.R.S.C., Professor of Physics, McGill University.
- (ii) A.V. Douglas, Ph.D., F.R.S., Lecturer in Physics, McGill University.
- (iii) W. Rowles, Ph.D., Assist. Professor of Physics, Macdonald College.
- (iv) L. Rowles, Ph.D., Lecturer in Physics, Macdonald College.
- (v) H.W. Harkness, Ph.D., Assoc. Prof. of Physics, Acadia University.
- (vi) J.F. Heard, Ph.D., National Research Student, McGill University.
- (vii) R.L. Thornton, National Research Student, McGill University.
- (viii) R.N.H. Haslam, National Research Fellow, McGill University.
- (ix) A. Snell, National Research Student, McGill University.

(2). General Description of Eclipse Phenomena. On August 31st, in the middle of the afternoon, the moon will pass between us and the sun and shut off the sunlight. Under favourable weather conditions, this will be an opportunity to study the atmosphere of the sun. For this purpose, several parties are coming from Observatories in England and in the United States and from the Department of Astronomy, University of Toronto,

Standing in the centre of the eclipse region, and facing the sun, one may expect to see the moon enter the sun's disc at the right hand side, below centre. From this point it will cross the sun with no very interesting change except the introduction of a purplish colour as totality is approached. For a moment the main body of the sun may be seen only through the vales between the

mountains on the moon. These specks of bright light are known as Bailey's beads and are seen for a fraction of a second only. When they have disappeared the entire body of the sun will be covered, and light will come chiefly from the gases very near the sun and from the more extended 'prominences'. A spectral analysis of this bright crescent of the sun's atmosphere is known as the 'flash spectrum'. So long as any of the main body of the sun is visible, one may see in a spectroscope a continuous spectrum crossed by dark absorption lines due to metallic vapours. But at totality the continuous spectrum of the hot sun will disappear and in its place we shall see intense bright lines emitted by the gases and vapours near the sun's surface. This very striking phenomenon is seen during the time (about two seconds) it takes the moon to pass over the ^{intensely} glowing atmosphere very near the sun. Without the aid of a spectroscope one cannot hope to see the 'flash spectrum'; but at this phase of the eclipse should see some clouds of purplish light (prominences) which extend to relatively great distances from the surface of the sun. The prominences are due to hydrogen gas mainly, and may be seen for five or six seconds. During the following one hundred seconds one may see the corona or glow of pearly white light extending from the shadow of the moon to a distance of one or two diameters in every direction. The total intensity will be a little less than that supplied by a full moon. Most of the light will come from very near the moon's shadow and from this point it will rapidly shade off into dim streamers. The general form of the corona (as regards position of streamers) has been associated with the number of sun spots known to exist at the time of the eclipse. The spectrum of the corona is mainly foreign to the Laboratory but arises from oxygen under the entirely different physical conditions near the sun (according to Dutch physicist deBruin, 1932)

just before the sun reappears there will be a second 'flash', then Bailey's beads, and finally normal sunlight.

(3) General Position of McGill Physics Department with Respect to the Eclipse Photographs. Owing to our past interest in feeble sources of light which require a good analysis, we have at hand optical apparatus singularly well suited to eclipse problems. Such modifications ~~are~~ are needed for the most efficient use of this apparatus are being made with the aid of a grant from the National Research Council, Washington. The apparatus consists of:

(i). A 30 foot concave grating in new mounting with five heliostats. This will be arranged to photograph the flash spectrum and the corona. No slit.

(ii). A six-prism glass spectrograph with lenses F 15, focal length forty-five inches. This will be used with slit to examine a portion of the flash spectrum and the corona.

(iii). A concave speculum mirror, focal length ten feet six inches to be used to photograph the corona.

(iv). A telescope, focal length five feet two inches, with camera attachment for corona photograph.

(v). A two-prism glass spectrograph with Zeiss F 4.5 lenses; focal length of camera lens, fifteen inches. Used with slit for corona and flash.

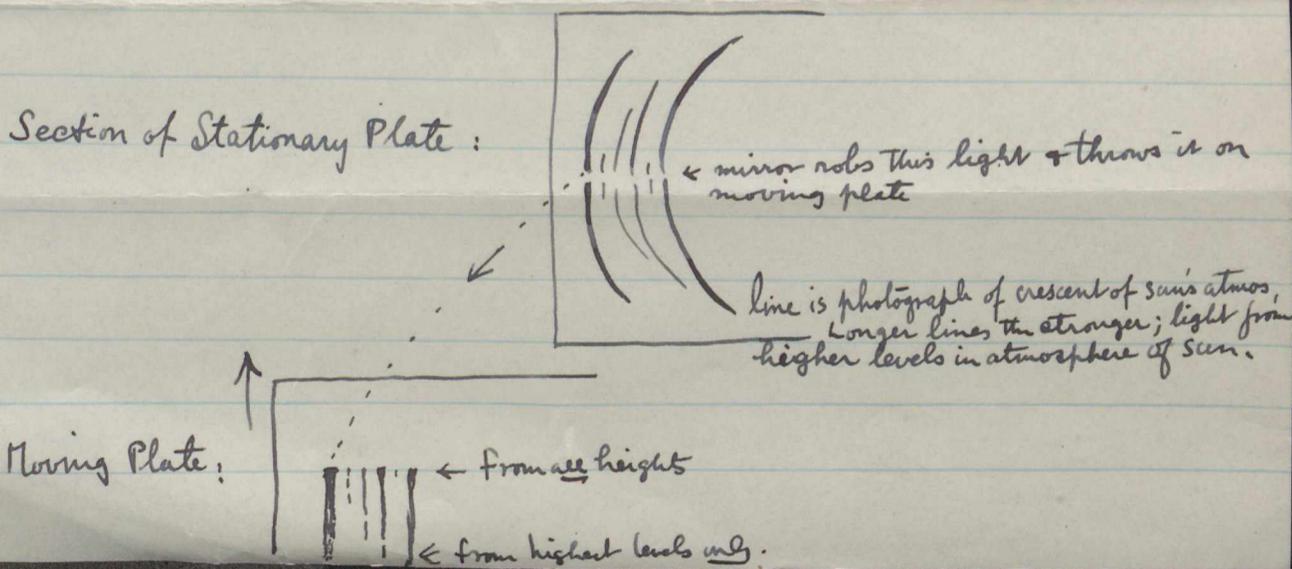
(vi). Motion picture camera fitted with Zeiss lens, focal length 22 inches. This will be used to provide a general survey of the prominences and the corona.

(vii) Condensing lenses and other accessories.

In the best interests of science, we believe we should use the above apparatus and work independently. Not only is the apparatus of good quality, but all the observers are thoroughly familiar ~~with~~ with the instruments. The modified motion picture camera will be

under the care of a professional operator from the Associated Screen News.

(A). McGill Plans to Photograph the Flash Spectrum. The thirty-foot concave grating will be used to photograph the flash spectrum over a greater spectral range than has been attempted heretofore. The plates will be calibrated to allow accurate measurements of intensities. Besides the usual stationary plates there will be a complete set of moving plates to cover the same range in the spectrum (3000-8000A). Each colour of the analysed light is reflected as a spot on a moving plate. In the early stages of the 'flash' this light is receiving contributions from all heights in the atmosphere of the sun. As the moon advances it covers the lower atmosphere rapidly and allows light to come from the higher regions only. The photographic plate is moved steadily during the exposure so that each spot of light traces a line. The intensities of the lines at points along the trace give information regarding the abundance of materials and the physical conditions at different heights above the surface of the sun. As regards extensive and intensive study, this effort is intended to lead to a contribution to our knowledge of the sun's atmosphere. The glass spectrographs will supplement the grating by allowing us to photograph the weaker lines, and determine any small shifts in the flash as compared with the normal continuous spectrum of the sun.



(5) Plans to Photograph the Corona. Reproductions which show satisfactory detail of the corona are usually pencil sketches or paintings, since the ordinary photograph is not suitable for reproduction of the more interesting details. This is because the very bright light near the shadow of the moon causes over-exposure by the time any impression has been produced by the extremely weak light at the outer edges of the corona. A continuous representation that is satisfactory over the whole region has not been made. To help this situation, we plan to cut down the bright light near the sun in a known way so that details will be recorded in all parts of the plate and yet true intensities can be deduced after allowance is made for our reduction during exposure. This information will be obtained with the concave speculum mirror and the telescope. A more detailed study, including accurate spectral analysis will be made with the glass and the grating spectrograph. The accurate wave-lengths of the colours in the corona will be measured and the intensities with which these appear at different distances from the sun. Possible motions of gases in the corona will be examined by shifts in position of the spectral lines.

(6) Motion Pictures of the Eclipse. Since the image of the sun formed in the ordinary motion picture camera is much too small for satisfactory reproduction, a special long focal length lens will be attached to a regular camera for photography of prominences and corona. Neutral and colour filters will be used to ensure a good reproduction of the more interesting features. Also the camera will keep an exact record of the progress of the eclipse at its critical stages. If the pictures prove to be good, we plan to supply some explanatory words to accompany them.

J. S. Foster,

Terroux

COPY

Cavendish Laboratory,
Cambridge.

Sept. 19th, 1920

My dear Eve

I received your letter, with regard to filling the post vacant by Bieler's death, when I was away on vacation. I have delayed answering until my return to the Laboratory.

As you say, it is not easy to get a man as suitable all round as Bieler. You mention the name of W. Watson, who has been working in the Cavendish and holds the Clerk Maxwell Studentship. I have formed a very good impression of his all round knowledge and ability. He is very well read in Physics and I am sure would prove a competent lecturer and teacher. He is keen on research and is an excellent experimenter. His own work here has been along his own lines, to test theoretical possibilities where one would have anticipated that the result would be negative. He is very interested in the philosophy of Science and like many of us is a little critical of some of the present phases of the Wave Mechanics, where all ideas of Physics vanish.

Altogether I think that you would find Watson a very good man of wide experience and a pleasant colleague. Just before I left Cambridge he was considering the possibility of a temporary offer at the Physics Department of Columbus University, Ohio. This was for one year but I have not heard whether any settlement has been made. If he should decide to take it for experience it would be no doubt possible to get him to come to McGill for you to make his acquaintance.

You ask my opinion of your other men, Terroux, Patterson and J.K.L. MacDonald. Terroux is quite a good fellow but to my mind is not comparable in ability or knowledge with Watson.

MacDonald is as yet too young and inexperienced to take a responsible post. It will not be easy to form a definite opinion of his promise until he has had another year.

I have not kept closely in touch with the work of Patterson the last few years but I should doubt whether he is in the same class as Watson.

If I can help in any way please drop me a line.

My wife leaves next week for New Zealand to see her relatives and will be absent for about five months. She will travel via the Panama Canal.

Yours sincerely

(Signed) E. Rutherford.

Terroux
nb.

London.

19th December

1930.

Dear Sir Arthur Curie. -

Just a
word to thank you very sincerely
for your kindness in seeing me this
afternoon, at a time when you are
obviously exceedingly busy.

I hope that your important
mission to India and beyond
will prove exceedingly pleasant
as well ^{as} intensely interesting.

You spoke this afternoon
of the danger of "inbreeding" as
applied to university positions.

II.

With reference to this, may I respectfully submit that, in my own case, four years in what is probably the best physical laboratory in the world, should in some measure absolve me from the odium of intruding. I might also plead that previous intimate experience of the types and capabilities of the students at McGill is of definite advantage if one is to lecture intelligibly to them.

You suggested that I might profitably obtain a position in some other Canadian university,

but to the best of my knowledge
McGill is the only institution
at present able to offer any
opening. During the past
three years I have had two
opportunities of positions in other
Canadian universities, of which
I did not avail myself since
the experience to be gained in
Cambridge seemed so obviously
superior to that in a small
university. Furthermore it
had always been my ambition
to return to McGill, though
I admit that this is beside
the point.

IV

Owing to the prevailing un-employment among physicists on this side, any position here will be restricted to candidates from the United Kingdom. There remains the refuge of unemployed Canadians, the United States, though I suspect that the situation there is at present not promising.

At any rate, I venture to hope that, in comparing the respective merits of myself and of William Watson, who informed me that he was applying for the position, my previous experience of, and interest in, Mrs Gill will not be considered in itself a disqualification. With renewed thanks and all good wishes for your voyage, I remain,

Sir, yours very faithfully
J. J. Bennett

GROSVENOR HOUSE,

LONDON, W.1.

31st December, 1930.

My dear Eve,

I have seen Watson and Turu and have also consulted Rutherford with regard to their qualifications. He prefers Watson, and I must say that I agree with him. Watson strikes me as a very earnest young man and I think would make a good colleague. He is anxious to come to Montreal and Rutherford unhesitatingly recommends him. Furthermore, he has had some useful experience in teaching, says he likes teaching, and I am told is a good teacher.

Turu is very anxious to have the position, but he has had no experience whatever in teaching and I think it is just as well at times to get away from the employment of our own graduates. I doubt whether it would be the best practise to employ constantly men who had their academic training in our own University and in Cambridge. Both are good, I know, but to me there is always the great danger in inbreeding. I mentioned this to Turu and suggested that he might profitably obtain a position in some other Canadian University, but he replies that to the best of his knowledge McGill is the only Institution at present able to offer any opening. He also says that while he has had opportunities of positions in other Canadian Universities, he did not avail himself because it had always been his ambition to return to McGill. He also suggests that there is large prevailing unemployment among physicists here, that any position will be restricted to candidates from the United Kingdom and that he looks forward with a certain amount of dismay to taking refuge in the United States. Of course, I like Turu, I have known him for many years. His wife was Mrs. Pinney who was for so long employed in our department of Zoology. I wonder if there

would be any pressure brought to bear to engage her again in that Department. If so, I would not like it because I think we have quite enough women employed in that department at the present time.

