Woods Hole, Mass. July 3d, 1933
Box 485

My dear Professor Wiener,

We hope that you and ~~and~~ your family are having a good time at your summer home. I left Cambridge about a week ago and went to New York to meet my wife and our baby arriving from Germany and now we are very comfortably settled in Woods Hole where we shall probably spend the remainder of this summer. Woods Hole is lovely and has got everything: the sea, woods, hills, an ideal climate, and very interesting people (biologists). According to what my wife tells about Germany the prospect of Jews there seems to be more gloomy then ever. They are gradually losing their positions in every domain of economic and cultural life with no better future it seems now. We had certainly enjoyed to join you this summer at Sandwich, N.H. ~~As~~ Our mobility is very much restricted, however, by the fact that we have the baby and that we do <u>not</u> have a motor car. For these reasons we shall probably remain here ~~until~~ till September. My wife was kind enough to bring along my violin from Europe and now, after 3½ years, I am again enjoying myself playing Bach, Mozart and Beethoven. These masters can still successfully compete the modern amusements like reading newspapers and attending movie shows.

I am very sorry, my dear Professor Wiener, that once more I have to request your help in a personal matter of mine. Due to my ~~enormous~~ failure to secure

a position in this ~~east~~ country thus far, we are still obliged to use financial help from Mr. Landau in Göttingen. Now, however, the German restrictions of letting money go out of Germany are very strict, so that the German authorities are asking from the German ~~counsel~~ consul in Boston a letter stating the advisability of granting the permission for that monthly allowance to go to Cambridge at our disposal. A week ago I talked to the German Counsel in Boston in ~~that~~ matter and he said that his instructions are so strict ~~that~~ he would liked to have a letter from a professor at Harvard or M.I.T. acknowledging the following fact: That I am doing ~~research~~ research work here at Cambridge which makes my stay at Cambridge particularly important for myself. I hope ~~that~~ it would not take to much of your time to write such a letter addresed to the German ~~Counsel~~ Consul General in Boston and to send it to me at Woods Hole. I shall send it to the Consul together with other papers.

During the last time spent in Cambridge I solved completely all the questions which I had in mind in connection with my talk at the M.I.T. in May and now ~~my mind is~~ I am free to get busy with more interesting problems which are more connected with your line of work. I that respect I hope to enjoy particularly the next winter in Cambridge.

With many thanks in advance for your kindness, I am, with best wishes to you and your family, very sincerely yours, J. J. Chamberg

Do you know where the Hopfs are now?

W. E. BEATTY
PATENT ATTORNEY
ROOM 1010, 650 SOUTH SPRING STREET
LOS ANGELES, CALIFORNIA
ROOM 303—6362 HOLLYWOOD BLVD.
HOLLYWOOD, CALIFORNIA
GLADSTONE 4025
TRINITY 4071

REPRESENTING
UNITED RESEARCH CORPORATION
41-39 THIRTY-EIGHTH STREET
LONG ISLAND CITY,
NEW YORK

July 5th,
1 9 3 3.

Dr. Norbert Wiener,
South Tamworth,
New Hampshire

Dear Dr. Wiener:

Re: Application,S.N. 560,716

Referring to your letter dated June 5th, I am sending you enclosed a copy of my amendment dated August 24th, which contains claims 31-45.

The Office Action dated January 26, 1933 is, as stated therein, responsive to that amendment.

I shall be glad to have any comments you care to make as to the rejection, in the Office Action dated January 26th, of the claims later than 30.

I would also appreciate your views on the following: Assume we have a base frequency of 1000 cycles which is modulated with a high frequency of say 20,000 cycles. If we supply this current to a Campbell type wave filter which is designed to pass only 1000 cycles, I am told that the filter will suppress practically all of the high frequency modulation and that only the base frequency will pass through the filter for the reason that the modulated current is equivalent to two separate currents, one of high and one of low frequency, and only the low frequency will go through the filter. Will you kindly state if the same is true of your type of filter, that is, that it will substantially suppress rapid variations or modulations in the amplitude of the base frequency whereby only the base frequency will pass through a filter which is especially designed to transmit only it.

Very truly yours,

WEB/d

W. E. Beatty

W. E. BEATTY
PATENT ATTORNEY
ROOM 1010, 650 SOUTH SPRING STREET
LOS ANGELES, CALIFORNIA
ROOM 303—6362 HOLLYWOOD BLVD.
HOLLYWOOD, CALIFORNIA
GLADSTONE 4025

TRINITY 4071

REPRESENTING
UNITED RESEARCH CORPORATION
41-39 THIRTY-EIGHTH STREET
LONG ISLAND CITY,
NEW YORK

July 13th,
1 9 3 3.

Dr. Norbert Wiener,
South Tamworth, N. H.

Re: Wiener & Lee, S.N. 560,716

Dear Dr. Wiener:

Enclosed is a copy of an amendment being filed in the above case.

I believe that I have correctly interpreted the very helpful comments in your recent letters on this subject, but shall be glad to have you check my interpretation thereof as given in the enclosed amendment.

Please note particularly the amendments to claim 37, line 4 and claim 38, line 3, wherein the language is slightly different from that given in your last letter. I made the change therein largely to avoid repetition of the term "with respect to" and trust that my statement of the matter is correct.

Very truly yours,

W. E. Beatty

WEB/d
Encl.

THE ROCKEFELLER FOUNDATION
61 BROADWAY, NEW YORK

FELLOWSHIP AND TRAVEL SERVICE
FLOYD LYLE

CABLE ADDRESS:
ROCKFOUND, NEW YORK

July 14, 1933

Dear Professor Wiener:

In the absence of President Mason your letter of July 12 has been referred to me for attention. We have taken charge of Mr. Paley's effects but have been waiting for instructions from the executors of his estate as to their disposal. Mr. Bing, whom you will recall went out to Alberta to make the funeral arrangements, wrote to the solicitors who we understand were appointed executors some time ago and asked them to communicate with the Rockefeller Foundation regarding the disposition of Mr. Paley's effects. As soon as possible after the instructions are received we shall dispatch them and shall communicate with Mr. Paley's mother and sister.

I am asking the Comptroller's office to reimburse you in the sum of $15 for expenses incurred by you in connection with Mr. Paley's death.

We are returning Miss Sybil Paley's letter to you herewith.

Very truly yours,

Floyd Lyle

Dr. Norbert Wiener
South Tamworth
New Hampshire

FL:LI

11 Francis Avenue,
Cambridge,
Massachusetts.

July 15-33

Dear Mr. Wiener,

I have just had a letter from my daughter, Henrietta, saying that she has seen Mrs. Paley in England. The latter reports that her son's effects have not yet arrived. Henrietta promised Mrs. Paley to find out at this end whether they had been sent. Perhaps you may be able to give me some information on the matter. Failing your knowing about it, to whom should I go? Henrietta mentioned a 'porter' who had a friendly interest in Paley and who helped Byng and herself to clear up the room. But which porter would this be, I never knew? In short, thank you for any information which I can relay through Henrietta to Mrs. Paley.

Sincerely yours,

N. R. Byng

RALPH B. STEWART
ATTORNEY AT LAW
PATENT AND TRADE MARK CAUSES
NATIONAL PRESS BUILDING
WASHINGTON, D. C.
DIST. 9138

July 24, 1933.

Dr. Norbert Wiener,
South Tamworth, N.H.

re: Wiener & Lee, S.N. 560,716.

Dear Dr. Wiener:

At the request of Mr. W. E. Beatty I am sending you a copy of the patent to Stone, No. 1,610,336.

Very truly yours,

Ralph B. Stewart

RBS:EM

CC. Mr. W. E. Beatty.

South Tamworth, N.H.
August 3, 1933.

Mr. Paul de Kruif, author
c/o The Saturday Evening Post
The Curtis Publishing Company
Independence Square, Philadelphia, Pa.

My dear Mr. de Kruif:

I have read several of your books of scientific biography with great interest, as well as Lewis' "Arrowsmith", to which you contributed so much of the background, and I have recently been following your story of Kettering in the S.E.P. As a practicing scientist myself, I naturally set a high value on the popularization of science and of the circumstances under which science is carried on. I wish to congratulate you for your pioneer work in a little-exploited field. May I then, without giving offense, submit to you a few questions and criticisms?

First of all, you leave the impression in the mind of the reader that applied science, followed with an eye to the benefit of humanity, is perhaps the most worthy of all pursuits, but that pure science, the fruit of mere curiousity, is likely to be dilletantish and fruitless. This impression may not be intended by you: it may be due to the fact that you are writing of Kettering, who is primarily a practitian. I feel, however, that is your own opinion, and I wish to protest against it.

Here I had better state my own position. I am a professor of mathematics at the Massachusetts Institute of Technology. During the term, I am in daily contact with classes of young engineers, teaching them the calculus of the first two years, the function-theory and differential equations of the third, and conducting an advanced course on Fourier series. I have the closest relations with colleagues in the engineering departments, particularly in electrical engineering, in which department I have supervised master's and doctor's theses.

I am not an engineer, but I have sufficient acquaintance with electrical engineering to have done a little mind inventing in the field of filters and networks. On the other hand, the great bulk of my research lies in the purest of pure analysis. My master, Hardy of Trinity College in Cambridge, regards all applications of mathematics with a contempt which I do not indeed share. Landau of Goettingen has scarcely more use for practice. It is with these men that my scientific bonds are closest.

It is my conviction that there are two ways of approaching scientific research. You may have a problem, and look for an answer, or you may have an answer, and look for the problem that it fits. The first is the path of applied research, the second that of pure research. Both are good methods in the proper hands, but there are men who tend naturally to one or the other. The way of pure research is opposed to all the copy-book maxims concerning the virtues of industry and a fixed purpose, and the evils of guessing, but it is damned useful when it comes off. It is the diametrical opposite of Edison's reputed method of trying every conceivable expedient until he hit the right one. It requires, not ~~xxxxx~~ diligence, but experience, information, and a good nose for the essence of a problem.

Above all, it requires a sense for the body, the ''thickness'' of an idea. There is a certain school of scientists, particularly in mathematics, who value all generalizations equally. The Chicago school has a bias this way. On the other hand, some men have a flair for important ideas. (By the way, nobody knows how to define an important idea, but any scholar who is worth his salt knows one when he sees one.) Riemann's collected writings fill two thin volumes, but every paper that he wrote started a new field of mathematics. Cayley's collected works bulk with the Encyclopedia Brittanica -- give me Riemann!

Work of this sort is rather slow in paying dividends. Newton's

investigations took a hundred years to penetrate ino engineering. Riemann's work is taking sixty or seventy, but its effects are already being felt. Even Lagrange's work is barely coming to its own in an engineering sense. Yet the vast structure of modern mathematics is a tool which no engineer worthy of the name can afford to ignore, which no leader of engineering can afford to wield clumsily.

Our Vice-President and Dean of Engineering, Vannevar Bush, is as well-rounded an engineer as we have anywhere, here or abroad. He has an unusual knack with tools, and his basement is a young machine-shop. He has devised inventions and practical gadgets without number, in the fields of electrical, hydraulic, mechanical, and mining engineering, and in navigation. Perhaps his chief interest at present is the development of machines to perform the solution of differential, difference, and integral equations -- the old dream of Babbage come true, with modern technique. His differential analyser represents a marvellous degree of success in this direction. The inspiration of his program is the philosopher and pure mathematician Leibniz; its tendency and result, the opening to the ~~mathematical~~ engineer of field after field of mathematics, which the tediousness of computation has hitherto closed to practice. Dr. Caldwell, Bush's right-hand man in this program, describes himself as a ''monkey-wrench mathematician'', and I can bear witness how exacting the demands on his mathematical powers really are.

There is no M.I.T. school of mathematicians. My colleagues are of the most diverse mathematical interests and origins. Struik is a geometer from Leiden, Schouten's former assistent. Franklin has a Princeton degree, and is equally at home in analysis situs, in mechanics and in pure analysis. Douglasshas solved the Plateau problem, and is one of the pioneers in the geometry of paths. Hopf is a Berlin man, an

authority in dynamics, in the theory of differential equations, and in astrophysics. There is however one belief we hold in common: the best applied mathematics can only be developed with the full use of the technique of the best pure mathematics, and the best pure mathematics may draw its inspiration from problems arising in physics and in engineering. We best serve the engineer by following our own bent and curiosity wherever it may lead us, understanding the engineer, and appreciating the scientific interest of his problems, but in no wise regarding ourselves as his servants.

We have very little use for the organized research which is the fetish of the present day. It may be a necessity, especially in a commercial organization, but it is a cramping and crippling necessity. We work in whatever direction our work points, and though we discuss and collaborate, we never apportion research between us. There are those among us who feel the needs of humanity in a very direct and personal way, but in our work, we do not think at the time of some particular need of humanity. If I may speak for the group, this is our philosophy:

'' Mathematics is a subject worthy of the entire devotion of our lives. We are serving a useful place in the community by our training of engineers, and by our development of the tools of future science and engineering. Perhaps no particular discovery that we make may be used in practice; nevertheless, much of the great bulk of mathematical knowledge will be, and we are contributing to that bulk, as far as lies in us.

''Moreover, a clearly framed question which we cannot answer is an affront to the dignity of the human race, as a race of thinking beings. Curiousity is a good in itself. We are here but for a day; tomorrow the earth will not know us, and we shall be as though we never were. Let us

then master infinity and eternity in the one way open to us: through the power of the understanding. Knowledge is good with a good which is above usefulness, and ignorance is an evil, and we have enlisted as good soldiers in the army whose enemy is ignorance and whose watchword is Truth. Of the many varieties of truth, mathematical truth does not stand the lowest.

'' Since we have devoted our lives to Mathematics -- and she is no easy mistress -- let us serve her as effectively as we may. If we work best with an immediate practical problem in view, well and good. If mathematical fact comes to our mind, not as a chain of reasoning, built to answer a specific question, but as a whole body of learning, first seen as in a glass, darkly, then gaining substance and outline and logic, well and good also. The whole is greater than the parts, and in a lifetime of achievement, no one will care what particular question of practice was in the scholar's mind at such and such a moment.''

This is of course the point of view of the German liberal scholar of the middle of the last century, imbued with the poetry of Schiller and Goethe, with the flaming intellectual passion of Heine, with the deep worship of the intellect of that magnificent line of philosophers from Kant to Schopenhauer. All modern professional scholarship is the heir of that Germany. I have sometimes wondered whether you fully understood it. There are many Germans of that period in your gallery of poitraits, but they all seem to have a little taint of the grotesque, of the caricature of the professor in the college humorous ~~pape~~ journal rather than as he really is. They are friendly ~~grotesques~~ caricatures if you like, but at the bottom of it, we see the author laughing a little at anybody so remote from the normal outlook of humanity. ''I'll be darned'', he seems to say, '' Isn't he the funny little fellow''. I do not find this same external attitude in your picture of mid-western scientists like

kettering. So too in Lewis' ''Arrowsmith'', Arrowsmith himself is understood, while Gottlieb and Sondelius are lay-figures arranged in interesting poses.

Thus I think that your sketches of scholars are likely to be misleading on account of a misplaced emphasis -- an unavoidably misplaced emphasis. For all the wreck of the present Germany, the old German tradition of scholarship is the central tradition, abroad as well as in Germany. The scholars whom you portray best and clearest are a real but aberrant type, even within the scholarly world of this country. They are foreigners in the great international world of scholarship, which is as well represented here as abroad, whose bonds are personal as well as scientific, which is a great democracy with many tongues but only one habit of mind. It is much harder to bring this world home to the American lay public than to portray a character like Kettering, who is by your account the great American handy man writ large. I am not lacking in respect for that kind of ability, although I must deprecate the contempt for pure scholarship which you seem to attribute to Mr. Kettering. However, I do not think that that ability can attain its peak unless it is joined with some such intellectual subtlety as , let us say, Dean Bush possesses. I have no doubt that Mr. Kettering possesses some such subtlety, but you have not brought it out in your series of articles.

I question whether Mr. Kettering's laboratory stands in the class of those of the General Electric Company of The Bell Telephone Laboratories in its contributions to scholarship or to engineering. You certainly go too far in crediting Mr. Kettering with the distortionless telephone line. This wis the discovery of Heaviside about 1890. Heaviside, by the way, should be rich literary material for you.

In this connection, I should like to see a series of biographies of

engineers from your hand. Other names could be Nicola Tesla and B.A. Behrend. I should be glad to render you any possible help in the matter.

I trust that you will not take my remarks amiss. If they interest you in any way, I should be delighted to hear from you.

Very truly yours,

Norbert Wiener

6 Stanfield Road
Bournemouth
Aug 11 1933

Dear Mr. Wiener

Thank you so much for your letter and for all you and Professor Tamarkin are doing

I think it is only <u>one</u> slip of paper missing and I think it is in Boston or not Skoki, and I do hope you'll find it, as it is disappointing to have something incomplete.

When you have done

with the papers that Kit ac-
-tually wrote, I should so
like to have some of them, especially
the incomplete one. I can't
understand anything at all,
of course, but was always
so accustomed to tidying
up his papers, & seeing
that nothing was thrown
away, & should like to
keep a few. You will
remember that Kit sent
you a message that some-
-thing rather exciting in
the way of mathematics

was likely to come off
in August. I wrote to
you then - early in May -
I think it was - and I
shall be glad if you will
tell me if it comes to
pass. Some work of yours
and his together, I think;
so it might be something
you'd thought out together
early in the year coming
to fruition; or it might be
some wonderful work of
your own, that Kit meant
to help you with, but the

month was August. I like your dedication so much and I think Mr. Hardy & Mr. Littlewood will like it too. With all good wishes and hoping to know soon that the little slip of paper is found

Yours sincerely
Sybil Paley
(Mrs Raymond Paley)

P.S I shall send you a cheque for the little bills next mail, but am not clever enough to work out the exchange so must ask my Bank S.P.

6 Stanfield Road
Bournemouth
Aug. 16 1933

Dear Mr Wiener

I enclose a cheque for the two accounts and am sorry for the delay but I could not ask what the correct amount was in sterling, until I could go to my own Bank.

I hope the missing paper has been found.

yours sincerely
Sybil Paley
(Mrs Raymond Paley)

PS Don't forget I'd like some of the notes (rough notes) when you've done with them SP.

South Tamworth, N.H., U.S.A.
August 13, 1933.

Professor Otto Szasz

Vom Rathstr 21

Frankfurt a/M, Germany

My dear Professor Szasz:

I am writing this letter in response to an extraordinary communication which I have just received from Mrs. Szasz, in which she speaks of your recent trip to France, and of your present uncertainty as to the country in which you will seek your refuge for next year. My earlier letters were unavoidably addressed to Mrs. Szasz, as she had initiated the correspondence with me, and you were not supposed to be cognizant of it. Once you became cognizant of the matter, permit me to say that it was too important to be carried on through the mediation of any person, even of your own wife.

I am afraid you have completely misunderstood the nature of the offer we have made you. Once it became obvious that many scholars would seek an asylum here, we started the machinery of relief in motion. This was unbelievably difficult. The depression is deep here, and has cut the finances of the universities. Every foreign scholar imported means an American out of a job. In most cases, an imported scholar cannot render in one year any services which will recompense the expense of bringing him over here. Nevertheless, in view of the solidarity of scholarship and mathematics, we have felt that we have a duty in the matter. In view of the times, we have had to act against great difficulties in the collection of funds, and have had to reach down into our private pockets. Any appointments for more than one year would cause a feeling of resentment that would wreck our hopes of doing anything whatever.

I am in close touch with the academic situation in England, and I know that it is practically indentical with that here. The English and the American scholars are working in the closest cooperation, with the purpose of spreading their assistance most broadly and effectively. I am less acquainted with the French situation, but in view of the extreme nationalism of the French academic world, I cannot think that the situation is essentially different, and that they have permanent positions to offer.

Thus any bargaining and use of an offer in one country to raise the terms of an offer in another is bound to be ineffective. Quite frankly, you are more of a liability than an asset to us or to any other school abroad. If we appoint you, we shall have to give up the hope of using a part of your salary to take care of a promising young student. If you get a job in France or England, we have just so much more money to spend on other cases like yours. Similarly, if you come over to us, Hardy and Hadamard will be very glad to be relieved of a problem. We intend to do our share of relief. What we ask is that you do not tie our hands by indecision.

You have no more right to hesitate between two offers than you have to hesitate between two lifeboats on a sinking ship. You are endangering and have endangered the success of every effort to help the dismissed scholars, not only in America, but in every country. I can bear witness to the slackening of enthusiasm which Mrs. Szasz's last letter has produced in some of those in America most interested in the campaign of assistance. One more piece of bargaining and chicanery like that, and the entire cause is lost. You have a heavy burden on your conscience.

I can understand your wishing a job near home. If you have had a definite offer of such a job, you would have had a perfect right to refuse our offer. You have had no right to keep our offer in the

air waiting for another offer to materialize.

The situation is then as follows: on the day of receipt of this letter, which I shall assume to be not later than September 1, if I have not already received your definite decision, I shall expect a cable from you accepting or refusing an offer of a position for one year only at $2400. In case of acceptance, I shall expect you to have taken up your residence in Cambridg Massachusetts by September 25, 1933, the beginning of term, or in defaul thereof, to have presented adequate reasons for your delay in advance. These reasons must be compelling. I shall expect you to have made every effort to improve your English, and to be able to take up a course of lectures on Fourier series.

This is neither a request for your acceptance nor for your refusal. It is merely a statement of the terms under which you can most nearly set yourself right in a situation which you have badly bungled.

Very truly yours,

South Tamworth, N.H.

August 21, 1933.

Dear Hardy:

I have been busy all summer tying up the loose hends of the Paley Nachlass, and I am not yet anywhere near through. We shall have the outhlines of a really general theory of non-harmonic Fourier series, but the full generality is not easy to obtain. One thing is clear, that if

the convergence, convergence in the mean, and summability theory of the series

are substantially identical with the corresponding theories for ordinary Fourier series, provided L is small enough. We consider, that is, the theory of the function represented by such aś aeries as well as that of the ~~the~~//series itself.