At the present time my preference is for Watson. I told him that I would write to you and leave it to you to continue negotiations with him. He wants to come and will accept the position at \$3000. Turu likewise wishes for the position at that figure.

I hope all goes well with you and your department.

Ever yours faithfully,

2A Leeson Esq

51, Sidney Street
Cambridge.

13th December 1930

Dear Sir Arthur Currie,

I have

just received notification from
your secretary in Montreal, with
reference to an interview in
London between the fifteenth
of this month and Christmas.

I shall be very glad
to call on you, in London,

*16/12/30
Answered
Came to
Sea on
Friday next
or Monday*

at your earliest convenience
and whenever you may desire.

I am, Sir,

yours very faithfully

W. R. Lawrence.

July 31, 1929

Dr. A.S. Eve,
Department of Physics,
McGill University.

Dear Dr. Eve:-

I note what you say regarding the resignation of Dr. Patterson and Mr. White, and also that you have appointed for one year Dr. W. Barnes to succeed Dr. Patterson with the same salary as paid to the latter.

I beg to confirm your action and have notified the Bursar accordingly.

Yours faithfully,

Principal.

Crowe

May 11th, 1927.

Dr. A. S. Eve,
Bureau of Mines,
Department of Commerce,
Washington, D.C.

My dear Dr. Eve:-

This will acknowledge your
letter of May 9th.

I am having Mr. Glassco write
to Miss Crowe saying that her engagement will
terminate on June 1st, 1928.

With kindest wishes to Dr. Keys
and yourself, I am,

Yours faithfully,

Principal.

McGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS BUILDING

May 4th. 1927.

Sir Arthur W. Currie, G.C.M.G.
Principal,
McGill University,
Montreal.

Dear Sir Arthur,

You asked me to give you a detailed memorandum in regard to Miss M. Crowe of our Department. The case is as follows.

Miss Crowe has been with us for seven years, at a salary of fifteen hundred dollars (\$1500), but has been notified each year, for the last two or three years, by Dr. Eve, that the renewal of her appointment was only from year to year, and he has explained the situation to her, and advised her that it was time to look out for a permanent post. There is no question whatever of dissatisfaction with her teaching services. The point is, that she is holding a position that is arranged, and always has been arranged, to be available every few years for successful graduate students, who are in training for further advancement in Physics.

This April, Dr. Eve notified her, in writing, that she could have another year at the reduced salary of thirteen hundred dollars (\$1300) -- customary salaries for demonstrating in our Department are of three grades, either eight hundred dollars for eight months work during the session, or twelve hundred dollars for a full year's appointment, or half-time work at a little over half the above rates.

As a result of this she protests quite bitterly, mainly along the lines indicated below, alleging unfair treatment and failure to live up to original understandings.

Miss Crowe's claims.

Miss Crowe draws attention to the following claims:-

- (I) She states she gave up a good position to come to/

to McGill, under the impression that she was being given a permanent post, provided she gave satisfaction in her teaching work.

- (II) That she knew nothing of the transient nature of junior demonstratorships until she had served five years, and before then she states she had never heard of its application in the case of others.
- (III) That her services in the laboratory had been considered satisfactory by Dr. Keys (to whom she reports) and to the Director.
- (IV) That a long piece of research work (under the direction of Dr. A.N. Shaw) has been completed, and has led to an M. Sc. thesis, including results worthy of publication and at present in the press.

I have explained to her that at most universities there are no permanent junior demonstratorships, ^{and} in particular, there have never been any here, and that although her misunderstanding is most regrettable, I feel sure she has no grounds for her original assumption about her appointment being permanent. I have also told her that personally I considered that she has received generous treatment in having her temporary appointment renewed several times after being advised definitely in regard to her status and prospects. The post provided an opportunity to continue her training in Physics, and was in no sense supposed to be a "living".

In reply to this she insists that this is not in accordance with the terms of her original appointment, and adopts the attitude of being unfairly treated.

In conclusion, I would very respectfully suggest that matters be allowed to stand as they are until the return of Dr. Eve, in view of the fact that he may have had conversations with her in regard to her plans, which may involve aspects of the case of which I am unaware.

I have sent a copy of this letter to Dr. Eve in case he desires to make any further comment now.

Yours very truly,

A Norman Shaw

Montreal, 643 Notton St
Oct. 27th 1917

Sir Arthur Currie

Principal of McGill University

Dear Sir Arthur,

Coming home after this
impressive memorial service,
I feel that it is my first duty,
and, at the same time, a real
privilege, to thank you for the part
you have taken in this service.

We were sorry to meet yesterday
that you were not well.

We should and I think that
everybody would have missed you
terribly, had you been unable to
be present.

We are thankful to you for
having come, notwithstanding your
indisposition, and more than
thankful for the kind and
happy words, in which you have
characterized our son's short career.
You had understood him remarkably well!

We hope that you will not feel
the loss for having gone out
by this bad weather and that
soon you will have fully recovered
your health

Believe us to be

Yours most gratefully

Charles Bieler

P.S. We should, through you, to
thank the University for having
organized this service, which has
greatly comforted us

Montreal, Aug. 6th 1929
643 Milton St.

Principal Sir Arthur Currie
McGill University

Dear Sir Arthur Currie,

We have been, Mrs Bicker and myself, very much moved by your letter of condolence received very shortly after the fatal news, cabled from Australia, had reached us.

The shock has been terrible, so unexpected, so crushing. We can, even now, hardly realize that we shall never see again on earth our beloved son. His mother can hardly imagine the future without him.

Nevertheless, we find some comfort in the thought that his life, notwithstanding its shortness, has had a real value. He was always a faithful servant of duty. And the kind expressions of appreciation we receive concerning his character

and his activity help us to accept the sorrow
that makes our hearts so heavy.

We thank you most heartily for your letter,
which has given us so sure a proof of the
esteem in which you held our Etienne, and
beg you to believe us to be

Yours most sincerely

Charles Pieler

Davies

CARNEGIE INSTITUTION OF WASHINGTON

DEPARTMENT OF RESEARCH IN TERRESTRIAL MAGNETISM

5241
~~36TH STREET AND BROAD BRANCH ROAD,~~
WASHINGTON, D. C.

Tuesday July 8th

Sir Arthur Currie
President. McGill University
Montreal. Que.

Dear Sir

Please accept my appologies for so long delaying my expression of gratitude to yourself, sir, and to McGill for your kindness to me for which I shall always feel indebted.

My Thanks are due for the donation of \$250 on my joining the Byrd Antarctic Expedition, for the holding of my position as demonstrator in the Physics Department, for the loan of apparatus from Dr. Eve and Dr. Shaw and to Dr. Barnes for his influence in obtaining for me the appointment as Physicist to the Byrd Antarctic Expedition.

I realize, sir, that it was my being at McGill as a student under the gentlemen I have named procured for me this honour, an honour for which scores of young Americans were as well or better qualified than myself.

At present I am working on a report of the results obtained by myself during the past two years. My full time is devoted to this work, which is the reason for my remaining in the United States. I do not intend losing my Canadian citizenship, as I am going back to Canada.

I thank you, sir and through you I wish to thank Drs Eve, Barnes and Shaw. I should also like to express my appreciation to Major Jakins and Captain Pennell of the McGill C.O.T.C. for my training under them, which I think has proved of no little benefit to me during these two years. Yours respectfully Frank J. Davies.

C O P Y

GARNEGIE INSTITUTION OF WASHINGTON.
DEPARTMENT OF RESEARCH IN TERRESTRIAL MAGNETISM.

July 8th, 1930.

Sir Arthur Currie,
President McGill University,
Montreal, Que.

Dear Sir,

Please accept my apologies for so long delaying my expression of gratitude to yourself, sir, and to McGill for your kindness to me for which I shall always feel indebted.

My thanks are due for the donation of \$250 on my joining the Byrd Antarctic Expedition, for the loan of apparatus from Dr. Eve and Dr. Shaw and to Dr. Barnes for his influence in obtaining for me the appointment as physicist to the Byrd Antarctic Expedition; for the holding of my position as demonstrator in the Physics Department.

I realise, sir, that it was my being at McGill as a student under the gentlemen I have named which procured for me this honour, an honour for which scores of young Americans were as well or better qualified than myself.

At present I am working on a report of the results obtained by myself during the past two years. My full time is devoted to this work, which is the reason for my remaining in the United States. I do not intend losing my Canadian citizenship as I am going back to Canada.

I thank you, sir, and through you I wish to thank Drs. Eve, Barnes and Shaw. I should also like to express my appreciation to Major Jenkins and Captain Pennell of the McGill C.O.T.C., for my training under them, which I think has proved of no little benefit to me during these two years.

Yours respectfully,

FRANK T. DAVIES.

July 10th, 1930.

Mr. Frank P. Davis,
Care Carnegie Institution of Washington,
Dept. of Research in Terrestrial Magnetism,
5241 Broad Branch Road,
Washington, D. C.

Dear Mr. Davis,

Thank you very much for your letter of July 8th. I assure you that everyone at McGill, and especially your former colleagues in the Department of Physics, has been justly proud of your association with the Byrd Antarctic Expedition. Yours has been a wonderful experience, and I have no doubt much valuable scientific knowledge has been acquired. The Expedition has been one of the most notable in many years, and we are glad that one of our McGill men took part.

It will give me much pleasure to pass your message on to those whom you have mentioned. We shall look forward to seeing you here again.

Ever yours faithfully,

Principal.

July 10th, 1930.

Dr. A. S. Eve,
Department of Physics.

My dear Eve,

You will be interested in
the attached copy of letter I have received from
Mr. Frank P. Davis.

Ever yours faithfully,

Principal.

The Department of Extra-Mural Relations,
XXXXXXXXXXXXXXXXXXXXXXXXXXXX

June 22, 1928.

S.R. Burrell, Esq.,
Assistant Bursar,
McGill University.

Dear Mr. Burrell:-

At a meeting of the Deans the question of an extra appropriation of \$250. for Mr. F.T. Davies, Demonstrator in Physics, was approved towards the expenses of his expedition to the Antarctic under Commander Byrd for purposes of scientific research.

Mr. Davies will still remain on the staff of McGill University, though he will be given leave of absence for two years without salary. It is felt that the University should make this appropriation in view of the character of the work and the service that will be ultimately be rendered to McGill.

Yours faithfully,

Wilfrid Bovey,

Director.

March 20, 1931.

Dr. Stephen P. Duggan,
Director, Institute of International Education,
2 West 45th Street,
New York, N. Y.

Dear Sir,

The Chancellor, Mr. E. W. Beatty,
has turned over to me your interesting letter of
March 13th with regard to Professor Haas.

It happens that we have just made
an appointment in the Physics Department and are
up to full strength there, so that I am afraid
there is no opening at present for a man of
Dr. Haas' ability.

Yours faithfully,

CWS

Institute of International Education

Incorporated

Telephone Vanderbilt 1924

Two West Forty-fifth Street, New York

Cable Address "Intered"



STEPHEN P. DUGGAN, PH.D., LL.D.
DIRECTOR

GORDON L. BERRY
ASSISTANT DIRECTOR

MARY L. WAITE
EXECUTIVE SECRETARY

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PARIS: American University Union
173 Boulevard St. Germain

LONDON: American University Union
1 Gordon Square

ROME: American University Union
271 Corso Umberto

BERLIN: Amerika-Institut
Universität-Strasse 8

VIENNA: The Austro-American Institute
1 Elisabethstrasse 9

GENEVA: Institut J. J. Rousseau
4 Rue Charles Bonnet

MADRID: Junta Para Ampliacion de Estudios
Almagro 26

March 13, 1931

Confidential

Dr. Edward W. Beatty, Chancellor
McGill University
Montreal, Canada

My dear Dr. Beatty:

When I was last in Vienna, Professor Haas, in the course of conversation, told me that under favorable conditions he might like to secure a permanent position in the Department of Physics of a university over here. He is again in the United States lecturing quite extensively and I understand he expects to lecture at McGill. Is there any opening with you for a man of Dr. Haas' distinction? I find that his textbooks are in general use in our colleges and that he is well known over here. I am writing you this note believing that if you have a position to fill you would like to know that Dr. Haas might be available.

Sincerely yours,

Director

SPD:B

MCGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS LABORATORY

June 24th. 1931.

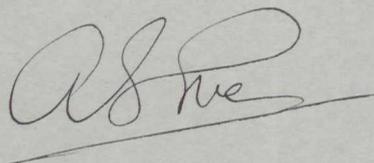
Sir Arthur Currie, G.C.M.G.,
Principal,
McGill University.

Dear Sir Arthur,

I am grateful to you and
to Mr. Glasco for permission to pay sixty
dollars a month to Dr. ~~L. E. Howlett~~. It is
now possible to cancel this, inasmuch as I have
received a special grant of one hundred dollars
a month for three months from the National Research
Council for this purpose.

I am sending a copy of this
letter to Mr. Glasco.

Yours very sincerely,



A. S. Eve,
Director of the
Department of Physics.

noted aut

MCGILL UNIVERSITY
MONTREAL

GRADUATE FACULTY

December 23, 1931.

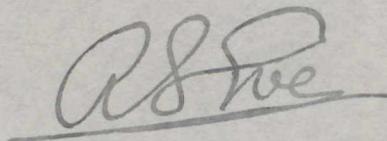
Sir Arthur Currie,
Principal and Vice-Chancellor,
McGill University.