The German situation is damnable. We shall all have to work more than doubly hard for scholarship to keep it alive. Our school is getting Szasz for next year. I wish we could do more. He will get in all $2400, which I ámagine to be of the order of magnitude which you would consider reasonable.

I was terribly sorry to hear of Hobson's death. The year has been very hard on Sadleirian Professors past and presumptive.

I am up on my ''farm'', dividing my time between maths, swimming, hiking, and having my house repaired and painted. The Klines of U. of Pa. are near neigbors. Tamarkin has been here, and will probably be up for the whole of next summer. We are developing quite a little maths. colony -- I suppose we ought to call the place ''Ny Fynshav''.

What will your new book with Jessen cover? I should like to undertake a really comprehensive treatise on harmonic analysis with Titchmarsh as soon as your book is available.

With the best regards to all Cambridge friends,

Sincerely,

South Tamworth, N.H., U.S.A.

August 21, 1933.

Dear Mrs. Hobson:

It was a great shock to us to hear of Professor Hobson' death. We had known and appreciated him for many years. We felt deeply the cordial reception which Professor Hobson and yourself gave us in Cambridge last year. We are very glad to learn that Miss Young is living with you for the present, and send her too our best wishes.

It was in 1914 that I first met Professor Hobson and studied Fourier series with him. Since then, I have taken up that subject as my own chosen field, and have like all other workers in that field made the most continuous use of his treatise on the subject. The two names representing the arrival of England as an important factor in modern analysis are those of Professors Hobson and Young. It is through their influence that England is now perhaps first in that field.

As you know, the two Cambridge's suffered a deep loss last year in Paley. He was perhaps the most brilliant of his generation not only in England but in the world. He had already left a deep impression on American mathematics, and I am at present engaged in tying up the loose ends in the extensive work we did together. He had a tremendous driving force behind him, and this, combined with his absolute fearlessness, is what was unquestionably responsible for his death. It was a tremendous shock to all of us.

We are up here on our farm (which is no longer farmed), repairing the old house, and taking recreation in the form of walks, climbs, and swimming. I am writing this letter in what used to be a hen-house, which we have cleaned, re-floored, furnished, and set apart for my study. Among our neigbors are Professor and Mrs. Kline of the University of Pennsylvania mathematics department, and we have been visited by Professor Tamarkin of the Brown department, Besicovitch's old friend. The

Eberhard Hopf's, whom you met in Cambridge, have been up here too, and Arnold Dresden of Swarthmore drives up tomorrow. You see, we have quite a pleasant little mathematical colony.

We have been very much concerned about affairs in Germany. My school is bringing Szasz over for a year, and many other schools are putting in bids for other ousted German scholsrs. We all feel so powerless in the matter. We are grateful however, that the current revolution in American politics -- for it is really a revolution -- is peaceful, and is neither bigoted nor obscurantist. We regret the necessity that America has felt for a self-contained economic policy, but do not expect that it will last longer than is needed to set America on its feet.

Please give your regards to Miss Young, and tell her that we are writing to her soon. It is a very bad year for American jobs, and is not rendered any better by the urgent need of helping out the German exiles. I am keeping Miss Young in mind, however, and am putting forward her name wherever possible.

With sincere condolences from Mrs. Wiener and myself, ~~and~~

Very sincerly yours,

J. D. TAMARKIN
552 HOPE ST.
PROVIDENCE, R. I.

Sept. 7. 1933

Dear Wiener –

It seems that your final version is more or less O.K., although I still have my doubts. Anyway the wording is too short, and nobody will understand it. I can keep (galley) a little longer. Since you are coming back on Saturday, would you mind to drive down to Providence on Sunday or Monday, so that we could go things definitely together. I hope this letter will reach you in the country, but I shall also telephone to Belmont on Sunday morning.

I am sorry to pass on to you the sad news which I have just received

from Sabs (I copy part of his letter):

"We have just received the very sad news that Zichtenstein committed suicide *). So far we have no details

*) In a small place in Poland (Zakopane). Nobody knew of his coming there. He had expressed the desire that his corpse be cremated in Leipzig

and this information has not been yet verified. But, unfortunately, it seems to be true. The reasons are clear"

It is really an awful thing, just as sad, "Just work, Iron Poley", death

Yours

P.S. Your staff seems excellent. Not I must spend sometime on it.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
1861
MENS ET MANUS

OFFICE OF THE PRESIDENT

September 11, 1933

Professor Norbert Wiener
Department of Mathematics

Dear Professor Wiener:

I have sent to Professor Szasz an official notice of appointment together with a letter to be presented to American Consuls and Immigration Officers explaining who Professor Szasz is and the object of his visit to America and requesting favorable consideration on their part, and I have also sent him $200 in advance on his salary to assist him in making his travel and other initial arrangements.

I also sent word to the committee of the Royal Society which has been dealing directly with the German scientists, giving official notice of his appointment, since it was thought that this committee could also aid in making a comfortable arrangement for his travel.

You will be interested to know that the committee working to aid German scholars, with headquarters in New York, has informed us that they have appropriated an additional $2000 above grants already made to be available in the academic year 1934-35 for the assistance of the German scholars, suggesting that perhaps Professor Szasz or Professor Franck, or some other professor, may be desired as a visiting lecturer in that year. I have replied to thank them and to say that we will inform them later in regard to the use to which this grant will be put.

I hope that you have had a good summer. With kindest regards,

Very sincerely yours

Karl T. Compton

President

KTC/L

AMERICAN MATHEMATICAL SOCIETY
501 WEST 116TH STREET
NEW YORK CITY

R. G. D. RICHARDSON
SECRETARY

BROWN UNIVERSITY
PROVIDENCE, R. I.

September 11, 1933.

Professor Norbert Wiener,
76 Cross Street,
Belmont, Mass.

Dear Wiener:-

Probably you have heard the tragic news (Saks wrote to Tamarkin) that Lichtenstein committed suicide in a small town in Poland. What a fearful trail the revolution is leaving! In building up the Zeitschrift he has done a magnificent piece of work.

Doubtless you know that Bryn Mawr has made a bid for Emmy Noether. Since Bernstein is to be at Columbia, it might be possible to arrange some special papers on probability as a sectional session of the Christmas meeting at Cambridge. What do you think? And what suggestions have you?

Wisconsin is negotiating for Schur, but I am doubtful if it would be wise for him to come here.

I am taking a week in the White Mountains and Maine, but will be at my desk on the 15th. Hope your summer is proving all that you can wish.

Sincerely yours,

R. G. D. Richardson

R.G.D. Richardson,
Secretary.

$$\int_0^\infty \frac{f(x)}{x-z}\,dx$$

$$\int_0^\infty \frac{F(y^2)\,2y\,dy}{y^2-z}$$

$$\int_0$$

September 12, 1933.

Mrs. E. W. Hobson,
Cambridge, England.

My dear Mrs. Hobson:

You will pardon this belated letter of condolence, but the news of your husband's death came to me rather late. I had studied with him as far back as 1914 and on my repeated visits to Cambridge I had come to know him well and to appreciate hus unfailing kindness and interest in my work, as in the work of all the younger analysts. The first and only course which I followed under him was that in the Fourier Series, a subject around which most of my subsequent research has ventered. In the course of this research there is no book to which I most turned more often than his two volumes, Theory of Functions and Fourier Series. We all of us realize what a tremendous service Professor Hobson did in turning England analysis into channels in which it now flows and making it an integral part of international scholarship.

I am glad to learn from Miss Young that she is staying with you for the present. It is most fitting that the names of Hobson and Young should be as closely associated personally as they have been scientifically as the two pioneers of modern analysis in England. Will you please give Miss Young the regards of my wife and myself, and please tell her how much I regret my inability to have been of any use to her here in securing a position in America. The greater part of our universities and colleges are in a bad way financially and it is very hard to place our own people. In addition to that, the possible foreign appointments are naturally being filled from among the refugees from the Hitler regime. This has struck pretty close home as far as I am concerned for my Cousin Leon Lichtenstein has just committed suicide on account of the annoyances and persecutions to which he had been subjected, and to the hopelessness of the future.

My wife joins me also in sending greetings and condolences to you, and in asking that you remember us to all Cambridge friends.

Sincerely yours,

September 12, 1933.

Professor G. H. Hardy,
Trinity College,
Cambridge, England.

Dear Hardy:

I suppose you have heard by now that we have got Szasz for next year. It is a one-year appointment, but the salary is definitely a living one. Bochner has gone to Princeton and Lewy to Brown. Miss Noether has had a call to Bryn Mawr and Schur to Wisconsin, but acceptances have not yet been received.

Have you heard of my cousin Lichtenstein's death? Tamarkin received a note from Saks to the effect that it was suicide. I had previously received letters from Philip Frank of Prague and from Rosenblat of cracow stating how terrible conditions were under which Lichtenstein was working and how he desired to leave the country. I wish I could have done something for him, but he had not yet been ex elled from his chair. But the general concensus of opinion here was that(rightly, I feel) that people who had actually lost their livlihood should be first considered. Of course, I feel terribly broken up about the fact, particularly in view of the possibility that my slowness to give effective help might be considered to some degree responsible.

Many thanks for your reference in the Journal paper. I have been very busy here of late, continuing the writing of research in which Paley and I were engaged, and getting ready my colloquium lectures for next year, which will appear as a joint book by Paley and me. The latest result is the following: If a set of complex exponential functions with the same positive and negative exponents, have the exponents different from the integers by adding a constant which is less than within the integral the convergente properties of the series in which the function can be developed are the same as those of the Fourier series, providing the function is radically summable. We have a lot more results of this sort and I think they will be of interest to you. You will see a big batch of them in the October Transactions, or at the latest in the January Transactions.

As you know, I tried last year to do what I could for Miss Young in the way of an American position. Conditions were impossible as far as jobs went, and this year they will be even worse in view of the German refugees.

I wrote Titchmarsh the other day, proposing at some future date we should jointly undertake a comprehensive treatment on harmonic analysis. He has written me a provisional acceptence, but says that you and Jessen have a book on Fourier Series under way. I should like very much to know something of the scope of the book. Jessen will be here of course and I hope to have much contact with him. We shall not take any steps on the general book until your treatise is out.

I was terribly shocked to hear of Hobson's death. Of course it is nothing surprising when a man of seventy-five passes away, and Hobson had not been in very good health, but it still seems hard to picture Cambridge without him. He had been very kind to me on the occasion of my several visits to Cambridge. I am writing Mrs. Hobson a belated letter of sympathy.

I am put in a rather awkward position by some letters which I have received from Mrs. Paley, who is, apparently, a confirmed spiritualist and wishes me to commit myself on the point. I have been dodging the matter as effectively as possible, but I must avoid answering some of her direct questions.

I hope that Littlewood and you are in better health than when we left you in England. I should be glad to hear any news mathematical from Cambridge.

Sincerely,

September 12, 1933.

Professor E. C. Titchmarsh,
New College,
Oxford, England.