Dear Sir Arthur:

I should like to explain further that Dr. T.N. White is a United States citizen, but he was an undergraduate and a Ph. D. of McGill. We were only able to offer him \$100 a month for seven months during this session, and the present appointment is for \$2,600, and of a permanent character.

We have two other men on our staff as demonstrators, Dr. F.L. Terroux and Mr. H.G.I. Watson, who are looking for appointments, and, under the present strenuous circumstances, it is not easy to place them. In the meantime, we are securing the services of very able men as demonstrators, men really fit to be professors, and it is possible to do this if our arrangements are a little elastic so that we can release them directly an opportunity occurs. I am inclined to think that this is very beneficial to the University and helpful to the men themselves, and I hope that this policy has your endorsement.

Yours very sincerely,



Dr. A.S. Eve,
Dean, Graduate Faculty.

Douglas

March 16th, 1927.

Dr. H. M. Ami,
Laboratory of Geology,
Elgin Annex,
Ottawa, Ont.

Dear Dr. Ami:-

Thank you very much for your letter outlining the reception Miss Douglas received when she spoke in Ottawa the other day. She is a brilliant girl and we think much of her.

I hope before many years pass our resources will permit us to have a Department of Astronomy.

Yours faithfully,

Principal.

March 21, 1927.

Dr. H.M. Ami,
Laboratory of Geology,
Ottawa.

Dear Dr. Ami:-

In Colonel Bovey's absence I have been asked to reply to your letter of March 15th. Colonel Bovey handed your letter to Dr. Iwe whose answer is enclosed herewith.

Colonel Bovey has also asked me to thank you for the notices of the two lectures held in Ottawa before the Royal Astronomical Society. He was very pleased with your favourable comments concerning Miss Douglas' and Mr. Turner's addresses.

Yours very truly,

Secretary.

H. M. AMI
LABORATORY OF GEOLOGY
ELGIN ANNEX
OTTAWA, CANADA

Middlemarch, 1927.

Dear Colonel Bovey,

Enclosed please find two Notices of the two Lectures held in Ottawa before the Royal Astronomical Society of Canada here.

Miss Douglas last Friday gave us a most instructive and well--delivered as well as inspiring address.

Thinking that Miss Douglas was Head of the Astronomical Dept. of McGill University, we entered her name as such. She is not at all responsible for the error, to which she called my attention. As President of the Roy. Astronom. Soc. of Canada: Ottawa Branch, I would very much like to enquire as to the status of that Science in the Course at McGill now-a-days.

There are movements on foot to take up Astronomy in Primary Schools, in Europe, and also in Canada. ~~But~~

But it seems to me that whilst in 1877 and following years at McGill we used to have a Course in ~~Abts~~ in Astronomy, surely the University might well take up the question of establishing a Course in Astronomy, the science which uplifts every one who take it up. I hinted in that direction at the last Corporation Meeting. Mr. Turner, Architecture, gave a wonderful lecture on the Liverpool Cathedral in process of erection.

with best wishes, I am yours sincerely,

Enclosure

H. M. Ami.

H. M. AMI
LABORATORY OF GEOLOGY
ELGIN ANNEX
OTTAWA, - CANADA

Middlemarch, 1927.

My dear Sir Arthur,

On Friday last we had in Ottawa before
The Royal Astronomical Society of Canada (Ottawa Branch), a
most instructive and inspiring address in the Lecture Hall
of The Victoria Memorial Museum. Miss Vibert Douglas of
McGill University gave the lecture in wonderfully clear style
and in a highly masterful manner.

The Canadian Astronomer Royal, Dr. R.M. Stewart was present
and many others from the Dominion Observatory at Ottawa. The
subject was:-

SIR ISAAC NEWTON: & HIS INFLUENCE ON ASTRONOMY.

Miss Douglas regretted the wrong designation on the card
prepared for the lecture Course for which the Ottawa Branch &
alone is responsible. We regret it, but I can assure you that
if there be not an Astronomical Department at McGill as some of us
thought, perhaps before long there will be one. Miss Douglas shewed
to her audience that she was a master in the Science of Astronomy.
Her knowledge of cognate sciences also help her to arrive at results
such as coördination and coöperation only can achieve.

As President of the Ottawa Branch of the Roy. Astronom. Society of
Canada, I desire to say how much we appreciated Miss Douglas's words.

very sincerely yours,

Sir Arthur Currie K.C.M.G., K.C.,
Principal, McGill University, Montreal, Que.

H. M. Ami

McGILL UNIVERSITY
MONTREAL

Foster

THE MACDONALD PHYSICS BUILDING

November
Twenty-fourth
1926

Sir Arthur Currie,
Principal of McGill University,
Montreal.

Dear Sir Arthur,

I enclose a letter from Dr. Foster who is now on leave of absence until the end of December at Copenhagen with a Rockefeller Fellowship. There is also an irresistible appeal attached from Professor N. Bohr of Copenhagen, a world-renowned physicist.

With your kind permission I will cable Foster to remain until the end of January. Dr. King is in excellent health and my colleagues are able to share in Dr. Foster's work, so that we can carry on without undue strain until the end of that month.

Please be so kind as to return the enclosed letters, which give me immense satisfaction.

Yours very sincerely,

A. S. Mac

November 25th, 1926.

Dr. J. Stuart Foster,
Universitetets Institut,
Blegdamsvej, 15,
Copenhagen, Denmark.

My dear Dr. Foster:-

Dr. Eve has just told me of the great success that has attended your work in Copenhagen and I hasten to offer you my warm and sincere congratulations.

Dr. Eve has recommended that you be granted leave until the end of January. I am most pleased to approve of that recommendation. All of us shall join in a hearty welcome to you when you return.

I hope that you and your wife have fully enjoyed your stay over there.

Yours faithfully,

Principal.

Blegdamsvej 15,
København, P,

December 28, 1926-

Sir Arthur W Currie G.C.M.G., K.C.B.
Principal, McGill University -
Montreal, Canada.

Dear Sir Arthur,

I want to thank you for
the extension which you have granted to
my leave of absence, and especially for
your kind and encouraging letter.

A full month will be needed
to complete the theoretical work in hand,
but I plan to sail from Liverpool not
later than January 29th.

At McGill we now have the full confidence of those most intimately connected with some of the recent outstanding advances in Physics. At the same time we have a good chance to retain our present lead in at least one phase of modern experimental Physics. I am deeply grateful to you for your strong support.

Yours sincerely,

Stuart Foster.

Foster

PRESIDENT'S OFFICE



CABLE ADDRESS: "VERA"
CODE A.B.C. (5TH ED.)

EDMONTON. February 20th, 1930.
ALBERTA, CANADA

Dr. A.S. Eve,
Department of Physics,
McGill University,
Montreal, Que.

Dear Dr. Eve:

Yesterday, the Board of Governors of the University of Alberta decided to offer Dr. Foster the position of Professor of Physics and head of the department of Physics in this University, and a letter went forward to Dr. Foster to that effect. After discussing the matter with Dr. Foster and after some communication with him since that date, we have come to the conclusion that we wish to have Dr. Foster here, if he finds it possible to accept the position. I wish to let you know concurrently with the offer to Dr. Foster, as he will doubtless discuss the matter with you immediately. I feel there is a very good field for Dr. Foster which has attraction in many ways and we will do all we can to make it possible for him to carry on his work without interruption. While I know that it is your desire that Dr. Foster remain at McGill, my purpose in writing you is to let you know that we very much desire to have him here, in order that when he discusses the matter with you you may appreciate our attitude and view-point in the whole matter.

With kind regards,

Very truly yours,

Robt. C. Wallace

Robt C. Wallace,
President.

J. S. Foster

Came to Mcsill, 1924 \$3000
Asst Prof

1926 \$3500

1927 3750

1928 4000

Assoc. Prof. 1929 4250

Salary, Shaw 5000
Kings 5000

MCGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS LABORATORY

4. 3. 30

Dear Sir Arthur,
Dr Foster has
just informed me that
he also has an offer
from Ohio State Univ^y
offering him "Professor
of Physics with emphasis on
Research", \$6000 a year.

This is better than
Alberta in salary & opportunity

Yours sincerely

Adhe

February 15th, 1927.

Professor J. S. Foster,
Department of Physics,
McGill University.

Dear Professor Foster:-

I am glad to know that you have returned to McGill after your visit to Denmark where you spent your time so profitably. Dr. Eve tells me that he has no doubt whatever of the advantage to you personally, to your colleagues here, and to the cause of Physics generally. It is always a delight to realize that what you have attempted to do has been well done.

I join with Dr. Eve in welcoming you back and hope that you will long be a member of the staff of our Department of Physics, bringing it additional lustre and prestige.

Yours faithfully,

Principal.

MCGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS LABORATORY

February 10, 1928.

Sir Arthur W. Currie
Principal McGill University -

Dear Sir Arthur,

I want to thank you again for the support & encouragement you have given me at all times. Reprints of my last paper have just arrived, and I am sending you a copy of that together with reprints of the other main articles ^{I have} written since coming to McGill.

The recent paper is an application of a new mathematical method to a problem which could not be solved by the methods of classical mathematics. It is interesting to see the remarkable agreement between the theory & the experiments. Prof. Bohr has suggested that there is, perhaps, no better example of this in modern physics. It is encouraging, also to learn that the enclosed papers were discussed in the physics colloquium at Leipzig last month.

Yours sincerely
J. S. Foster.

McGill University

MACDONALD PHYSICS LABORATORY.

MEMORANDUM

TO

FROM

14. 5. 29.

Dear Dean,

Keep Patterson if you can.

We may want him badly in a year
or two. We pay him \$1500, and

\$3000 might hold him.

King & Shaw strongly concur

Yours ever

Adm

MCGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS LABORATORY

May 9th. 1929.

To the Acting Principal,
McGill University,
Montreal.

Dear Dr. Martin,

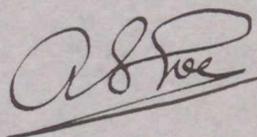
You have had a recommendation from me that Dr. Foster of this Department be promoted to the rank of Associate Professor.

It has occurred to me that a difficulty is created by the fact that this would give him seniority over Dr. E. S. Bieler who, as you are aware, is absent on an expedition to Australia working for the British Empire Marketing Board and the Australian Commonwealth. Dr. Bieler is doing remarkably fine work there, and it would be unfortunate to give seniority to Foster, over Bieler's head, during the latter's absence.

Under these circumstances I strongly recommend that both Bieler and Foster receive the rank of Associate Professor. Their standing, their teaching powers and their research work alike qualify them for such rank, and the promotion would give to both of them a well merited stimulus.

I am not raising any question of financial increase in connection with these promotions.

Yours very sincerely,



Director of the
Department of Physics.

D. M. MORIN,
PROPRIETOR

ED. SPANG,
SECRETARY



THE NICKEL RANGE HOTEL

EUROPEAN AND AMERICAN PLAN

150 ROOMS

50 WITH BATH

HOT & COLD WATER IN EVERY ROOM

SUDBURY, ONT.

152 Keys
9 July 1929

Dear Sir Arthur,

I thank you for your interesting letter concerning my colleagues in the Physics Dept.

I shall be back at Montreal about 1st August and it will be a pleasure to see you & to have a talk. I am particularly glad that you made Foster happy! As To Keys I understood that a Professorship was part of the understanding, & he is worth it.

Dr Bieler is a scientific man
on a scientific expedition of
special importance. It is not
a commercial proposition.

His enthusiasm for physics is
so great that he will surely
come back to us, I think.

Dr Key & I had a strenuous
month (June) in Kentucky,
^{we have} and a more strenuous life
here, in tents, with a choice
of black flies & mosquitoes.

We were at the Falconbridge,
& we mean on to the Treadwell
Yukon. It is an interesting

life & we are getting good
results

With kind regards from both of
us to you & Lady Curzon

Yours very sincerely

A. S. Peck

MCGILL UNIVERSITY
MONTREAL

Keys
Shaw

Foster

THE MACDONALD PHYSICS LABORATORY

June 29th. 1929.

Sir Arthur W. Currie, G.C.M.G.,
Principal,
McGill University,
Montreal.

Dear Sir Arthur,

No doubt you have been told by Dr. Martin that Dr. Keys received a very lucrative offer from the Bureau of Mines, Washington, and to our great delight he has decided to remain with us. I believe that there was some negotiation with reference to his salary, of which you are probably aware, and this is now being paid to him. It would, however, be of great benefit to my Department if he was raised to the status of Professor, and I beg you to give this matter your favourable consideration; it was indeed, I believe, part of the negotiation.

A further recommendation is made that, in consequence of his very brilliant research work which is of international fame, Dr. J. S. Foster receive promotion from Assistant to Associate Professor, as before recommended. I am grateful for a letter dated June 27th. from Mr. Glassco, stating that Dr. Foster's salary is increased from four thousand dollars to four thousand, two hundred and fifty dollars as from Sept. 1st.

Finally, in the matter of Dr. Shaw - if it is possible to make him an increase of two hundred and fifty dollars a year, under circumstances which are unusual and strenuous in connection with his family affairs, it would, I think, be a wise policy. Dr. Martin and Mr. Glassco are both fully aware of the circumstances to which I refer.

As stated before, it is important that when Dr. Bieler returns to McGill in the summer of next year, he should not lose seniority. I gather that he has been doing very distinguished work for the Australian Commonwealth, and for the British Empire Marketing Board in Australasia.

Yours very sincerely,

A. S. F. C.

Director of Physics.

*x relative to Dr. Foster
who is his junior*

July 3rd, 1929.

Dr. A. S. Eve,
Director of Physics,
McGill University.

Dear Dr. Eve:-

Upon my return to the office this morning I found your letter of June 29th.

Re Dr. Keys. I can find nothing on the file in my office other than a letter you wrote to Dr. Martin on December 31st last, to which was attached a memorandum. The only thing brought to my attention by Mr. Glassco was the promise to pay Dr. Keys \$5,000. per annum, which amount, I believe, he has received since January 1st last. If it was part of the bargain that he be raised to the rank of Professor, of course, the Governors will approve. I would appreciate any further confirmation you can give of this fact.

Re. Dr. Foster. I have had an interview with him this morning and promised to recommend immediately his promotion to the rank of Associate Professor. He told me he was satisfied with the \$4,250.00 per annum for the present. We discussed generally his prospects at McGill. As far as I could learn abroad Dr. Foster's work has created much favourable comment and he is rapidly winning for himself a splendid place in the world of Physics. Undoubtedly, he will go far and I am most anxious to keep him at McGill.

Dr. A.S. Eve

- 2 -

Re Dr. Shaw. Neither Dr. Martin nor Mr. Glassco have told me of any special circumstances or reasons why his salary should be increased \$250.00. Only a few years ago his salary was raised from \$4,250. to \$5,000. and he was given to understand then that that amount was the limit. I am not disposed to make a recommendation for any increase.

Re Dr. Bieler. You, I think, know my views regarding rank. Promotions should be on merit with due regard to seniority, but I will never subscribe to the principle that when one man receives promotion every one above him must get a step at the same time if that is possible. I have a high appreciation of Dr. Bieler's worth and see no reason whatever that he should not retain his present ranking in the department. I may be wrong, but when men get away for a few years they more often than not fail to return, and I think you must always be ready to receive such an intimation from Dr. Bieler.

I shall be here generally throughout the summer and shall be very happy indeed at any time to see you and discuss with you any questions regarding your department.

Yours faithfully,

Principal.

MEMORANDUM FOR MR. GLASSCO FROM THE PRINCIPAL

JULY 29, 1929.

Dr. Eve informs me that Dr. Keys was promised a Professorship last January, when he was retained on our Staff after receiving an offer to go to an American Institution.

201 BROCK AVENUE NORTH
MONTREAL WEST

December 24th, 1929

My dear Sir Arthur,

I beg to thank you most sincerely for my promotion and I appreciate very much your action in this matter. It was a very happy Christmas morn^g to my family and to me and I assure you, Sir, that my best efforts both in my research work and my teaching duties I shall continue to exert in forwarding the best interests of McGill and her students.

With all good wishes for the coming year to you and yours

family,

believe me

Yours very sincerely,

David A. Keys.

Sir Arthur Currie, G.C.M.G., K.C.B., LL.D.,
Principal McGill University.

McGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS LABORATORY

January 29 th., 1929.

Dean C. F. Martin,
Acting-Principal,
McGill University;

My dear Dr. Martin,

I have just received confirmation from Mr. Glassco of your telephone message and appreciate very much indeed what you have done for me in this matter. The confidence which you have thus shown in me I shall endeavour to justify. I am extremely happy to be continuing my work here and shall do my utmost to advance the best interests of the University and its students in every way possible.

Thanking you again,

believe me

Yours very sincerely,

David A. Vays.

1st February, 1929.

Professor A. S. Eve,
Macdonald Physics Laboratory,
McGill University, Montreal.

Dear Professor Eve,

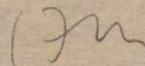
So many thanks for your nice note about Keys! I am delighted to have had even a small part in keeping him here.

I have no doubt that his association with you and his very nice Department proved the main factor in keeping him, and I do not blame him!

I am returning Mr. Wright's letter.

Many thanks, too, for your admirable exposé concerning the Department; it is exactly what I wanted. I wish ^{to} send this around to the heads of the other Departments as a sample of what might be done!!

Sincerely yours,



Acting Principal.

Please return enclosed

McGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS LABORATORY

31.1.29

Dear Dr. Martin,

This new offer
means at least \$8000
a year, but Keys says
that he will stay here!

I wish you to know
that your prompt & kind
response saved the day

I am so sorry that you
are under the weather

Yours sincerely

A. J. Lee

Please return to me the enclosed.

COPY.

UNITED STATES
DEPARTMENT of COMMERCE.
Bureau of Mines
WASHINGTON.

January 29, 1929.

Dr. D. A. Keys,
McGill University,
Montreal, Canada.

Dear Doctor Keys:

Mr. Turner showed me your letter of January 24th to him and his reply. I, too, am sorry that you are not to be in Washington.

To-day a Mr. George B. Pegram, Dean at the University of Columbia New York, was in to see me. He wishes to find a good Geophysicist, so I gave him your address, and you may hear from him. I presume that they will offer \$6,000.00 or more and four to five months' vacation with the right to do outside work. If a position at Columbia University would interest you, then we could arrange to give you plenty to do during the vacations and your research work at Columbia could be along the lines of our work. In other words, with you at Columbia, the Bureau of Mines could cooperate very nicely with the work they may do to develop geophysical methods.

Kindest regards.

Very truly yours,

(Signed) Charles W. Wright,
Chief Engineer,
Mining Division.

McGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS LABORATORY

December 31st. 1928.

Dean C. F. Martin,
McGill University,
Montreal.

Dear Dr. Martin,

I enclose a memorandum which requires your serious consideration.

You will recollect that my age is sixty-six, so that my retirement must be a matter of a few years at most.

The order of seniority as set in the calendar is -

Dr. H. T. Barnes	}	Professors
Dr. L. V. King		
Dr. A. N. Shaw		
Professor A.H.S. Gillson	}	Associate Professors.
Dr. D. A. Keys		
Professor H. E. Reilley		

I could make some remarks to you verbally on this matter.

It would, in my judgment, be undesirable to make any definite pledges at present as to my successor.

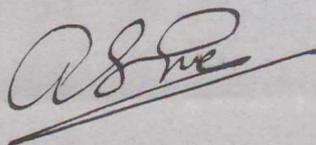
Dr. Keys is, as you know, on admirable terms with staff and students. He has managed the elementary laboratories with singular skill and efficiency. Two years ago I handed to him the large First Year class in Physics - a difficult work which he has carried out most successfully; not every one can manage these large classes, maintain discipline and hold the interest of students. He has been helpful in the guidance of research students, particularly in Optics, and some of his students such as F. R. Terroux and E. E. Watson have done well.

I am not exaggerating in stating that Dr. Keys would be a great loss to Canada and to McGill.

I shall be glad to discuss this matter with you at your early convenience.

I have sent a copy of this letter and memorandum to the Secretary and Bursar.

Yours very sincerely,

A handwritten signature in cursive script, appearing to read 'A. S. Eve', with a horizontal line drawn underneath it.

A. S. Eve,
Director of the
Department of Physics.

Encl.

MCGILL UNIVERSITY.
DEPARTMENT OF PHYSICS.

MEMORANDUM TO-

Dean C. F. Martin, Acting Principal,
and
A.P.S. Glassco, Esq., Secretary and Bursar.

Dr. D. A. Keys, Associate Professor of Physics, has received a definite offer from Mr. Scott Turner, Director of the Bureau of Mines, Washington, U.S.A., of an appointment in the new Department of Applied Geophysics, with a salary of five thousand six hundred dollars per annum, with prospects of gradual increase to six thousand four hundred dollars per annum. The appointment offered is from June, 1929.

Dr. D. A. Keys was educated at the University of Toronto, where he took Honours in Physics, and subsequently he took his M. A. His Ph. D. at Harvard; Ph. D. also at Cambridge.

During the war he was engaged with the Anti-submarine Division in Scientific Research.

He came to McGill in October 1922 as Assistant Professor, and was promoted to Associate Professor in 1926.

His initial salary was three thousand dollars per annum, which was raised in 1925 to three thousand, five hundred; in 1927 to three thousand seven hundred and fifty, and in 1928 to four thousand dollars.

McGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS LABORATORY

December 16th. 1929.

10²⁰ H live

Sir Arthur Currie,
Principal,
McGill University.

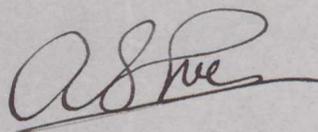
Dear Sir Arthur,

On October 7th. I received a letter from Mr. Glassee saying that the promotions for Dr. Keys and Dr. Foster had been recommended to the Board of Governors, and that I might come and see you in regard to Dr. Shaw's matters.

Furthermore, I should like a few minutes conversation with you on the question of a successor to Dr. Bieler.

Would you kindly tell me when it would be convenient for me to call on you?

Yours very sincerely,



A. S. Eve,
Director of the
Department of Physics.

TELEGRAM TO DR. EVE

May 4th, 1927.

Dr. A. S. Eve,
Bureau of Mines,
Department of Commerce,
Washington, D.C.

Lehigh offers Shaw Six thousand with certain promises of facilities and enlarged opportunities. Should I offer him Five thousand without any definite assurance re Department Directorship? For this I think he would stay. Please answer immediately.

A. W. Currie.

660 Sherbrooke Street, West

Montreal.

Dear Sir Arthur,

I have just received your kind message over the telephone and desire to say that I am most deeply appreciative of this recognition and indication of approval of my past work! I shall do my best to be worthy of this further advancement.

My understanding is that I am to receive five thousand dollars per annum dating from Sept. first.
Upon receipt of

your decision, I immediately telegraphed to Lohigh, declining their offer.

Please let me have Mr Richards letter back, for my files.

With kind regards,

yours very sincerely,

A. Herman Shaw.

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
Night Message	Nite
Night Letter	N L

If none of these three symbols appears after the check (number of words) this is a day message. Otherwise its character is indicated by the symbol appearing after the check.

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SIR ARTHUR CURRIE

MCGILL UNIVERSITY MONTREAL QUE

THOROUGHLY AGREE FIVE THOUSAND WITHOUT ANY DEFINITE ASSURANCE ABOUT
 DIRECTORSHIP

EVE

1113A

PHILLIPS SQUARE BRANCH
 1239 PHILLIPS SQUARE
 LAN. 1853 & 6200
 OPEN UNTIL MIDNIGHT

Shaw

Standard Time

USE OUR DIRECT ALL-CANADA SERVICE TO VANCOUVER, VICTORIA AND BRITISH COLUMBIA POINTS

May 6th, 1927.

Dr. A. S. Eve,
Bureau of Mines,
Department of Commerce,
Washington, D. C.

Dear Dr. Eve:-

With reference to Shaw, I have offered him the salary of \$5,000 per annum to begin on September 1st next and he has declined the offer received from Lehigh.

I have had a long interview with Miss Crowe who thinks that she has been very badly treated. I told her that I would write to you and make this suggestion: That her salary for the next year remain as at present \$1,500. per annum, but that her engagement with the University would definitely terminate on June 1st, 1928. I may say that I do not like the lowering of a person's salary unaccompanied by a notice that the association ceases. If this suggestion interferes with other ideas you have as to the appropriation of money available I am willing to recommend an increase of the appropriation to the extent affected. However, I shall be glad to hear any comments you have to make.

Yours faithfully,

Principal.

Finance Committee
MCGILL UNIVERSITY
MONTREAL

Keys

THE MACDONALD PHYSICS BUILDING

February 7th 1922.

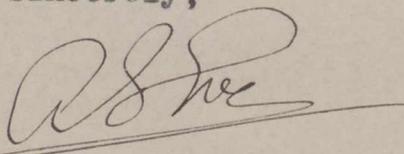
Sir Arthur Currie, K.C.M.G.,
Principal's Office,
McGill College.

Dear Sir Arthur,-

Enclosed is a copy of the statement and letter from Dr. Keys. In a previous letter you approved of his appointment. I beg to recommend quite definitely that he be appointed Assistant Professor of Physics at a salary of three thousand dollars (\$3000) a year, the appointment commencing on the first of September next. If you approve, would you please be so kind as to send a cablegram to him to that effect, and I will follow it up by a letter explaining his work and duties.

In that letter, I will tell him that an assistant-professorship, strictly speaking, is for three years only, but that we always do retain our good men.

Yours very sincerely,



DIRECTOR OF PHYSICS.

C O P Y.

Cavendish Laboratory, Cambridge
January 23rd 1922.

My dear Professor Eve,

In accordance with your suggestion in connexion with my application for the position of Assistant Professor in Physics at McGill University, I give below details of my training, experience, etc.

I was born at Toronto in 1890. Educated at Upper Canada College (Head Boy 1909-10), matriculating into the University of Toronto with the Burnside Scholarship in mathematics and the Second McLaughlin, U.C.C.-Trinity scholarships for general proficiency. During 1910-1911 I attended the University of Munich, taking mathematics and Physics, obtaining their certificates for having completed the work satisfactorily and a special testimonial from Professor Rontgen. 1911-1915 at the University of Toronto, graduating B.A. with London gold medal in Physics and Prince of Wales medal for highest first class in Trinity College. Fellow and assistant in physics at Toronto 1915-1916, taking the M.A. degree by research. Graduate student in mathematics and physics and Whitby fellow in physics at Harvard University 1916-1917, taking the Harvard M.A. degree. Lectures in physics and in charge of the electrical laboratories, University of Toronto, 1917-1918. Physicist with D.E.R. Admiralty 1918-Sept. 1919. Austin teaching fellow in physics of Harvard University 1919-1920, taking the Harvard Ph.D. degree in physics. Sheldon travelling fellow of Harvard University and research student at the Cavendish Laboratory Cambridge 1920-1921. At present engaged as research student Cavendish Laboratory and doing some teaching in physics at the Cavendish and in the Colleges.