Dear Titchmarsh:

I don't know whether I have already written to you, to thank you for your provisional acceptance of my plan for a joint book. I have been up to the mountains and my correspondence is so disrupted that it may very well be that this letter is a repetition of one I have already sent you. I am perfectly in accord with yout idea of waiting until Hardy and Jessen have published. As you doubtless know, Jessen will be over here soon and we shall have a good chance to talk together. At any rate, I shall hot be able to undertake active work on the book until a year from now, when I shall give my colloquium before the American Mathematical Society, the subject being the Fourier integral in the complex domain. This book will appear jointly under Paley's name and my own, for the greater part of the material was discussed and worked out together by the two of us. I have a mass of material touching your work on entire functions which I shall send you as soon as is comes out in the Transactions. In addition as a totally new work on non-harmonic Fourier Series which I have a surprisingly wide class of classes showing the convergence and summability of properties of ordinary Fourier's series.

We are all very much depressed here here concerning the atrocities in Germany. I suppose you have heard of Lichtenstein's death. I have learned by a roundabout way that it was suicide, due to the impossible conditions of present Germany. Lichtenstein was my cousin, so that the blow comes close home.

Szarz will be here at Tech next year. Lowy, of Gottingen, is at Brown for a year, Bochner has got a promise of a permanent berth at Princeton. Schur and Noether have received offers in this country, but their acceptance is not yet certain.

Most of my new harmonic analysis is coming out in the Transactions of the American Mathematical Society. While you doubtless have access to it, I shall try to keep you supplied with reprints, with a view to our later incorporating some of it in our book.

Please remember me to Mrs. Titchmarsh.

Sincerely yours,

13. Collingham Rd
London
SW 5
October 2. 1933

Dear Mr. Wiener
I have just received
my dear boy's boxes & I
write to thank you so
much for the mathematical
book, with your kind
and sympathetic inscrip-
tion in it. Of course
I can't read or understand
it, but I shall always

value a book that I
am sure he valued very
much. Professor Tamarkin
asked me for a portrait
of him & was delighted
with the one I sent to
him - at least he seemed
very much pleased with
it. I shall hope soon
to hear news of your
new book - I mean the
one written with Kit.
I hope it will be
thought very highly of by

all the other mathema-
-ticians. I expect I
shall hear from Mr.
Littlewood what he
thinks of it & I expect
it will be very wonderful
Kit wrote to me some
time before April to say
it was the best piece of
work by far that he had
ever done, and that he
thought it was the best
you had ever done too, &
I know that is saying

a lot. I wish I were not so stupid & could understand it. Again with very many thanks and remember if you want a portrait of Kit, you have only to ask me for one

Yours sincerely

Sybil Paley

(Mrs Raymond Paley)

J. D. TAMARKIN
552 HOPE ST.
PROVIDENCE, R. I.

Sept 23. 1915

Dear Wiener —

Thanks for your letter. We will have to go on Saturday (I shall let you know the precise time of our arrival to Boston), because on Friday I have all my lectures and other activities concentrated. I also have a lecture on Monday, 11 A.M. which means that we shall have to return on Sunday, no matter how late unless I am able to do something. To save time it seems to me the best if you fetch us at the station, from where you can proceed directly to the ship, without stopping at your home.

In the last number of Jahresber. d. Deutsch M-Ver. you will find special solutions of two problems of Pólya.

H. Levy has arrived three days ago

So long now

Yours F

Cracow, 47. Krowoderska.
14/10 33.

Dear Sir.

I am much obliged to you for having informed me so exactly about all what has been done in America for the relief of the poor mathematicians who have been driven out from Germany.

I would inform you, that Wiltenstein did not commit a suicide, as you was perhaps informed. He died on a heart-disease, because being heart-ill he went to the mountains Tatra at an altitude of over 900 metres, and the physicians did not insist upon that, that he should immediately depart for lower altitudes. Of course the imminent danger of being dismissed was another agent who

accelerated his death.

On the other side, he had been invited some years ago to occupy a vacant professorship in our University. But he declined to remain here after having visited the University, because he was paid much better in Leipzig and had there much better conditions to scientific work. Of course he did not foresee the coming of the hitlerians.

The events in Germany have had a fatal repercussion on the situation of the Jews here and - I think - in other countries. Now the Poles think they are a wonderfully tolerant people as the don't dismiss the few jewish scientists, and the arrival of new ones to chairs or lectureships is still more difficult as it was till now. But here a converted Jew is no more regarded as a Jew, and so there are many convertites, who do more damage for the Jews than the Christians themselves. Of course there are also racial anti semites - Mr. Zaremba is of this kind - who confess the hitlerians programme, although now they condamn Hitler and the Germany.

I think the situation of the Jews could only be improved, if it would be possible for the jews of the wold to boycott successfully Germany, and to show that the Jews are still able to defend successfully their brothers in Germany.

I would be extremely obliged to you if you would be so kind to send me your papers, as some of my students intend to study modern harmonic analysis.

With best compliments

Yours very truly

A. Rosenblatt

Prag, 10. Oktober 1933.
XIX. Ovenecká 43

Sehr geehrter Herr Kollege,

Bei meiner Rückkehr von der Ferienreise fand ich den beiliegenden Brief des Herrn F. Levi in Leipzig vor, dem ein Verzeichnis seiner Arbeiten beilag. Ich musste leider die darin gestellte Frage nach der Existenz eines Hilfskomités für Akademiker in Prag verneinen und Herrn Levi auch mitteilen, dass es völlig aussichtslos ist, als ausländischer reiner Mathematiker hier unterkommen zu wollen. Nun höre ich von Kollegen Ph. Frank dass in Amerika ein solches Hilfskomité existiert, dem Sie angehören (oder nahestehen). Ich möchte mich deshalb an Sie mit der Bitte wenden, ob man Herrn Levi nicht - wenigstens für die nächste Zeit - in Amerika unterbringen könnte. Seine wissenschaftlichen Qualitäten kann ich selbst zwar nicht beurteilen, da mir sein Spezialfach ferner liegt; doch weiß ich, dass er für einen guten Fachmann gilt, und es wäre gewiss nicht schwer, Gutachten über seine Arbeiten zu erhalten, deren Verzeichnis ich beilege. Dass der Fall dringend ist, scheint mir aus der in seinem

Brief geschilderten Situation hervorzugehen; sowie auch aus der Tel-
sache, dass Herr Levi sich auch an mich gewandt hat, den er nur
ziemlich oberflächlich von Kongressen her kennt.

Ich bin der Meinung, dass man in einem solchen Falle nichts
unversucht lassen soll, um Hilfe zu bringen und wende mich deshalb
an Sie, bei dem ich die gleiche Gesinnung voraussetze. Ich brauche kaum
hinzuzufügen, dass Herr Levi von diesem Briefe nichts weiß.

Mit besten Grüßen

Ihr sehr ergebener

L. Berwald.

Ich bitte, mich Ihrer verehrten Frau Gemahlin bestens zu empfehlen.

14-25

ROYAL SOCIETY

Burlington House
London, W. 1.

? Oct 20
1933

Dear Wiener

Excuse me for not answering sooner, but I have been worked to death filtering German-Jewish refugees here. I have now got positions for all the geneticists, with one exception, and he is fairly bad! But what a job!

I was very sorry to hear of Paley's death, a real waste

of irreplaceable brains. He was also a personally charming man.

I hope the shock did not affect you too much, and that you have been able to get on with your work. Also that Mrs Wiener and the girls are well.

We are now settled down in London. I am pestered by the most horrible equations, e.g. numerical ones of the 8th degree. Someone must tackle them, but it is a base and mechanical job.

Yrs sincerely
J B S Haldane

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY.

Royal College of Science
Exhibition Road
SOUTH KENSINGTON,
LONDON, S.W.7.

TELEPHONE NO.: KENSINGTON 4526.
TELEGRAPHIC ADDRESS:
"SCIENTIST, SOUTHKENS, LONDON."

Further communications on this subject should be addressed to the undersigned, and Ref.

No. ..... *quoted.*

Oct. 24th 1933

Dear Professor Wiener,

Mrs Hobson kindly told me of your letter to her & gave me your kind messages, for which many thanks. I heard with the greatest grief of Professor Lichtenstein's death. I understand now that, according to Zygmund, it was not a case of suicide, as at first thought, & I hope very much this may be so. It would be terrible to think that the persecutions he was suffering should have been so unbearable, & that all that is being done outside Germany to help sufferers of the same kind should not be sufficient to counteract hopelessness & despair.

There are a considerable number of refugees harboured at Cambridge at the moment. You have no doubt heard that Prof. Born has been actually appointed lecturer there for two years

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY.

SOUTH KENSINGTON,
LONDON, S.W.7.

Further communications on this subject should be addressed to the undersigned, and Ref.

No. .....quoted.

TELEPHONE NO.: KENSINGTON 4526.
TELEGRAPHIC ADDRESS:
"SCIENTIST, SOUTHKENS, LONDON."

& that Prof. Courant was coming to take a share of Part I lecturing.

I was preparing for another year at Cambridge, lecturing & doing research, for which Girton College had very generously offered me a fresh Grant. But a vacancy occurring in the Imperial College, South Kensington, I applied for it & was appointed, & am actually writing to you as Assistant Lecturer in that part of it known as the Royal College of Science, with Professor S. Chapman, F.R.S., as chief professor. It is just the work I have been hoping to get & my colleagues are extremely friendly & helpful, so I feel that I am very fortunate.

I should of course have dearly liked to see something of your country if it could have been fitted in, but it certainly did not seem the time to choose under any circumstances. It may amuse you to know that I contemplated the possibility of going to South Africa for a year ~~from last~~ to take the place of the Professor (while he came to Cambridge to lecture) at Huguenot College, Wellington (Cape Province), a very small & very elementary institution, for the sake of the adventure. But through

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY.

SOUTH KENSINGTON,
LONDON, S.W.7.

Further communications on this subject should be addressed to the undersigned, and Ref.

No. .....quoted.

TELEPHONE NO.: KENSINGTON 4526.
TELEGRAPHIC ADDRESS:
"SCIENTIST, SOUTHKENS, LONDON."

an error in postal transmission, the letter of application arrived two months late & the Professor had decided to wait another year! The post is now again vacant from next March, but fortunately I am out of reach of temptation.

With all kind regards to you & yours

Yours sincerely

P. Cady Young

P.S. Please remember me when you have reprints to send out. You have been so generous already that I think I may claim to have one of the most complete sets of your papers & I should like very much to keep it up-to-date, if I may -

23 Linden Lane, Princeton, N.J.

Oct.26, 1933

My dear Professor Wiener,

I beg your pardon for writing to you as late as that about my changed plans for this year. This decision was rather sudden and was made after taking over my situation with v. Neumann and Veblen which said that from a purely non-mathematical and purely materialistic point of view I might be better offhere than at Cambridge. There is however one thing which is bothering me and this is the fact that I promised to register at the M.I.T. for this year and the fact that you were so kind to vouch for this in your letter to the American Consul in Frankfurt a/M. The last time we talked over this point I was sure to be at Cambridge this year. Now I am registered as a student at the Institute for advanced Study. Due to this changed situation I do not know now what to do and I am ready to accept any suggestion from you. At this moment I can only see two possible procedures: One would be that one of us writes to the consul in Frankfurt a/M referring to your letter and comunicating to him my change of University. The second would be that I also register at the M.I.T. as we discussed last time. If the second step is legal I do not know at present. Personally I would very much prefer to follow the first course since I would definitely feel unconfortable to be registered at the M.I.T. while living at Princeton, a fact which might also arouse the suspicion of the Immigration Authorities. These remarks however are besides the point since I want to satisfy you and not me. Therefore please be so kind and tell me what I shall do in order to remove the slightest inconvenience which might have arisen for you as a consequence of your kindness to write the above said letter to Frankfurt a/M.