I have published the following research papers:-

- "On the mobility of ions in liquid air" (in collaboration with Prof. McLennan) Phil. Mag.
- "On the mobility of ions in air at high pressures" (in collaboration with Prof. McLennan) Phil. Mag.
- "On the ionisation of metallic vapours in emitting single line spectra" (in collaboration with Professor McLennan) P. Roy. Soc.
- "On a piezo-electric method of measuring explosion pressures" Phil. Mag.

Other work is now in process of preparing for publication.

I should perhaps state that I volunteered for the Army but was not accepted for overseas service owing to defective eyesight.

If there is any other information desirable, I should be glad if you would let me know.

Yours very sincerely,

DAVID A. KEYS.

C O P Y.

Corpus Christi College
Cambridge.

January 24th 1922.

My dear Professor Eve,

Thank you so much for your letter of January 7th informing me of the position as Assistant Professor in Physics at McGill. I should like to come very much and accept the appointment as mentioned in your letter.

Your previous letter only reached me on my return to Cambridge last Saturday. I had hoped to see you in Montreal while in Canada but my ship was late in arriving and I only had four days in Toronto. We left right after our wedding and went straight to New Brunswick,- otherwise I should certainly have called on you.

I am enclosing an account of myself and a formal application for the position. If you would like a testimonial from Sir J. J. Thomson or Sir Ernest Rutherford, I should be glad to ask them for one, or if you prefer, you might write them yourself privately. I trust that you will find everything satisfactory and that you will let me know as soon as convenient what lectures etc. you would like me to give so that I may make use of any opportunity which may present itself to acquire special information re laboratory exts. etc. while in Europe. This year I am assisting Dr. Crowther in the Electrical Laboratory (Tripos men) and again the Naval Officers in Optics and Electricity. I am also supervising the Natural Science Tripos men of St. Catherine's College in Physics besides coaching men from Corpus Christi and other colleges. This is all in addition to my research work, so I am having plenty of useful experience. Last summer, as I think I told you, I worked over all the proofs for Dr. Searle of his new book on Experimental Optics.

By the time this arrives I hope that you will have completely recovered from the attack of influenza and that Mrs. Eve and the family are all well too.

With kindest regards and best wishes
for the New Year

believe me,
Yours very sincerely,

DAVID A. KEYS

December 21st, 1926.

Professor D. A. Keys,
Physics Building,
McGill University.

Dear Professor Keys:-

I am sorry that the press report of the meeting of the Board of Governors did not mention the matter of your promotion to the rank of Associate Professor. This was an oversight and I have instructed Mr. Glasco to tell the press about it. It was a recommendation that I was very pleased to make.

With all kind wishes for Christmas and the New Year to you and Mrs. Keys, I am,

Yours faithfully,

Principal.

McGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS BUILDING

December 23rd, 1926.

General Sir Arthur Currie, G.C.M.G., K.C.B., LL.D.,
Principal of McGill University:

My dear Sir Arthur,

I wish to thank you very much for your kindness in promoting me to an Associate Professor in Physics. The confidence which you and the Governors have thus shown in me and in my work I appreciate greatly. I need hardly add how much this news has increased our happiness at this time and I hope that you and yours will have the very best of enjoyable Christmases.

With best wishes for the New Year

believe me

Yours sincerely,

David A. Veys.

Heys
Jester

THE MACDONALD PHYSICS LABORATORY

Appointments
Promotions
Dept. of Physics

Recommended that
D. A. Keys be promoted
from Associate Professor to Professor

Also that
J. S. Foster be promoted
from Assistant Professor to Associate Professor
in view of his eminent success in
Research work.

The status of Dr (Miss) A. V. Douglas,
Lecturer in Astrophysics, will require
careful consideration, but this might be
postponed for a year.

Ad Hue 27.3.29.

To the Acting Principal.

Ans^d - 1/4/29.
CFM.

Sir Arthur Currie

Shaw

The Macdonald Physics Building
McGill University

September 24, 1926.

MEMORANDUM

The following are notes on my qualifications for the rank of Professor. They have been shown to Dr. Eve who approves of laying them before you in this way.

(1) General Qualifications.

Seven years training at McGill and two years at Cambridge. (See attached memo concerning early career.)

Degrees - B.A., M.Sc., D.Sc., from McGill; B.A. from Cambridge.

Membership in Scientific Societies - Fellow of the Royal Society of Canada, Fellow of the American Physical Society, Fellow of the American Association for the Advancement of Science and membership in smaller societies such as Sigma Xi, Franklin Institute, Royal Astronomical Society of Canada, etc.

Teaching Experience - Have had contact with teaching from various points of view, having been student demonstrator, lecturer, and associate professor^{all} at McGill. I have also had teaching experience elsewhere.

Research - Have written about twenty-three papers, including what would probably be considered five of major importance. I have on hand a programme of research work which is being assisted by a grant from the National Research Council, together with two other problems. During the last few years I have guided a number of students in their graduate research work.

Routine - I have taken part and had experience in routine duties, by service on various committees inside and outside of the Department. In particular, I might mention the Advisory Board for Freshmen in Arts, the Associate Committee on ^{Physics Dept} Engineering Physics of the National Research Council, and the management of our Physics Department Library.

(2) Length of Service on Staff

Two years Demonstrator here, one year Lecturer here, five years Lecturer at Macdonald College, eight years Associate Professor here, - sixteen years in all on the Staff.

- (3) My special interest in McGill has led me to stay here and on several occasions to make financial sacrifices in order to stay, several opportunities to obtain financial advancement elsewhere having been open.
- (4) Others on the Staff at McGill University have been given the rank of Professor who formerly were on the same footing or junior to myself: in these cases there is probably no conspicuous difference in our capacities.
- (5) In teaching and routine I believe that my record now, is comparable with that of present and past holders of the two senior chairs in Physics at McGill at the time of their appointments.
- (6) In research, while I cannot claim to be compared with men like Rutherford and Callendar it is of interest to note that, with the exception of H. A. Wilson, our Physics Professors at McGill have mainly established their world-wide research reputations (e.g., obtained their F.R.S., etc.) after appointment and not before. I enclose a copy of Callendar's report on my qualifications for the D.Sc. in 1915.
- (7) The title of Associate Professor at present in McGill ranks slightly lower than it did at the time I received my appointment. At that time it was considered that an Associate Professor was qualified to be a Professor, but could only be an Associate because there was no vacancy for him. It is now much more definitely a junior position to that of full professor.
- (8) The work in the Physics Department here, owing to the growth of the Graduate School, has almost doubled in later years, and, although a number of assistant professors have been added, there remain only two senior professors in our Department (apart from the special case of Dr. H. T. Barnes). While we still retain two professors, the Chemistry Department, for example, now has six full professors (Ruttan, Macallum, Johnson, Maass, Whitby and Hibbert).

A. Norman Shaw

Apr 6.

660 Sherbrooke St. West,
October 12, 1926.

Dear Sir Arthur,

I have just received your note of October eleventh, and desire to thank you for letting me know of your decision to recommend me for promotion.

I appreciate very much the consideration and the opportunities that McGill has extended to me so generously in the past, and I sincerely hope that my own services will be worthy of this further recognition!

Allow me to thank you also for your very kind interest in the matter.

Yours very sincerely,

A. Norman Shaw.

October 11th, 1926.

Professor A. Norman Shaw,
Physics Building,
McGill University.

Dear Professor Shaw:-

I have given further
consideration to Dr. Eve's representations
and have decided to recommend at the next
meeting of the Board of Governors that you
be given the rank of Professor.

Yours faithfully,

Principal.

Copy to Mr. Glassco.

Imperial College of Science & Technology.

South Kensington, London, S.W.

April 6th, 1915.

(Report by Professor H. L. Callendar, M.A., L.L.D., F.R.S. on the scientific work of Prof. A. Norman Shaw, M.Sc. candidate for the degree of D.Sc. of McGill University, Montreal.)

" I have for some time followed the work of Prof. A. Norman Shaw with great interest, not only on account of its intrinsic merit, but also because one of his most laborious and important investigations was carried out with apparatus designed and constructed under my own supervision at McGill College some years ago. This apparatus was intended for the absolute measurement of an electric current, a problem of great practical importance, to which many of the most skillful experimentalists have devoted the closest attention.

Being intimately acquainted with the details of this apparatus with which I had myself made some preliminary experiments in conjunction with Mr. R.O. King, I was in a position to examine Prof. Shaw's work somewhat critically, and should not have been surprised to discover some mistakes which are easily committed in the extremely intricate observations and calculations inherent in such accurate work. The most careful scrutiny on my part failed to detect any flaw in the work. Mr. Shaw's paper, describing the results of his experiments, was also examined with jealous care by the most able experimentalists at the National Physical Laboratory, who

had been engaged in similar investigations, but had obtained results differing appreciably from those of Prof. Shaw. Their examination was equally conclusive with regard to the merits of the work, which is now generally recognized as one of the most valuable contributions yet made to absolute electrical measurement.

With regard to the literary form of the work, it may be stated that none of the referees who examined it were able to suggest any material modification or improvement, although it is a common experience that papers, otherwise of great merit, require to be substantially rewritten before they can be published in the Philosophical Transactions.

If Prof. Shaw's claims to recognition rested on this paper alone, I think there would be little hesitation in awarding him the Doctor's degree, even in a University like that of London, where an exceptionally high standard of attainment and performance is exacted of the candidate for the D.Sc. degree. Prof. Shaw has, however, published a number of other papers on subjects of physical interest, which though not requiring the same minute and laborious attention to detail as his larger work, may be cited as evidence of originality in conception and ability in the design of apparatus and in the execution of experimental work.

Having regard to the range of subjects covered by Prof. Shaw's work, and the uniformly high standard attained, I have no hesitation in regarding him as one of the most promising of the younger generation of physicists, and in

predicting that he will attain a position of eminence which will be a great credit and satisfaction to McGill University.

On the above grounds, I have much pleasure in recommending him for the degree for which he is a candidate."

(signed) Hugh L. Callendar.

Prof. of Physics.

Summary of Academic Career of A. Norman Shaw,
B.A. (Cantab), D.Sc. (McGill), Associate Pro-
fessor of Physics, McGill University.

up to 1918.

Oct. 22, 1920.

School. Montreal High School.

1898-1904

Graduated as "Dux of School".

Undergraduate McGill University.

1904-1908

Took Honour Course in Mathematics and physics.

Awarded Scholarship of \$300 in Chemistry and Physics, and various prizes in Mathematics and Physics. Head of whole class in second year. Graduated with "First Class Honours" in Physics. (Also obtained an "agregat" pass in Honour Mathematics, having missed several examinations through illness in each of the last two years.)

Postgraduate (McGill University)

1908

Appointed Demonstrator in Physics Department, McGill University.

1909

Awarded the R. O. King Research fellowship of \$600.

1910

Obtained degree of M.Sc.

Awarded Governor General's medal for research.

1911

Appointed Lecturer in Physics Department.

Awarded 1851 Exhibition Scholarship of £150, and Studentship of £50 at Caius College, Cambridge.

(Cambridge)

1911-1913

Research student at Cavendish Laboratory, Cambridge.

(Macdonald College)

1913-1918

Appointed Lecturer in Physics at Macdonald College, Ste Anne de Bellevue.

Obtained B.A. research degree from Cambridge.

Obtained degree of D.Sc. from McGill (1915).

Became Captain, and Second in Command of Macdonald College C.O.T.C.

(McGill University)

1918.

Appointed Associate Professor of Physics, McGill University.

Elected a full member of the American

Fellow.

Physical Society.

A list of twenty scientific papers or articles written between 1908 and 1920, is attached to this summary.

Since elected F.R.S.C.

Also member of numerous scientific societies,
e.g. A.S.A.S., Franklin Inst., Am.
Math. Soc., Astron. Soc., $\Sigma \Xi$, etc.

Barnes file

THE ST. LAWRENCE RIVER LEVELS AND ICE CONDITIONS.

by

Dr. Howard T. Barnes.

THE ST. LAWRENCE RIVER LEVELS AND ICE CONDITIONS.

by
Dr. Howard T. Barnes.

14/1/26

St. Lawrence a
physical problem.

The problems of the St. Lawrence River are physical rather than engineering for after 30 years of study of the river it is evident to me the vast expanse of the river from Lake Ontario to the Sea offers a study which could tempt the courage of the most intrepid scientific man. In the first place we must apply laws of physics to understand the working of this great body of water, the most wonderful in the world, then we are in a position to apply our Country's best engineering skill for the erection of power structure, regulating works and improvement of its navigation features.

Difficulties.

What makes the St. Lawrence river a peculiarly difficult problem is the fact that it flows northward through the snow belt and is subject to severe winter conditions. The physical laws controlling the formation of ice are so complicated and difficult that the engineer alone cannot be expected to unravel them. It has been said of the St. Lawrence that it can be led but not driven and one has but to visualize that immense volume of water daily flowing to the sea to know what dire disaster would follow immature or badly designed plans.

Advantages.

Nature has however provided us with every advantage and we have but to follow her own plan to be assured of her ever ready aid.

Let us consider a few of the advantages nature has provided:

Pure Water

(1) The waters are clear and pure coming from the immense settling basins of the Great Lakes system.