Princeton is very interesting indeed and I am particularly enjoying the presence of v.Neumann, Bochner and Jessen.

v.Neumann gives a course on Operators and Bochner leads a seminar on the applications of Tauberian theorems to the prime number problem. I am also using my presence at Princeton to learn Topology a fact which makes my schedule pretty crowded.

I want to take this opportunity to thank you very heartily for your kindness to me during last year and to tell you how sorry I am that I shall not enjoy for some time the wonderful association with you.

Hoping to see you at the afternoon session of Saturday, Oct. 28 at New York. I am very sincerely yours,

I. J. Schoenberg

I was sorry not to be able to see more of the family Wiener while coming through Cambridge and I hope to have soon an opportunity to see you all

Best wishes Isaac Schoenberg

國立山東大學
NATIONAL UNIVERSITY OF SHANTUNG
TSINGTAO, CHINA.

Nov. 2nd 1933

Dear prof. Wiener:

I hope I can get a copy of reprint of your paper on "Tauberian theorems", appeared in annals of math. vol. 33 2-series 1932 pp1-100 (a note on pp 787). Thank you in advance.

Sincerly yours,

S. C. yang.

Copy to Professor Wiener

November 4, 1933.

Professor Felix Bernstein,
Department of Mathematics,
Columbia University,
New York, N.Y.

Dear Professor Bernstein:

At the Annual Meeting of the Society in Cambridge to be held just after Christmas there is a proposition that we make an experiment of having a sectional meeting on the Theory of Probability. This would probably come on Wednesday morning, December 27, and there would be other sections of the Society meeting at the same time.

Tentatively we have decided to have five speakers, each to take approximately twenty minutes. Professor Wiener would probably talk on the Brownian motion, both the mathematical and physical aspects and Professor Hopf on his dynamical Theory of Probability. We would ask Professor VanVleck, who is in mathematical physics, and Dr. Jessen of Copenhagen who is at the Institute for Advanced Study at Princeton this year.

I take pleasure in inviting you to be one of the five speakers at this meeting. You may choose your own subject and title. Possibly you would like to correspond with Professor Wiener before making final plans for giving your talk which would doubtless be on some of your recent researches in Probability. Professor Norbert Wiener of the Massachusetts Institute of Technology, Cambridge, Massachusetts, is more or less in charge of the organization of this particular program. In case you find yourself in a position to accept this invitation, I should like to have the exact title of your paper in my hands by November 15.

If our tentative plans can be carried out, I judge that we would have a most interesting program and that it would arouse considerable interest.

Sincerely yours,

R.G.D. Richardson,
Secretary.

Copy to Professor Wiener

November 4, 1933.

Dr. Jessen,
Institute for Advanced Study,
Princeton, N.J.

Dear Dr. Jessen:

At the Annual Meeting of the Society in Cambridge to be held just after Christmas there is a proposal that we make an experiment of having a sectional meeting on the Theory of Probability. This would probably come on Wednesday morning, December 27, and there would be another section of the Society meeting at the same time.

Tentatively we have decided to have five speakers, each to take approximately twenty minutes. Professor Wiener of the Massachusetts Institute of Technology, Cambridge, Massachusetts, would probably talk on the Brownian motion, both the mathematical and physical aspects, and Professor Hopf of the same institution on his Dynamical Theory of Probability. We would ask also Professor J.H. VanVleck of the University of Wisconsin who is in mathematical physics and Professor Felix Bernstein now at Columbia University.

I take pleasure in inviting you to be one of the five speakers at this meeting. You may choose your own subject and title. Possibly you would like to correspond with Professor Wiener before making final plans for giving your talk which would doubtless be on some of your recent researches that relate to Probability; he is more or less in charge of the organization of this particular program. In case you find yourself in a position to accept this invitation, I should like to have the exact title of your paper in my hands by November 15.

If our tentative plans can be carried out, I judge that we will have a most interesting program and that it will arouse considerable interest.

Sincerely yours,

R.G.D. Richardson,
Secretary.

Copy to Professor Wiener

November 4, 1933.

Professor J.H. VanVleck,
University of Wisconsin,
Madison, Wisconsin.

Dear Professor VanVleck:

At the Annual Meeting of the Society in Cambridge to be held just after Christmas there is a proposal that we make an experiment of having a sectional meeting on the Theory of Probability. This would probably come on Wednesday morning, December 27, and there would be another section of the Society meeting at the same time.

Tentatively we have decided to have five speakers, each to take approximately twenty minutes. Professor Wiener of the Massachusetts Institute of Technology, Cambridge, Massachusetts, would probably talk on the Brownian motion, both the mathematical and physical aspects, and Professor Hopf of the same institution on his Dynamical Theory of Probability. We would ask also Professor Felix Bernstein of Göttingen and Columbia Universities and Dr. Jessen of Copenhagen who is at the Institute for Advanced Study at Princeton this year.

I take pleasure in inviting you to be one of the five speakers at this meeting. You may choose your own subject and title. Possibly you would like to correspond with Professor Wiener before making final plans for giving your talk which would doubtless relate to some of the applications in physics of the newer Theory of Probability; he is more or less in charge of the organization of this particular program. In case you find yourself in a position to accept this invitation, I should like to have the exact title of your paper in my hands by November 15.

If our tentative plans can be carried out, I judge that we will have a most interesting program and that it will arouse considerable interest.

Sincerely yours,

R.G.D. Richardson,
Secretary.

46, Park Place, Princeton, N.J.
November 6, 1933.

Dear Professor Wiener,

Professor Richardson has invited me to be one of five speakers at the Christmas meeting of the A.M.S. and suggested that I should correspond with you before making final plans for my talk.

I should like to give a general rewiew of the integral in the space $0 \leqq x_n < 1$, $n = 1,2,3,\ldots$ of an enumerable number of dimensions and its various applications provided this does not interfere with your plans for your talk. I have thought of the following title: Some analytical problems relating to Probability. Do you think this title would indicate sufficiently clearly the character of the subject?

I hope I should have time to give: 1) The integral in the space $0 \leqq x_n < 1$, $n = 1,2,3,\ldots$ of an enumerable number of dimensions. 2) Examples of the results of Steinhaus, Paley and Zygmund. 3) Applications to the distribution problem for almost periodic functions especially the Zetafunction.

I should like to know your opinion about this before I answer Professor Richardson; he has asked for the title by November 15.

With kind regards, I am,
Yours very sincerely,

Børge Jessen

AMERICAN MATHEMATICAL SOCIETY
501 WEST 116TH STREET
NEW YORK CITY

R. G. D. RICHARDSON
SECRETARY

BROWN UNIVERSITY
PROVIDENCE, R. I.

November 6, 1933

Professor N. Wiener,
Mass. Institute of Technology,
Cambridge, Mass.

Dear Wiener:

I am writing to Hopf as per the enclosed copy and thus finishing up the first round of our arrangements. While the time may seem adequate, I feel that we must keep plugging right along if we are going to get this thing in shape. At the very end in some cases I have had to drop out whole sections of programs because there was not time to finish up the details and to get them in good shape. I shall rely on you to help me manage this matter.

Thanking you for your cooperation, I am

Sincerely yours,

R.G.D. Richardson,
Secretary.

rgdr:a

enc.

Copy for Professor Wiener.

November 6, 1933

Professor E. Hopf,
Mass. Institute of Technology,
Cambridge, Mass.

Dear Professor Hopf:

At the Annual Meeting of the Society in Cambridge to be held just after Christmas there is a proposal that we make an experiment of having a sectional meeting on the Theory of Probability. This would probably come on Wednesday morning, December 27, and there would be another section of the Society meeting at the same time.

Tentatively we have decided to have five speakers, each to take approximately twenty minutes. Professor Wiener of the Massachusetts Institute of Technology, Cambridge, Massachusetts, would probably talk on the Brownian motion, both the mathematical and physical aspects, and you might speak on your Dynamical Theory of Probability. We would also ask young Van Vleck of Wisconsin, Professor Felix Bernstein of Göttingen and Columbia Universities and Dr. Jessen of Copenhagen who is at the Institute for Advanced Study at Princeton this year.

I take pleasure in inviting you to be one of the five speakers at this meeting. You will doubtless confer with Professor Wiener before making final plans for giving your talk; he is more or less in charge of the organization of this particular program. In case you find yourself in a position to accept this invitation, I should like to have the exact title of your paper in my hands by November 15.

If our tentative plans can be carried out, I judge that we will have a most interesting program and that it will arouse considerable interest.

Sincerely yours,

R.G.D. Richardson,
Secretary.

AMERICAN MATHEMATICAL SOCIETY
501 WEST 116TH STREET
NEW YORK CITY

November 6, 1933.

Professor Norbert Wiener,
Massachusetts Institute of Technology,
Cambridge, Mass.

Dear Professor Wiener:

I take great pleasure in informing you that, on recommendation of the Committee, the Council has voted to award to you one-half the fourth Bôcher Prize for the memoir entitled Tauberian theorems which appeared in the volume for 1932 of the Annals of Mathematics. The other half of the award is to be given to Professor Marston Morse. These awards will be announced at the Annual Meeting and until then the information will be held confidential.

As at present planned, the session on Thursday morning, December 28, 1933, will be a general one with some Society business, an address by Valiron, and the presentation of the Bôcher Prize. It would seem to me fitting that each of the recipients of the Prize should take fifteen or twenty minutes and give a resumé of his memoir. We shall communicate further with you on this point.

With sincerest felicitations, I have the honor to be

Sincerely yours,

R.G.D. Richardson

R.G.D. Richardson,
Secretary.

BUDAPEST, den 8. November 1933.

Látkép Szt. Gellért-szobrával
Ansicht mit dem St. Gerhard-Monument
Vue générale avec le monument de St. Gérard
View with the St. Gerard-Monument
Panoramo kun la monumento St. Gerhardo

Valódi művészi fénykép

Hochgeehrter Lieber Herr Wiener, nochmals allerherzlichsten Dank für die ganz ausserordentliche Liebenswürdigkeit, mit welcher Sie mich in America so verschwenderisch ausgezeichnet haben. In der Hoffnung eines baldigen fröhlichen Wiedersehens verbleibe ich hochachtungsvoll Ihr ganz ergebener

L. Fejér.

Budapest I., Krisztina-Körút 165.

Sz. B. B. 405.