Heat Reserve

(2) The head waters are derived from an enormous reservoir of over seven thousand square miles in area and an average depth of five hundred feet, representing a volume of water which would supply the river with its present rate of flow for three years before becoming exhausted.

Uniform Flow.

(3) The level of the lake is maintained so comparatively constant that the fluctuations of flow are less than any other river system in the world.

Heat Reservoir.

(4) The lake is an immense reservoir of heat which even in its present uncontrolled state, delays the ice formation throughout its entire length the whole period of the first of the two ice forming months, several weeks after the Ottawa and other rivers are frozen over.

Natural Channel.

(5) Nature has provided a deep channel through which the main river flows, this has been assisted by dredging in the reaches below Prescott and has been considerably deepened below Montreal for navigation purposes. This has been brought about by the agency of ice jams which are of yearly occurrence in many parts of the river. Were it not for the three lakes between Cornwall and Three

Rivers and one or two wide stretches the main river would never of itself freeze.

(6) Nature has provided a Country bordering the river of great fertility and of surprisingly healthful climate. As population increases on this land and the development of the West proceeds, great interest is centered on the full utilization of the power now undeveloped, and the use of the facilities offered for transportation which are now but partially utilized.

Having examined various proposals for the development of the St. Lawrence river I am taking this opportunity of drawing to your attention, Gentlemen, the grave danger which we run by allowing any scheme to be applied which has not been subjected to the minutest examination and study of the ice hazard.

Recently a member of the joint board of engineers announced to a Western audience that there were several solutions of the ice problem, of which he could not then speak, but that he assured his audience it was merely a matter of selecting the most economical one. With him I must differ as there is only one solution for the ice problem possible for the entire river, such a statement merely emphasizes the want of knowledge of physics of ice formation.

There is a trinity of interests which are so completely interwoven that no one can be considered without affecting favourably or adversely that of the others - the first one and that of paramount importance is the navigation between Montreal and Quebec. This part of the river is the main artery of Canada and without it the country would be seriously handicapped. Any changes which are to be made in the upper must not diminish the volume of flow, nor be so constructed as to maintain a more protracted period of ice conditions.

Too much emphasis cannot be placed on the importance to the whole of Western Canada of the great seaport which has been built up at Montreal. All other interests both in volume and financial value are of no importance in comparison to the great trade interests arising from the bringing of the Ocean liners to this City. Whatever is contemplated in expenditures nothing should be done until we are assured of an adequate water level to give the greatest draft for our largest ships, and a minimum of ice formation to shorten the period of inactivity of navigation both here and in the Gulf.

To secure adequate flow and the maintenance of levels the river must be controlled at its source by suitable works established to maintain an adequate high level. Through part of the year there is an abundance of water which goes to waste. In another part of the year the level drops so low as to cause flow insufficient for the purposes of navigation. Thus in the summer and early the ice season the flow is curtailed beyond what is

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The second of the three interests next in importance is the power development in the upper river. Enormous quantities of energy are available and a market in Canada will undoubtedly absorb as much of it as can be produced in the time taken for development. The United States is entitled to her share of the power in the International Section, but our own Country controls the greater amount. International questions should be easily adjusted on an equitable basis, but the danger which both Countries run from wasteful diversion of head waters is a common one although of much greater import to Canada. We must be perfectly fair in our attitude towards legitimate uses of the water of the lakes but where it is proven that such diversion as at Chicago has permanently lowered the level of the harbour of Montreal at least nine inches there is ground for immediate action and introduction of remedial control works. A definite relation exists which is well known, between the levels at any point in the river and the volume which flows out of Lake Ontario or in other words the level of that Lake. Much careful study has been devoted to this and it is merely a matter of calculation to find the levels of the river when the volume of flow out of the lake is known. This is of great importance in connection with the conservation of heat of Lake Ontario for ice prevention.

The third interest in immediate importance of our trinity is the deep waterways project now much discussed both here and in the United States. Here again nothing should be allowed which would affect the efficiency of the main artery of Canada, or the main navigation channel between Montreal and Quebec. Before considering vast expenditures in the upper river the Country's first duty is to improve the facilities of the lower river and complete the works which have been proposed, but shelved owing to lack of pressure, and which would vastly improve the channel, improve the ice conditions enormously, and greatly improve the levels without any need for considering dams or other undesirable obstructions below Montreal.

These three interests are now considered too often as separate ones but they cannot be, for the river flows in one direction only, and is irreversable so far as man's power to control it is concerned. What is here to-day is there to-morrow, and no one owns the water that flows in swift motion seaward. What must be safeguarded is the difficulties created in the lower river by changes higher up.

To assure permanence of flow and the maintenance of levels the river must be controlled at its source by suitable works established to maintain an adequate lake level. Through part of the year there is an abundance of water which now goes to waste. In another part of the year the level drops so low as to cause flow insufficient for the purposes of navigation. Thus in the autumn and during the ice season the flow is curtailed beyond working limits

Power Development.

Diversion of head waters.

Deep waterways.

nence of essential maintaining

much longer in the spring. An ice cover is also the seat

which is not necessary where it is possible to hold the waters back during the spring and summer periods. There is a simple hydraulic principle which is now well recognized by engineers in many of the smaller rivers. Where it is necessary to regulate the flow of any stream the water must be controlled at the source, rather than by damming the river lower down. Close study of the St. Lawrence between Lake Ontario and Ogdensburg and Prescott has shown me that a very simple system of fills and control works can be introduced at the upper river whereby the flow from the Lake can be brought in through the Cape Vincent channel out of the heart of the deepest part of the lake. No damming of the river is necessary except in the north channel at the Fiddler's Elbow and at Howe Island, which dams can be open in the summer for navigation purposes. In this way the flow of water is cut off in autumn and winter from the Kingston channel and the entire flow restricted to the Cape Vincent channel past Clayton and Alexandria Bay to Brockville and Prescott. A gain of three miles is made with consequent lessening of the cooling through the shallow Kingston Bay and the land locked shallow area of the Thousand Islands. At present these areas contribute most of the cooling to the river in the autumn and heating in the summer. When cut off the lake water will be brought down more rapidly and directly in at least a third of the time and consequently will enter the lower river at Prescott at a temperature always above the freezing point. Temperature studies of the river have shown that the present effect of Lake Ontario heat reserve is felt as far down as St. Lambert and probably below, that under the present uncontrolled flow the ice formation in the main river channel is less than elsewhere due entirely to this cause.

The St. Lawrence is really a river within a river. The main stream follows the natural and deep channel through Cape Vincent and south of the island and its flow is preserved right down to the tide water. A Secondary stream filters through the bays of inland lakes and joins the main stream at several well defined points. It is this second or subsidiary river that produces the greatest extremes of temperature and causes the ice formation. Deepen and straighten this channel and cut off the shallow areas and the main river would never freeze, but an open channel would result throughout the entire length. My studies have shown that there is less ice production from an open channel and that open winter conditions very materially modifies ~~xxx~~ and tempers the land in the neighbourhood.

Water is as good an absorber of the sun's heat as lamp black and where a body of water is covered with ice, quantities of solar heat are watted by reflection from the ice surface. The average temperature from the open part of the river throughout the winter is higher than that under the ice covered portion. An ice cover stores much of the frazil and anchor ice and holds the water at the freezing point

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much longer in the spring. An ice cover is also the seat of the ice jams and back water flooding that is so common at many points on the river. I believe that vast quantities of solar energy could be stored up in the various lakes and rivers of Canada which otherwise goes to waste, if the surfaces could be kept open and that the net result would be a decided modification of the climate with less ice and frost. This is not an idle dream but worthy of the closest study.

Lake Ontario never freezes over because of its great depth and immense storage capacity for solar energy. This heat can be effectually used for ice prevention throughout the whole river and when the cooling areas are cut off in the stretch above Prescott it is unlikely that any ice will be in the International Section, and the ice formation throughout the remainder of the river reduced at least 50%. This is an exceedingly fundamental and important point and any development that ignores it is bound to be less efficient and very wasteful. It is so obvious and simple that it has probably hitherto escaped attention. The entire river should be treated as one great physical unit and the dependence of one part on another such as regards levels and heat exchange should be carefully worked out.

During the past year I have developed new and powerful methods for handling ice, particularly the extensive frazil dams which obstruct the main river flow at the junction of open water and ice cover.

An intense exothermic reaction, brought about by chemical means, is used to develop a very high temperature about 5000° F. in these masses. The temperature is much higher than the open hearth blast furnace and radiates intense energy to the ice, causing it to be dissociated into its constituent gases, oxygen and hydrogen. Where large and powerful charges are used an explosion is set up by the disruption of the ice molecules, which produces a powerful heave that lifts up the ice masses and burns out the frazil. This method is not entirely out of the experimental stage as yet, but sufficient has been accomplished to show that immense ice jams can be quickly relieved, and frazil cleared out under a surface layer of ice without disturbing that layer. Two charges of thermit were used last winter in the ice jam at Chimney Island below Ogdensburg which cleared out over a million tons of ice in nine hours, and left the south channel free and clear. The river levels were restored quickly. This jam was solid to the bottom at some points in 70 feet of water.

Other examples of the effectiveness of this new method for ice combat are being obtained and it is now certain that we are provided with a new and effective method for dealing with ice jams hitherto regarded as impregnable.

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Quite recently the suggestion was made that a great Lake be formed north of Lake Superior by draining the Albany river and diverting this water with Lake Superior. Other suggestions are made that the waters of James Bay be brought over by channels to Lake Superior. In my opinion these are at present an unwarranted expense, but the chief objection is the introduction into Lake Superior of cold northern water which is liable to cause greater ice conditions and a gradual lowering of the average temperature of the Great Lakes. Anything which will tend to exaggerate the ice formation should be avoided and I cannot see the need of this when a simple and inexpensive method for controlling the level of Lake Ontario with the additional advantage of raising its average temperature and reducing the ice formation in the river itself is available.

Not the least important to the problem of the St. Lawrence is the menace to shipping, due to icebergs. While I believe this is over estimated I consider it one of the important problems of ice research to make a study of the physical properties of icebergs.

This should be commenced at their source in Greenland and continued until they are entirely disintegrated in the Gulf stream. Very little authentic information is available about this arctic ice, its great age of 5000 years or more and its manner of formation which is quite different to ordinary ice makes the study of particular interest.

For a great many years I have devoted a considerable amount of time in iceberg research and the method of heat treatment of ice was conceived with the idea of attacking the icebergs at their source in Greenland and preventing them attaining a size sufficiently large to last until they reach the steamer routes.

Impossible as it may seem a method is gradually maturing whereby it may be possible to free the North Atlantic of icebergs.

Barnes



MCGILL UNIVERSITY

C

February 25, 1933.

Sir Arthur Currie,
Principal and Vice-Chancellor,
McGill University.

Dear Sir Arthur:

After consulting with my colleagues I recommend that Dr. H.T. Barnes, F.R.S., now on the retired list, be raised to the dignity of Emeritus Professor. His scientific work has been of a very high order, and he deserves recognition equally with men such as Dr. A. Willey, Dr. J.B. Porter and Dr. F.D. Adams. He has also written the best book on Ice and its Properties.

I gather from his son, Dr. W.H. Barnes, in the Department of Chemistry, that his father would much appreciate the proposed step.

Yours sincerely,

A.S. Eve

Dr. A.S. Eve,
Director, Department of Physics.

*Complacence
I approve of this*

27/2/33

A.S. Eve

McGill University

MACDONALD PHYSICS LABORATORY

MEMORANDUM

August 24th. 1932.

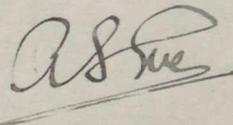
To Sir Arthur Currie.

FROM A. S. Eve.

Dear Sir Arthur,

Here is a draft of the letter. Please return it to me, if approved, and retain the copy. Have you any suggestions for improvement to make, please?

Yours very sincerely,



Encl.

MCGILL UNIVERSITY

MONTREAL

THE MACDONALD PHYSICS LABORATORY

August 24th. 1932.

Dr. H. T. Barnes,
Queen City Park,
R.F.D.
Vermont, U.S.A.

Dear Dr. Barnes,

Thank you for your letter of August 16th., and I wrote to Lawrence saying that he was very welcome to use the recorder during the eclipse.

Your friends here are all delighted to hear that you are feeling very well, and look forward to seeing you again.

So far as the University is concerned, it seems to me not in your interests to return to the Macdonald Physics Laboratory, and you are at present on the retired list, so that we are not expecting you to resume your work here. However, if you have any statement to make on the matter, I should be very glad to hear from you and to submit it to the Principal for consideration.

We are at present very busy with eclipse work and with radio eclipse work.

My wife has gone for a short holiday to Pictou.

Yours very sincerely,

A. S. Eve,
Director.

GEORGE KIMBALL
CHAIRMAN
WALTER R. STEINER, M. D.
SANFORD H. WADHAMS

STATE WATER COMMISSION



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STATE OF CONNECTICUT

OFFICE
255 CAPITOL AVENUE
TEL. 2-5121

HARTFORD, February 7, 1931.

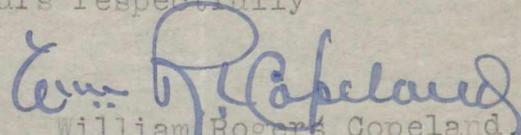
General Sir Arthur William Currie,
Principal,
McGill University,
Montreal, Quebec,
Canada.

Dear Sir:

I am anxious to get into touch with Dr. Howard
T. Barnes, who, I believe, has recently occupied a
position as Professor in McGill University.