Hungary, Europe

Professor Norbert Wiener
"Massachusetts Institut of Technology" "Department of Mathématics"
Cambridge (Mass.)
U. S. A.
America

BELL TELEPHONE LABORATORIES
INCORPORATED
463 WEST STREET NEW YORK
CHELSEA 3-1000

November 9, 1933

IN REPLY REFER TO
TCF - GZ

REPLYING TO

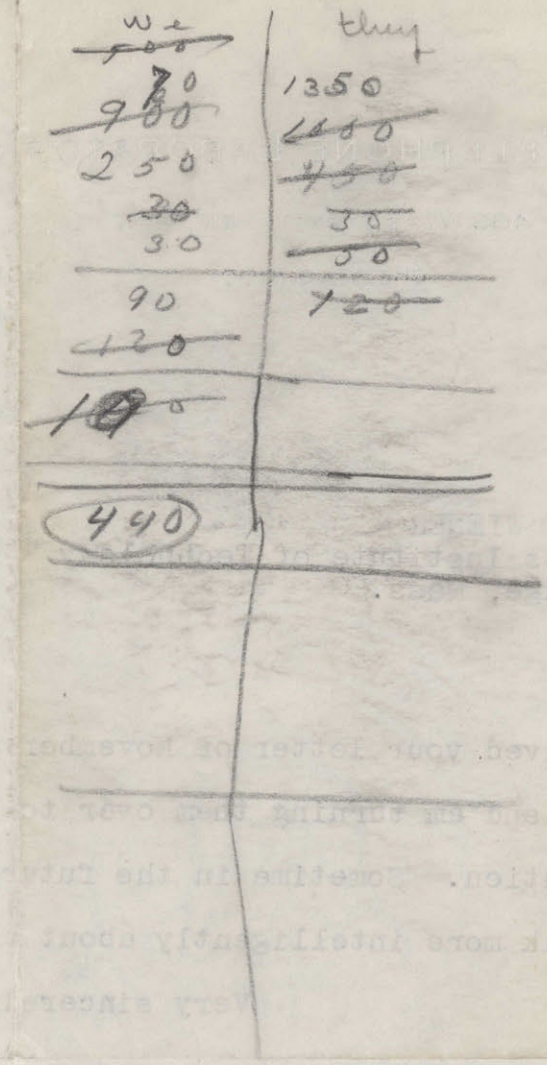
PROFESSOR NORBERT WIENER
Massachusetts Institute of Technology
Cambridge, Mass.

Dear Wiener:

I received your letter of November 5th with its enclosures today and am turning them over to Bode for serious consideration. Sometime in the future I expect to be able to talk more intelligently about them.

Very sincerely yours,

Thornton C Fry


we
thus
1350
250
90
440

Columbia University
in the City of New York
DEPARTMENT OF ZOÖLOGY

November 11, 1933

Dr. Norbert Wiener
Department of Mathematics
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Friend,

I thank you for your letter of November 9th. I think it would fit in best if I gave a lecture that would refer to the principles of probability not only from a mathematical standpoint but from the standpoint of natural science. About the title I am not yet decided but perhaps seeing the titles already sent in to you may offer a suggestion. With kind regards,

Yours very sincerely,

Felix Bernstein

Felix Bernstein.

FB/H

AMERICAN MATHEMATICAL SOCIETY
501 WEST 116TH STREET
NEW YORK CITY

R. G. D. RICHARDSON
SECRETARY

BROWN UNIVERSITY
PROVIDENCE, R. I.

November 13, 1933.

Professor Norbert Wiener,
Massachusetts Institute of Technology,
Cambridge, Mass.

Dear Professor Wiener:

I have been out of town for two or three days and am very much rushed at the moment, but I think I should write you.

Probably you have heard from Van Vleck and know that he is not available. Jessen has written me giving his title as Some analytical problems relating to probability, and Hopf has written me choosing Remarks on causability and probability. I note your own title as well. You will note that the title given to me by Hopf, and that given to you for me are not the same. There will be plenty of chance for you to write to me again regarding the matter.

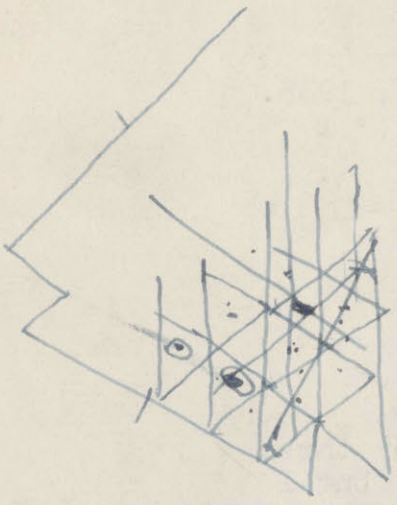
Is there some physicist whom you would now have me invite?

Cordially yours,

R.G.D. Richardson

R.G.D. Richardson,
Secretary.

RGDR:M



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ESTABLISHED 1897

TELEPHONE
CAPITOL 3540

CABLE ADDRESS
"DYXPRESS" BOSTON

RICHARD G. BADGER PUBLISHER
The Gorham Press
100 Charles Street
BOSTON

November 13, 1933.

Prof. Norbert Wiener,
Dept. of Mathematics,
Mass. Inst. of Technology,
Cambridge, Mass.

Dear Professor Wiener:

I was talking to Miss Ruth Hill the other day and she told me of her conversation with you.

As I recall, Miss Hill said that you had a manuscript that you had not already placed. If I am right on this supposition I should like very much indeed to have an opportunity to see it.

Miss Hill also said that you spoke of the change that would be necessary in the publication of Scientific Journals because of the Hitler regime. I must confess that this had not occurred to me before but I can well understand how it would be so.

It occurs to me that it might be possible for us to publish a journal along these lines. Naturally I haven't any definite ideas on the subject but you undoubtedly have.

If you are sufficiently interested to drop in and see me some time you are in town I should be very glad indeed to have you do so.

Faithfully yours,

RICHARD G. BADGER.

RGB:F

Бостон, Масс.
13-го ноября 1933 г.
22 Evans Way

Профессору

Л е о В и н е р у

Бельмонт, Масс.

Глубокоуважаемый Профессор,

Празднование открытия консерватории, о котором я Вам писал, было, так-сказать, трансформировано в Нью-Йорке в торжественный прием знаменитому Арнольду Шенбергу /композитору/, котораго брат выписал из Европы. Возможно, что такой же прием будет устроен и здесь; если будет, то, само собой разумеется, мы все будем очень рады видеть Вас и Вашу уважаемую супругу, а также и профессора Норберта Винера с супругой, среди наших гостей. F

О Шенберге Вы, может быть, слыхали. О нем уже очень много писали и здесь, и в Нью-Йорке, и во всей Америке. Вам, может-быть, интересно почитать о нем, поэтому прилагаю статью из вчерашней газеты. Кроме него брат пригласил в качестве преподавателя одного из самых выдающихся пианистов нашего времени.

Брат мой теперь очень занят по целым дням и много путешествует между Бостоном и Нью-Йорком. Он просит меня передать самый сердечный привет Вам и Вашей супруге и Вашему сыну с семьей.

Искренно преданный Вам
Я. Малкин.

Не откажите, дорогой Профессор, в любезности, передать прилагаемое письмо Вашему сыну.

F В воскресенье утром (кажется, 10 г. 10 мин.) он будет говорить в радио по всей Америке. При этом будет идти также и о Консерватории.

Preußisches Ministerium
für Wissenschaft, Kunst und
Volksbildung

Berlin W 8, den 28. Dezember 1933.
- Postfach -

U II G Nr. 3123

Sie werden hierdurch vorläufig benachrichtigt, daß Ihre Vorstellung vom 28. November 1933 an den Herrn Oberpräsidenten, Abteilung für höheres Schulwesen in Kassel, betreffend Abiturientenexamen in Deutschland, der Auskunftstelle für Schulwesen in Berlin-Schöneberg zur Erledigung heute übersandt worden ist.

Kanzlei.

Straße, Hausnummer, Gebäudeteil,
Stockwerk od. Postschließfachnummer

Postkarte

An

Herrn Professor
Norbert W i e n e r ,

Massachusetts Jnstitute
of Technology

in C a m b r i d g e

Mass.

Straße, Hausnummer,
Gebäudeteil, Stockwerk

(11. 32) △ C 154

Boston,Mass.
22 Evans Way
Nov.13,1933.

Professor Norbert Wiener
c/o Professor Leo Wiener
70 School Street
Belmont,Mass.

Dear Professor Wiener:

As I previously informed your Father,Dean Barker of Columbia University in New York was unable to do anything for me.

I would appreciate it very much,should it be possible for you,to assist me by some other suggestion.

I am enclosing a testimonial by the Westinghouse Company. Furthermore,I would like to mention,that an important article of mine,concerning "Design and Calculation of Steam Turbine Disc Wheels",is on the program of the annual meeting, at the beginning of December,of the "American Society of Mechanical Engineers" in New York,and will be printed soon afterwards in the "Transactions"of this Organization. A German translation is being published in the "Schweizerische Bauzeitung".

With my best regards I am

very sincerely yours

J. Malkin.

WESTINGHOUSE ELECTRIC AND

MANUFACTURING COMPANY

Philadelphia,Pa.

TO WHOM IT MAY CONCERN:

Dr.I.Malkin was employed in our Turbine Apparatus Division from January,1932 to July,1933. During this time,he worked on several important theoretical problems of Applied Mechanics.He made valuable contributions to our knowledge of strength and vibration of turbine discs and other problems of a similar nature.

We regret that business conditions have made it necessary to dispense with the services of Dr.Malkin,but feel that we can give him the best recommendations.

(signed) C.Richard Soderberg

Turbine Apparatus Division Engineer

NOVEMBER 12, 1933

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Arnold Schoenberg Discusses His Compositions Old and New

By GEORGE S. McMANUS

The composer of "Pierrot Lunaire," "Verklaerte Nacht"—known to Boston since the time of Kneisel—the "Gurrelieder" and other much discussed works has during the past week come to Boston to make his home here and to teach at the Malkin Conservatory. He has in his turn been the subject of as much heated argument as any composer in recent times. The world of music is now inclined to accept him in the light of an established classic, yet he has in no way been content to walk along his old paths. Since 1921 he has built his compositions on principles that mark a radical departure from his older methods. "These new principles brought a variety of new difficulties that ever unfolded new and interesting possibilities. I had to content myself with short and simple pieces when I began what I call my twelve-tone plan," he said during an interview last week, "for imagination must ever walk hand in hand with new harmonic principles. After these piano pieces came chamber music, then my 'Variations for orchestra,' after which I wrote a comic opera, 'From Today to Tomorrow.' My second opera in this period is called 'Moses and Aaron.' Of this two acts are complete and the third is held up waiting completion of the text, and the necessary peace and quiet which have not been mine this past year in Europe."

Politics were banned from the outset in our conversation with Mr. Schoenberg at his Boston home. "I am delighted with what I have seen of Boston and I look forward to my life in this country as one of earnest and agreeable activities. I feel the freshness of things here in America and the zeal with which your people are successfully stirring."