Can you advise me how I may be able to reach Prof.
Barnes by letter, and oblige

Yours respectfully


William Rogers Copeland
Sanitary Engineer.

WRC:EMB

February 9, 1931.

Mr. William Rogers Copeland,
State Water Commission,
Hartford, Connecticut.

Dear Sir,

Replying to your enquiry about Dr. Howard
T. Barnes, I may say that as Dr. Barnes has been
ill for the past few months I would suggest that
you address a letter to him in care of his son,
Professor W. T. Barnes, Department of Chemistry,
McGill University.

Yours faithfully,

Secretary to the Principal.

ADR

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YOUR REF.

OUR REF.

"CHEMICAL" SECTION.

50, BOTHWELL STREET,

TELEGRAPH ADDRESS,
"CROCHET GLASGOW."



Glasgow
C.2.

21st February, 1930.

Sir Arthur W. Currie, G.C.M.G., K.C.B.,
The Principal and Vice-Chancellor,
McGill University,
MONTREAL.

Dear Sir,

COMPOSITION FOR THAWING ICE.

We have pleasure in acknowledging your letter of 31st
January and wish to thank you for your courtesy in the matter.

We are looking forward with interest to the receipt of
a communication on the subject at an early date from Professor
Barnes.

Yours truly,

For **J. & P. COATS, LTD.**

W. S. L. H. L.
Director

31st January,
1930.

Messrs. J. & P. Coats, Limited
"Chemical" Section,
Glasgow, C.2. Scotland.

Dear Sirs,

I acknowledge the receipt of your communication of January 21st with reference to the report in the Glasgow Journal that Professor Howard Barnes of McGill University had invented a special composition for the thawing of ice. This report is quite true. For years Professor Barnes has not only been interested but has devoted most of his time to solving the problem of the inconveniences caused by ice. He has been eminently successful and on many occasions has demonstrated the value of his researches.

I have handed your letter to Professor Barnes and have asked him to write directly to you.

Yours faithfully,

Principal.

HOWARD T. BARNES,
MCGILL UNIVERSITY,
MONTREAL, P.Q.

Feb 3 30

Dear Principal

Thank you so much
for sending me the
enclosed. I am
convinced from Siberia
to Japan.

Faithfully

Howard T Barnes

ADR

J. & P. COATS, LIMITED.

INFORMATION DEPT.

YOUR REF.

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AND NOT TO ANY OF THE EMPLOYEES.

"CHEMICAL" SECTION.

OUR REF.

TELEGRAPH ADDRESS,
"CROCHET GLASGOW."



50, BOTHWELL STREET,

Glasgow
C.2.

21st January, 1930.

The Principal,
McGill University,
MONTREAL.

Dear Sir,

COMPOSITION FOR THAWING ICE.

It is reported in a Glasgow journal that Professor Howard Barnes, of the McGill University, has invented a special composition which is able to thaw, within the space of minutes, frozen rivers. This experiment, it is added, was successfully demonstrated at Quebec the other day.

As a composition of the kind would be of interest to us, from the industrial point of view, we should be very glad to know what foundation, if any, there is for the report. If it be true that Professor Howard Barnes has invented a composition of the kind we presume it will be placed on the market at an early date, and we should appreciate hearing from Professor Barnes where a trial quantity could be obtained.

With apologies for any trouble we are causing you, we are

Yours truly,

For J. & P. COATS, LTD.

Director. P. J. O.

*To Prof. Barnes
I have acknowledged the receipt of this letter and have told the writers that you would communicate*

with them,
Please note and return,

30/1/30

W. L. Murray &
"CHEMICAL"

Great January, 1930.

The Principal,
McGill University,
MONTREAL.

Dear Sir,

COMPOSITION FOR THAWING ICE.

It is reported in a Glasgow Journal that Professor Howard Barnes, of the McGill University, has invented a special composition which is able to thaw, within the space of minutes, frozen rivers. This experiment, it is added, was successfully demonstrated at Quebec the other day.

As a composition of the kind would be of interest to us, from the industrial point of view, we should be very glad to know what foundation, if any, there is for the report. If it be true that Professor Howard Barnes has invented a composition of the kind we presume it will be placed on the market at an early date, and we should appreciate hearing from Professor Barnes where a trial quantity could be obtained.

With apologies for any trouble we are causing you, we are

Yours truly,

January 15, 1926.

R.J. Durley, Esq.,
Engineering Institute,
Mansfield Street.

Dear Mr. Durley:-

May I venture to remind you that you were
to let me know whether your institute would care to co-operate
in Dr. Barnes' lectures. All that we should ask from you would
of course be assistance in getting an audience, in other words your
members would be put on the same basis as our own students and
admitted free.

Yours faithfully,

Wilfrida Dovey.

January 27th, 1926.

Dr. A. S. Eve,
Director - Physics Department,
McGill University.

Dear Dr. Eve:-

With reference to Dr. Barnes' lectures on "Ice Engineering", it occurs to me that it would be almost more worth our while to enlist the interest of the Engineering Institute than to charge a fee. Do you not think that we might advise them of the dates, and say that we would be glad to welcome any of their members on the same basis of our graduate and undergraduate students?

Sincerely yours,

Wilfrid Bovey.

McGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS BUILDING

November
Second
1925

v Col. Wilfrid Bovey,
Arts Building,
McGill University.

Dear Colonel Bovey,

On March 4, 11, 18 and 25, Dr. Barnes, F.R.S., is giving a course of four lectures on the "Technical Development and the Physical Problems of Ice Engineering". These lectures will of course be free to graduate and undergraduate students.

There might be quite a number of engineers in this city who would like to attend this course.

I ask whether you would like the lectures included among the Extension Lectures and advertised as such. It might be well to charge a fee of either \$4, \$3, or \$2, as you think best, to those who attend the course other than our own students.

Please let me know your wishes in the matter.

Yours very sincerely,

\$4 I think

A. S. We

Pretty Mistress Dorothy if we would show our gratitude
For everything you do for us from morning until night
Sure, love and admiration would be rivals in our attitude
You do it all so sweetly - and you always do it right.

If fortune ever smiles on you - more kind than to the rest of us
It never takes you long to share whatever comes your way
And though you know the worst of us, you always think the best of us
We owe you such a lot of things we never can repay

When Betsy found that Ottawa was boring her excessively
She didn't wait a minute but decided to be off
Did a doubt about the future weigh upon her heart
She never doubted anything - she simply wrote to Doff ^{oppressively}

When Patsy pessimistically ~~was thinking~~ ^{thought about} up a holiday
And hadn't an idea what to do or where to go -
Well here she is at Fifteen Deer Park Crescent what
So once again our Dorothy - well there it is you know ^{a jolly day}

There may'n't be ~~much~~ ^{much perhaps} my dear that we can ever do
But here's our hearts affection and we lay it at your feet ^{for you}
And if any time there's anything that seems a little blue for
Remember there's a ready hand, whenever ~~we~~ ^{you} may meet

There was a young curate of Salisbury
Whose manners were most halisbury scalisbury
He strolled about Hampshire
Without any pampshire
Till the Vicar obliged him to walisbury

The Engineering Institute of Canada

Incorporated 1887

as

The Canadian Society of Civil Engineers

HEADQUARTERS

R. J. DURLEY, M.E.I.C.,
GENERAL SECRETARY.

176 MANSFIELD STREET,

MONTREAL, CANADA,

Jan. 19th, 1926

Colonel Wilfrid Bovey,
McGill University,
Montreal, Que.

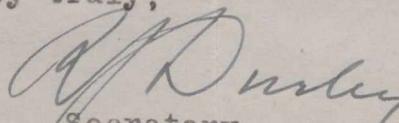
Dear Colonel Bovey:-

I have yours of January 15th regarding Dr. Barnes' lectures, and am sure that my Council will be glad to assist in any way possible in making these a success.

My suggestion would be that we notify the Montreal Branch of the Institute that through the kindness of the University members of the Institute will be admitted free to these lectures.

On hearing from you as to the definite programme and dates, etc., and if you approve of the suggestion, I shall be very glad to put the matter in hand.

Yours very truly,


Secretary

RJD/McL

McGILL UNIVERSITY

MONTREAL

THE MACDONALD PHYSICS BUILDING

March, 11th, 1926.

Dear Sir Arthur:-

Concerning our conservation this morning with reference to a loan for the prosecution of my research on icebergs I wish to say that assets due to cover if necessary ten thousand dollars consist of at least \$10,000 for my work now being conducted on the Allegheny River, approximately \$5000, from Cedars Rapids Power Co. and approximately \$1000, from the Hydro-Electric Power Commission.

Since writing the above I have been to the Bank of Montreal and found you have telephoned and arranged up to \$2000, which will be ample to meet my immediate needs.

Thanking you for this courtesy,

I am yours respectfully,

H. T. Barnes

March 12th, 1926.

D. W. Oliver, Esc.,
Bank of Montreal,
Drummond & St. Catherine Sts. Branch,
Montreal.

Dear Mr. Oliver:-

Let me acknowledge receipt of your letter of yesterday with reference to an advance made by the Bank of Montreal to Professor Howard T. Barnes, under conditions mentioned in the first paragraph of your letter.

This letter is to confirm my assurance to you that McGill University will guarantee this loan of \$2,000.

Yours faithfully,

Principal.

Bank of Montreal
DRUMMOND & ST. CATHERINE STS. BRANCH
575 ST. CATHERINE ST. WEST

Montreal,

March
Eleventh
1926

Sir Arthur Currie, Principal,
McGill University,
Montreal.

Dear Sir Arthur:-

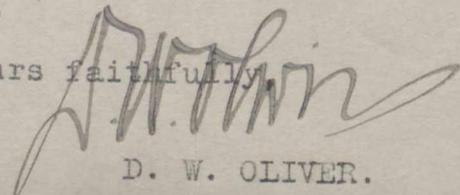
As requested I have to-day advanced to Professor Howard T. Barnes \$2,000., which money he may require for the balance of the year unless he receives payment for work he has been doing for the Department of Railways and Canals and Shipping Federation, and also in the United States.

For our records I would be much obliged if you would kindly acknowledge receipt of our letter saying that the University guarantee him to the extent of \$2,000.

For your confidential information, he intimated that he will require more money and which I told him could not be given unless he gives us more security.

With kind regards,

Yours faithfully,



D. W. OLIVER.

CANADIAN PACIFIC RAILWAY COMPANY'S TELEGRAPH



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J. McMILLAN, General Manager of Telegraphs, Montreal.

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PUBLICITY DEPT.,

MCGILL UNIVERSITY MONTL..QUE....,

RUSH SPECIAL DELIVERY STORY DR. HOWARD T. BARNES LIFE AND
ACCOMPLISHMENTS IN ICE BREAKING WORK ALSO PICTURES.

PITTSBURGH PRESS.

328 PM

McGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS BUILDING

March 31st. 1926.

Mr. Wilfred Bovey,
McGill University,
Montreal, Que.

Dear Wilfred:--

I was hoping to see you in regard to what the University would be disposed to do towards entertaining the foreign delegates of the International Electrotechnical Commission. I enclose a copy of the tentative program for their time spent in Canada. We have put down an informal conversazione on Sunday evening May 2nd., for your consideration.

At a meeting of the Montreal Committee on Monday it was thought that possibly it would be a nice thing if the University would tender them a lunch on Sunday noon at Macdonald College where they will stop during their drive around the Island. In this event we would not attempt to fill up the time on their return Sunday evening but will leave the delegates to their own devices which they would probably prefer. Kindly let me know if the University would be able to do any thing for us and in the event of their willingness to do so whether they would prefer a tea or conversazione early Sunday evening or to give the lunch at Macdonald College Sunday noon.

Yours very truly,

Howard T. Barnes

President

*Canadian National
Committee*

HTB/FG.

Here are the tentative programmes:-

Evening, April 30th., Toronto:-

- (1) Seeing Toronto
- (2) Informal Dinner and Reception at University of Toronto or King Edward Hotel.

Morning, May 1st., Ottawa:-

- (1) Breakfast and Reception at Chateau Laurier.
- (2) Welcome to Canada's Capital-at Parliament Buildings by the Speaker of the House of Commons.

- (3) Inspection of International Paper Company's Hydraulic Developments on Gatineau River-courtesy of Fraser Brace Engineering Co.

Evening May 1st., Montreal:-

- (1) Cabaret Supper and welcome to Metropolis of Canada.

Sunday May 2nd., Montreal:-

- (2) Beautiful sixty mile drive around the Island of Montreal.
- (3) Informal conversazione at McGill University or Hotel.

FILE

SEVENTH ICEBERG RESEARCH EXPEDITION

NEWFOUNDLAND, 1926

HOWARD T. BARNES

PREVIOUS EXPEDITIONS.