Boston has already made its gestures of recognition to Mr. Schoenberg. Friday night he was a guest of honor at a reception given by Mrs. Elizabeth S. Coolidge and the music division of Harvard University, after a concert by the Pro-Arte Quartet, at which a Schoenberg work was played.

"Dr. Koussevitzky has invited me to conduct a program of my compositions with the Boston Symphony orchestra in January." "Which works will you give?" we ask. "I haven't had the opportunity to discuss the matter with Dr. Koussevitzky, but I hope the program will be made up of my older works. I should prefer Boston to learn to know me well from that point of view. The difficulties of these new works are, in their way, as perplexing as the complicated polyphonic problems of Bach's day."

"Will you do the Gurrelieder?"

"Perhaps a part, but that would require a large chorus."

"Boston is rich in choral organizations," we offer.

"That is splendid. But the Gurrelieder must be sung in English. The music was written to a most beautiful poem by Jens Peter Jacobsen and it is absolutely essential that none of the meaning be lost."

"The Gurrelieder we gave in London many years ago in an excellent English translation. And, by the way, it is no great problem to translate from German into English, or vice versa. We have seen it in the German translations of Shakespeare and I am more than content with what was done with the text of the Gurrelieder. You see, I wrote that work so long ago that I can now look upon it as an outsider and feel certain as to what was accomplished."

On Nov. 17th there will be a lecture by this composer before a New York audience. He has chosen as his subject, "Excerpts from my Writings and my Talks."

With genial kindliness, he showed us manuscripts of his latest orchestral works: the first, a concerto for 'cello and orchestra, which is a free transcription of a concerto for clavicembalo by Monn, a contemporary of Handel. "The themes are mostly Monn's and occasionally mine, and I have treated the work without restriction of harmonies; they are not more advanced than the Brahms period. The second is based on a Concerto Grosso by Handel, for string quartet and orchestra—somewhat enriched in voice leadings and with a fuller polyphony than Handel employed.

"Do you know that I've been growing more optimistic ever since I arrived in America? I confess that I at first felt anything but optimistic. I know that we only get out of experiences what we bring to them. I have often seen evidences of real idealism in American artists and I have found much to interest me in the compositions that have already been sent to me by Americans. I want my life here to be not merely one of gain for myself, but of encouragement and stimulation to those who come to me.

"And please don't call me an atonal composer. That I am not."

I.Malkin
22 Evans Way
Boston,Mass.

BOSTON, MASS.
NOV 13
530 PM
1933

BACK BAY ANNEX

Professor Leo Wiener
70 School Street
Belmont,Mass.

EDWARD B. PASSANO, *President*

ROBERT S. GILL, *Secretary-Treasurer*

THE WILLIAMS & WILKINS COMPANY
Publishers of Scientific Books and Periodicals
WILLIAM WOOD & COMPANY
Medical Publishers
BALTIMORE, U. S. A.

CABLE ADDRESS
WILCO BALTIMORE

ADDRESS REPLY TO
MT. ROYAL AND GUILFORD AVENUES
BALTIMORE

November 15, 1933

Prof. N. Wiener,
Mass. Inst. of Tech.,
Cambridge, Massachusetts.

Dear Professor Wiener:

It is a pleasure to announce to you the fruition of several years' planning, in the forthcoming first issue of the quarterly journal of critical review, PHILOSOPHY OF SCIENCE.

The Journal is the expression of an association of intellectually competent men and women interested in the fertile field of mutual criticism of philosophy and science, and particularly in their union. This Association, as an organism, is still in its embryonic stage. You are invited to join with other persons of distinction in becoming a charter member.

This invitation is sent to relatively few persons but it is not the purpose narrowly to limit membership; rather to include any who may evince an interest in an endeavor of this sort. For that reason, the membership dues have been made nominal; merely sufficient, for the time being, to defray costs of publication and to furnish the minor sums required for the editorial conduct of the Journal.

It is, of course, impossible to know even by reputation, all of those to whom invitations should be sent. When you send your subscription, therefore, please send names also of others who should be invited. A slip is enclosed for that purpose.

To save many repetitions, information concerning the Association and its Journal has been set in type and is enclosed herewith. Our publishers are The Williams & Wilkins Company and subscriptions should be sent directly to their address.

Sincerely yours,

W. M. Malisoff

W. M. MALISOFF
Editor

P. S. While the first issue will be dated January 1934 (so that the volume-year will correspond to the calendar year), it is now ready for distribution, awaiting your subscription.

This will interest you as a member of our Advisory Board.
How's the Essay on Leibniz?

WMM.

NY 6V 4657

Battle St

3.30

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Copy to Professor Wiener

November 16, 1933.

Am sending copy of Phys. Rev. letter
R.S.D.R.

Professor G.E. Uhlenbeck,
University of Michigan,
Ann Arbor, Michigan.

Dear Professor Uhlenbeck:

At the Annual Meeting of the Society in Cambridge to be held just after Christmas there is a proposal that we make an experiment of having a sectional meeting on the Theory of Probability. This would probably come on Wednesday morning, December 27, and there would be another section of the Society meeting at the same time.

Tentatively we have decided to have five speakers, each to take approximately twenty minutes and with ten minutes allowed for discussion of each paper. Professor Wiener of the Massachusetts Institute of Technology, Cambridge, Massachusetts, will probably talk on The Brownian Motion, both the mathematical and physical aspects, and Professor Hopf of the same institution on Remarks on Causality and Probability. Professor Felix Bernstein of Göttingen and Columbia Universities will be asked to speak on Probability in Natural Science and Dr. Jessen of Copenhagen, who is at the Institute for Advanced Study at Princeton this year, on Some Analytical Problems Relating to Probability. It may be that your subject would be something like the following: Probability and Quantum Theory.

I take pleasure in inviting you to be one of the five speakers at this meeting. You will doubtless confer with Professor Wiener before making final plans for giving your talk; he is more or less in charge of the organization of this particular program. And I am requesting Professor Struik who has a lively interest in this field to write to you to second my invitation. In case you find yourself in a position

to accept this invitation, I should like to have the exact title of your paper in my hands by November 22. You may wire me collect if you find that desirable.

If our tentative plans can be carried out, I judge that we will have a most interesting program and that it will arouse considerable interest.

Sincerely yours,

R.G.D. Richardson,
Secretary.

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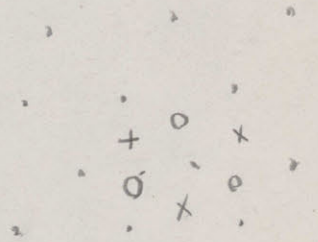

AMERICAN MATHEMATICAL SOCIETY
501 WEST 116TH STREET
NEW YORK CITY

R. G. D. RICHARDSON
SECRETARY

BROWN UNIVERSITY
PROVIDENCE, R. I.

November 17, 1933

Professor Norbert Wiener,
Mass. Inst. of Tech.,
Cambridge, Mass.

Dear Wiener:

I have called F. Lewy's case to the attention of several persons. Kline says that algebra is strongly enough represented down there with Neother, Mitchell and Brinkmann.

I am enclosing herewith a copy of a letter that I have just written to Kline which may contain some information which would interest you. Some of it has just come to my desk this morning.

As soon as this matter about probability is arranged, I shall send some information to the Physical Society for their problem and also send special news to the A.A.A.S. I hope we can push it along rapidly. Yesterday I sent you a copy of a letter I wrote to Uhlenbeck.

Cordially yours,

R.G.D. Richardson,
Secretary.

rgdr:a

encs.

46 Park Place, Princeton N.J.
November 19, 1933

Professor N.Wiener,
The Mass.Institute of Technology,
Cambridge, Mass.

Dear Professor Wiener:

Many thanks for your letter and for the proofs of the PZW paper; I shall be glad to send you my notes for the talk at the Christmas meeting as soon as I have them ready. By the way, have you noticed how the Lebesgue measure and integral has been made the fundamental notions in Kolmogoroff's Grundlagen der Wahrscheinlichkeitsrechnung.

I have been reading your Differentialspace and the later papers on the same subject for some time and there is a point which I should like to discuss with you. You consider all functions (continuous and discontinuous) in the interval $0 \leqq t \leqq 1$ for which $f(0) = 0$ and define a quasiinterval by

$$\begin{matrix} a_1 < f(t_1) < b_1 \\ \cdots\cdots\cdots\cdots \\ a_n < f(t_n) < b_n \end{matrix} \qquad \text{where} \quad 0 < t_1 < t_2 < \cdots < t_n \leqq 1.$$

The measure of a quasiinterval is defined as

$$\pi^{-\frac{n}{2}} \left(\prod_{\nu=1}^{n} (t_\nu - t_{\nu-1}) \right)^{-\frac{1}{2}} \int_{a_1}^{b_1} \cdots \int_{a_n}^{b_n} du_1 \cdots du_n \, e^{-\sum_{\nu=1}^{n} \frac{(u_\nu - u_{\nu-1})^2}{t_\nu - t_{\nu-1}}}$$

where t_0 and u_0 stand for zero. Starting from this you make a mapping of all the continuous functions (or at least practically all) on an interval of length 1 and then afterwards you use this mapping to give a definition of Lebesgue measure in functional space. Evidently the set af all discontinuous functions gets the measure 0 in this way since the discontinuous functions are not mapped at all.

I have considered whether it is possible without too much trouble to develop the theory of measure in your space in such a way that especially its independence of the choices by the mapping becomes clear. At the same time I wished to make it clear for myself in which sense it is true that the set of all disconti-

nuous functions form a null-set. I think the most natural way is to follow the old Lebesgue definitions. Denote by E the functional space considered and consider for any set A in E all coverings of A by means of a finite or enumerable number of quasiintervals; form for any such covering the sum of the measures of these quasiintervals and denote finally by m^*A (the outer measure of A) the lower bound of these sums. Define the inner measure by $m_*A = 1 - m^*(E-A)$. Now it must of course be proved that always $m_*A \leq m^*A$; this is not too difficult. Finally call A measurable when $m_*A = m^*A$ and let this value be the measure mA of A. Then it can easily be proved that this mA is the old mA if A is a quasiinterval and also that this measure has all the properties of the usual Lebesgue measure.

The problem is now: Is the set D of all discontinuous functions a null-set? If I am not mistaken the answer is no. Considering the matter I found that we have $m^*D = 1$ and $m_*D = 0$. In other words the set of all continuous functions, call it C, is not measurable; we have only $m^*C = 1$ and $m_*C = 0$. How can this fit with your results? I think the answer is that the measure you introduce, which I shall denote by μA, is not the measure I have just defined copying the Lebesgue definitions, but the following: μA is said to exist if there exists a set B, measurable in the above sense, such that AC = BC (that is the continuous functions in A and B are the same); in this case we write $\mu A = mB$. It is clear that this measure μA has also all properties of the Lebesgue measure and now we have clearly $\mu D = 0$, $\mu C = 1$.*)

It should be observed that if you consider only those functions which are discontinuous in one single point (or in some point of an enumerable set) this set of functions will be a null-set in the first sense of the word (its m-measure will be zero). It is this theorem to which you appeal in the PZW paper.