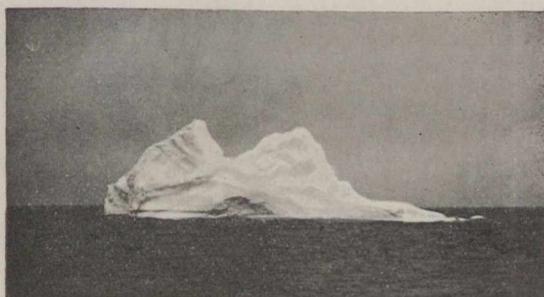
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Hudson Bay, 1910 Transatlantic, 1912
Strait of Belle Isle, 1912
Gulf of St. Lawrence, 1912 Transatlantic, 1913
Newfoundland, 1924

MONTREAL
CANADA

P.O. BOX 152B

June 22nd 1926

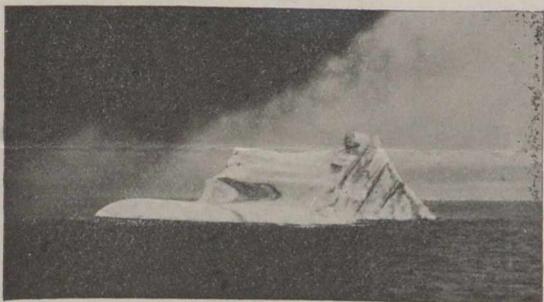


General Sir Arthur Currie

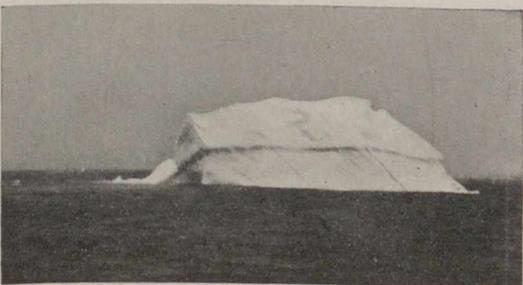
Principal

McGill University

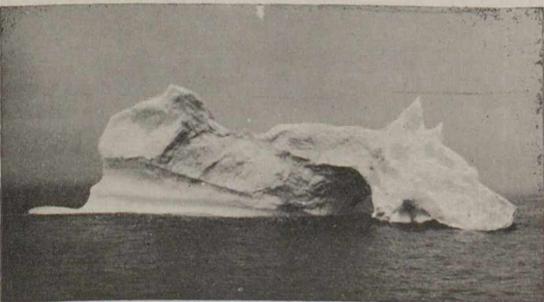
Dear Principal:-



Dr Eve has just sent word to me that you are desirous to have me settle the account with the Bank of Montreal which through your kindness I was able to open in order to proceed with my Iceberg Expedition.



I should have done this before but for the delay in settlement of my account with the Oil City people.



If you are willing I would like to have the use of this money until August 20th to which date the interest has been paid.

It would inconvenience and require a readjustment of my finances just before leaving for Newfoundland if you wish the amount paid now. It will be possible for me to do so but will seriously delay my getting away.

With expression of my high regard

Yours faithfully

Howard T. Barnes

"He casteth forth his ice
like morsels."

Bank of Montreal.
DRUMMOND & ST. CATHERINE STS. BRANCH
575 ST. CATHERINE ST. WEST

Montreal, 31st August, 1926.

Sir Arthur Currie,
Principal & Vice-Chancellor,
McGill University,
Montreal.

Dear Sir:-

We return herewith your letter of the 12th March, 1926, guaranteeing Professor Howard T. Barnes' Loan at this office, to the extent of \$2,000., as he has paid it off.

Yours faithfully,


- - Manager.

O/B



PRINCIPAL AND VICE-CHANCELLOR:
SIR ARTHUR W. CURRIE, G.C.M.G., K.C.B.

FROM
THE PRINCIPAL AND VICE-CHANCELLOR,
MCGILL UNIVERSITY,
MONTREAL.

March 12th, 1926.

D. W. Oliver, Esq.,
Bank of Montreal,
Drummond & St. Catherine Sts. Branch,
Montreal.

Dear Mr. Oliver:-

Let me acknowledge receipt of your letter of yesterday with reference to an advance made by the Bank of Montreal to Professor Howard T. Barnes, under conditions mentioned in the first paragraph of your letter.

This letter is to confirm my assurance to you that McGill University will guarantee this loan of \$2,000.

Yours faithfully,

Principal.

McGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS BUILDING

August 31st 1926

Sir Arthur Currie

Principal

McGill University

Dear Principal:-

This is to let you know I have paid off the loan you kindly sponsored for me at the Bank of Montreal which I used for the expenses of my Iceberg Research Expedition this summer.

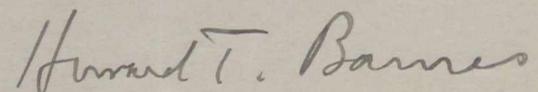
I have asked the Bank to return your letter covering the amount.

I hope the University will be able to come to my assistance a little in the expense of this work as the result is of the greatest importance and I do not see why research of this kind is not of as much importance as any other . Merely because it has a practical bearing for the benefit of humanity should not ban it from the halls of learning.

Thanking you again for your help

I remain

Yours respectfully



Howard T Barnes

September
Seventh
1926.

Professor Howard T. Barnes,
Physics Building,
McGill University.

My dear Professor Barnes:

Let me acknowledge with thanks
the receipt of your letter of August 31st.

I have received from the Bank
the letter of guarantee and I am glad for your sake that
you have discharged your indebtedness to them.

I will give consideration to your
suggestion that the University help you in your research work.
I do not know whether there is anything we can do. As you
know our state of being hard up is chronic.

I read with much interest a recent
article concerning your experiences during the Summer.

Yours faithfully,

Principal

October 28th, 1926.

McLeod Oil Company, Limited,
507 Grain Exchange,
Calgary, Alta.

Dear Sirs:-

I beg to acknowledge receipt
of your letter of October 21st with reference to
the discovery of a substance for thawing ice.

I have referred your letter
to Professor Howard T. Barnes and he tells me that
he is writing you in this connection.

Yours faithfully,

Principal.

Copy

McGILL UNIVERSITY

MONTREAL

29.11.26

(Sent 30 Nov)

THE MAGDONALD PHYSICS BUILDING

My dear Barnes,

Many of your friends, within & without McGill, view with anxiety some remarks in the press which tend to injure your own reputation and that of McGill

I know how inaccurate the papers are, and how difficult they are to restrain, but at present they seem to provoke hostility rather than assistance to your work.

Physicists are all interested in the development of your work. Engineers seem divided in opinion as to its merits, and I realize how much patience is demanded to build up evidence as to ^{the} merits and limitations (for volt exist) of your ice treatment.

I hope that you will regard this as a friendly message in case you are not aware of the situation

Yours very sincerely

AS Mc

McGILL UNIVERSITY
MONTREAL

THE MACDONALD PHYSICS BUILDING

Oct 27th 1926

Principal Sir Arthur Currie

McGill University

Dear Principal:-

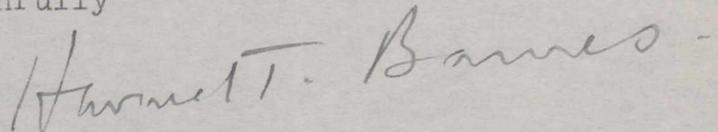
Thank you for sending me the letter from the
McLeod Oil Company by J G Edgar.

The Company have doubtless heard of the successful
use of thermit in regenerating the old oil wells of Pennsyl-
vania and wish for some information.

This method is not being exploited at present
until the Patent situation is cleared up and while I am
quite sure the ~~thermit~~ thermit treatment would clear their wells
of the frost it does not seem wise to undertake any
work for them at the present moment.

I am writing them explaining the matter.

Yours Faithfully



Howard T Barnes

WM. E. MCLEOD
PRESIDENT

GEO. CLOAKEY
VICE-PRES.

J. G. EDGAR
SEC. TREAS.

DIRECTORS:
WM. E. MCLEOD
GEO. CLOAKEY
R. J. HUTCHINGS
E. H. MCLEOD
J. G. EDGAR

McLEOD OIL COMPANY, LIMITED
(NON-PERSONAL LIABILITY)

SPECIALTY—
OIL DEVELOPMENT

CAPITALIZATION \$250,000 - - SHARES \$1.00 EACH

OFFICE PHONE M1376

507 Grain Exchange,
~~226 X STREET CORNER~~

CALGARY, 21st October, 1926

The President,
McGill College,
Montreal, Que.

Dear Sir:

Some time ago an article was published in one of the Eastern papers, to the effect that some one, who if I remember correctly, was connected with your College, had discovered a substance which would rapidly thaw ice, and it was suggested in the article in question, that such substance could be advantageously used to keep the St. Lawrence River clear of ice, for a longer period in the year.

On account of the expansion of gas at the bottom of our Well, which causes very low temperatures, we have difficulty in drilling, and it has occurred to me that the substance above referred to might be of benefit to us in keeping the Well thawed out.

I will appreciate it very much if you can give me any information regarding the substance in question, or any other substance which you think would enable us to overcome our difficulty.

Thanking you in anticipation.

Yours faithfully,

*Dear Professor Barnes,
Have you any comment
to make. W. Edgar*

J. G. Edgar
Secretary-Treasurer,
McLEOD OIL COMPANY, LIMITED.

W/E/26
JGE:HEH.

OCT 27 1926

NEW YORK OFFICE
THE ENGINEERING FOUNDATION
29 WEST THIRTY-NINTH STREET

ECLIPSE

CABLE ADDRESS
NARECO
WASHINGTON, D. C.

NATIONAL RESEARCH COUNCIL

Established in 1916 by the National Academy of Sciences
under its Congressional Charter and organized with the cooperation of the
National Scientific and Technical Societies of the United States

2101 CONSTITUTION AVENUE, WASHINGTON, D. C.

June 15, 1932

*To Mr. Barrows,
Please note.*

9 numbers

Sir Arthur William Currie, G.C.M.G., K.C.B.
Principal and Vice-Chancellor
McGill University
Montreal, Canada

Dear Sir:

I wish to inform you that, in response to recent requests for research assistance, the National Research Council of the United States has made two grants to Professor J. S. Foster, of the Department of Physics, as follows:

\$545.00 for the expense of mounting and transporting the McGill 30-ft. concave grating for observations on the flash spectrum of the total solar eclipse on August 31, 1932, and

\$250.00 for travel expenses between Montreal and Victoria, B. C., in connection with an investigation of the Stark effect.

The National Research Council is confident of the cooperation of McGill University in enabling Professor Foster to make the most effective use of these awards.

Sincerely yours,

Albert L. Barrows
Albert L. Barrows
Assistant Secretary

ALB:maw

NATIONAL RESEARCH COUNCIL

Established in 1916 by the National Academy of Sciences
under its Congressional Charter and organized with the cooperation of the
National Scientific and Technical Societies of the United States

B & 21st STREETS, WASHINGTON, D. C.

June 14, 1932

Professor J. S. Foster
Department of Physics
McGill University
Montreal, Canada

My dear Professor Foster:

In response to your recent applications to the National Research Council for research assistance, I am glad to be able to inform you that upon the recommendation of its Committee on Grants-in-Aid, the Research Council has authorized two appropriations to you as follows:

\$545.00 for the expense of mounting and transporting the McGill 30-ft. concave grating for observations on the flash spectrum of the total solar eclipse on August 31, 1932, and

\$250.00 for travel expenses between Montreal and Victoria, B. C., in connection with your investigation of the Stark effect.

Will you kindly let us know when you will wish to use these grants? If agreeable to you, we should like to make the funds available through the Treasurer of the University.

The National Research Council would like to be kept informed in regard to significant developments in these investigations. We shall be especially interested in any papers which you may present at scientific meetings and in reprints of papers which may be published resulting from this work. In case you should not prepare any formal papers in regard to this work within the next year, will you not let the Research Council have a special statement outlining the course which the investigations have taken, and indicating the significance of the results which have been obtained.

In order that the authorities of McGill University may be fully informed in regard to the assistance that is being given you, we are sending a copy of this letter to Sir Arthur W. Currie, Principal and Vice-Chancellor.

Sincerely yours,

Albert L. Barrows
Assistant Secretary

ALB:maw

June 17th, 1932.

Albert L. Barrows, Esq.,
Assistant Secretary,
National Research Council,
2101 Constitution Avenue,
Washington, D. C.

Dear Sir,

I am this morning in receipt of your communication of the 15th, in which you outline to me the measure of assistance granted by the National Research Council of the United States to Professor Foster of the Department of Physics McGill University, to assist him in his observations on the action of the Solar Eclipse on August 31st next, and also to enable him to visit the Observatory at Victoria in connection with his investigations of the Stark Effect.

I know how grateful Professor Foster will be, and may I assure you, on behalf of this University, that we appreciate very much this assistance and interest.

Yours faithfully,

Principal

copy for the Principal's file

May
Twenty-third
1933.

Dr. A. S. Eve,
Director of the Department of Physics.

Dear Dr. Eve:

DEMONSTRATORS

After giving further consideration to the appointment of Demonstrators in your Department for the coming year, the Principal has authorized me to say that he does not feel justified in approving of more than five such teachers. I am, therefore, not including in the salaries for Demonstrators the \$500. for the unnamed Demonstrator.

Yours faithfully,

A. S. Eve

Secretary



MCGILL UNIVERSITY

May 15, 1933.

Macdonald Physics Laboratory

Sir Arthur Currie,
Principal,
McGill University,
Montreal, P.Q.

Dear Sir Arthur:

Demonstrators

After our conferences last week
I gather that the following appointments were
approved:-

Dr. F. R. Terroux	.....	\$1152.00
Dr. H.G.I. Watson	.....	864.00
Mr. A. J. Cipriani	.....	600.00
Mr. E. P. Aikman	.....	600.00
Mr. D. G. Hurst	.....	600.00
(Another)	.....	500.00

It is further understood that these salaries are subject to any reduction the Governors may subsequently make, if any, and that students must pay their own fees towards the Graduate Faculty from the above amounts.

Furthermore, the last appointment shall not be made for the present, and only with the approval of the Principal at a later date.

Yours sincerely,

*To Mr. Glasco
Please note
A. S. Eve*

A. S. Eve

A. S. Eve,
Director of the
Department of Physics.