Another way of obtaining the μ-measure is simply to consider from the beginning only continuous functions, that is to start from C as the functional space considered. Then copying again the Lebesgue definitions you get (now only for subsets of

*) In just the same way you could get a measure μA in E with $\mu D = 1$, $\mu C = 0$.

Novbr.19,1933.

6) an outer measure $\mu^* A$ (which is clearly the same as $m^* A$) and an inner measure $\mu_* A = 1 - \mu^*(C-A)$ (which is different from $m_* A$). Again $\mu_* A \leqq \mu^* A$; if $\mu_* A = \mu^* A$ we may call A measurable with this value as its measure μA. Your measure in the space $E = C+D$ is now obtained in the following way: A set A in E is called measurable if the set AC of continuous functions in A is measurable and in this case μA is defined by $\mu A = \mu AC$. This clearly gives $\mu D = 0$.

It seems to me an interesting remark, that in the space E with the first definition of measure as simple sets as C and D turn out to be non-measurable.

I hope that what I have said here is right; if you think there is any interest in writing it down I could easily do so; then it would turn out whether I have made any mistake.

With kind regards I remain,

Yours sincerely,

Børge Jessen.

Børge Jessen.

Riga, Kurmanova iela 11 dz. 10.
Latvia.
November 20, 1933.

Dear Professor Wiener,

Being interested in your researches on Quantum Mechanics and harmonic Analysis I should be much obliged if you would kindly let me have the following papers: 1). Math. Z. 24 (1925) pp. 575-616, 2). Publ. Math. Inst. Techn. Nr 83, 99, 103, 107, 108, 109, 119, 120, 121, 122, 125, 133, 136, 140, 145, 166, 178, 179.

Thanking you in anticipation, I am,
yours very faithfully
Eugen Leimanis.
Assistant at the Univ. of Latvia,
Riga.

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Union postale universelle

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PASTKARTE CARTE POSTALE

Z. Amerikas Sav. valstis.

Professor N. Wiener,

Massachusetts Institute of Technol.

Depart. of Mathematics.

Cambridge (Mass)

U.S.A.

Columbia University
in the City of New York

DEPARTMENT OF ZOÖLOGY

November 20, 1933

Professor Norbert Wiener
Department of Mathematics
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Professor Wiener,

Thank you very much for your letter of November 14th. I am sorry to have been so delayed in sending you an answer.

The title you suggest, "Probability in the Natural Sciences", is excellent. Perhaps it would fit even a little better on your program if we should say "Principles of Probability in the Natural Sciences." The principles are, indeed, not very much considered, and I would like to stress this view-point a little more in my lecture. Let us then say "Principles of Probability in the Natural Sciences."

Very sincerely yours,

Felix Bernstein

-COPY-

Ann Arbor, November 18th, 1933.

Professor R. G. D. Richardson,
Brown University,
Providence, R. I.

Dear Professor Richardson,

I feel greatly honoured by your invitation to be one of the speakers on the sectional meeting on the Theory of Probability. The program seems to me very interesting, and I am certainly planning to attend the meeting. As for being one of the speakers, I will be glad to accept your invitation with two provisions.

First I am not sure if your meeting does not conflict with a symposium on the positron that the Physical Society has organized, and where I will be one of the speakers. I accepted this already some time ago, so that in case of a conflict, I have to refuse your invitation. I don't think there will be a conflict, because as I remember the date for the symposium was December 29, but I am not sure and I can't find it out here in a short time.

Second, I don't want to give a general talk on Probability and Quantum Theory, because I don't feel competent for it. Much better would be to try to get for this general subject von Neumann from Princeton. So if this is the thing you want, I am sorry, but I would have to refuse to speak, although I will be glad to attend the meeting and eventually will take part in the discussion. I could give a much more special talk on some work which I have been doing in the last year, and which I think has also some interest from the pure mathematical standpoint. The title would be something like the following: "The probability of position in a canonical ensemble". I will consider then especially the relation between the expression quantum mechanics gives for this probability and the one which follows from the classical statistical mechanics. If this seems too special or too much only of interest for physicists, please tell me so frankly. I can quite understand if you or Professor Wiener feel that my subject would fall too much outside the scope of the other lectures.

Thanking you again for your kind invitation, I remain sincerely yours,

(Signed) GEORGE E. UHLENBECK

GRADUATE SCHOOL
BROWN UNIVERSITY
PROVIDENCE, RHODE ISLAND

November 21, 1933

Professor Norbert Wiener,
76 Cross Street,
Belmont, Mass.

Dear Wiener:

By air mail special delivery I have just received a letter from Uhlenbeck as per the enclosed copy. I have talked with Tamarkin about the matter and while he is not especially enthusiastic about the topic, he thinks it would do. We have had von Neumann before and it is too late to invite him anyway. On the whole I would be in favor of going ahead with this program.

I wish you would talk to your group there and call me up either this evening around 9 o'clock (Plantations 5692), or in my office tomorrow morning between 9 a.m. and 10:30 a.m. (Gaspee 6771) and have the charges reversed. I want to send off this program to the Physics people and to the A.A.A.S. tomorrow so that they can make whatever reference to it that they deem wise.

Cordially yours,

R.G.D. Richardson,
Dean.

rgdr:a

enc.

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-COPY-

Ann Arbor, November 18th, 1933.

Professor R. G. D. Richardson,
Brown University,
Providence, R. I.

Dear Professor Richardson,

I feel greatly honoured by your invitation to be one of the speakers on the sectional meeting on the Theory of Probability. The program seems to me very interesting, and I am certainly planning to attend the meeting. As for being one of the speakers, I will be glad to accept your invitation with two provisions.

First I am not sure if your meeting does not conflict with a symposium on the positron that the Physical Society has organized, and where I will be one of the speakers. I accepted this already some time ago, so that in case of a conflict, I have to refuse your invitation. I don't think there will be a conflict, because as I remember the date for the symposium was December 29, but I am not sure and I can't find it out here in a short time.

Second, I don't want to give a general talk on Probability and Quantum Theory, because I don't feel competent for it. Much better would be to try to get for this general subject von Neumann from Princeton. So if this is the thing you want, I am sorry, but I would have to refuse to speak, although I will be glad to attend the meeting and eventually will take part in the discussion. I could give a much more special talk on some work which I have been doing in the last year, and which I think has also some interest from the pure mathematical standpoint. The title would be something like the following: "The probability of position in a canonical ensemble". I will consider then especially the relation between the expression quantum mechanics gives for this probability and the one which follows from the classical statistical mechanics. If this seems too special or too much only of interest for physicists, please tell me so frankly. I can quite understand if you or Professor Wiener feel that my subject would fall too much outside the scope of the other lectures.

Thanking you again for your kind invitation, I remain sincerely yours,

(Signed) GEORGE E. UHLENBECK

EDWARD B. PASSANO, *President*

ROBERT S. GILL, *Secretary-Treasurer*

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ADDRESS REPLY TO
MT. ROYAL AND GUILFORD AVENUES
BALTIMORE

November 24, 1933

Prof. Norbert Wiener,
Mass. Institute of Technology,
Cambridge, Mass.

Dear Professor Wiener:

We are sending you under separate cover the introductory bow of the newly organized Philosophy of Science Association, the aims of which are described in the enclosed circular.

We would appreciate your criticism of this issue and suggestions on the program for the Association and future issues.

Very truly yours,

THE WILLIAMS & WILKINS COMPANY

THE INSTITUTE FOR ADVANCED STUDY
SCHOOL OF MATHEMATICS
FINE HALL
PRINCETON, NEW JERSEY, Nov. 26. [1933]

Address:
162, LIBRARY PLACE, PRINCETON, N.J.

Dear Wiener!

Returning to Princeton I looked up my reprints, and found, that I had sent you reprints of the following papers (last year):

1.) Proof of the Ergodic Hypothesis (Proc. Nat. Ac.)
2.) Phys. Applications of the Erg. Hyp. (dito)
3.) Dynamical Systems of continuous spectra } (dito)
4.) Über einen Satz von H. Stone (Annals of Math.)
5.) Sätze über messbare Abbildungen (dito)
6.) Operatorenmethoden in der klassischen Mechanik } (dito)

Is there anything else I may send to you? On operators or group theory? Please let me know occasionally!

On the other hand I found, that I had absolutely no reprints of you! I would be very happy, if you would send me reprints of anything you can spare!

I just wish to tell you, how I enjoyed the stay in Cambridge, and before all the opportunity to talk to you. I hope, we will meet soon again.

Wist best greetings Yours very truly
John von Neumann

THE LONDON MATHEMATICAL SOCIETY.

HON. TREASURER:
DR. A. E. WESTERN.

35 ESSEX STREET,
STRAND,
LONDON, W.C.2.

27th November 1933.

Dear Sir,

I thank you for your letter of 15th inst. enclosing $6 in Notes in payment of your Subscription. I enclose a formal receipt for this sum and will credit you with the proceeds in due course.

In reply to the last sentence of your letter, it would be more convenient if you remitted your Subscription by means of a cheque drawn by an American Bank on a Bank in London for £1.1.0. sterling. Or, alternatively, you could make the payment by means of an International Money Order for £1.1.0.

I am,

Yours faithfully,

A E Western

P.S. May I remind you that the Subscription for the current Session is due on 1st instant, and should be paid on or before 1 January 1934.

a E W.

Dr. Norbert Wiener, Esq.,

27th November 1933.

Dear Sir,

I thank you for your letter of 15th inst. enclosing £6 in Notes in payment of your Subscription. I enclose a formal receipt for this sum and will credit you with the proceeds in due course.

In reply to the last sentence of your letter it would be more convenient if you remitted your Subscription by means of a cheque drawn by an American Bank or Bank in London for £1.1.0. Alternatively, you could make the payment by means of an International Money Order for £1.2.0.

I am,

Yours faithfully,

P.S. May I remind you that the Subscription for the current Session is due on 1st instant, and should be paid on or before 1 January 1934.

Dr. Norbert Wiener.

No. 36

THE LONDON MATHEMATICAL SOCIETY.

Hon. Treasurer, Dr. A. E. WESTERN, 35 Essex Street, Strand, London, W.C.2.

27 NOV. 1933

RECEIVED of Dr N. Wiener,

the sum of Six Dollars (American) *being* on account of *his Subscription*

due November, 1932

£$6:00 :

a E Western

Hon. Treasurer.

W. E. BEATTY
PATENT ATTORNEY
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LOS ANGELES, CALIFORNIA
ROOM 303—6362 HOLLYWOOD BLVD.
HOLLYWOOD, CALIFORNIA
GLADSTONE 4025

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REPRESENTING
UNITED RESEARCH CORPORATION
41-39 THIRTY-EIGHTH STREET
LONG ISLAND CITY,
NEW YORK

November 28, 1933.

Dr. Norbert Wiener,
Mass. Institute of Technology,
Cambridge, Massachusetts.

N. Wiener and Y. Lee
S.N. 560,716

Dear Dr. Wiener,

Enclosed is a copy of the office action dated November 21, 1933.

I think the invention is very well protected by the large number of claims which have been allowed and I am in favor of cancelling claims 31 to 35, which will put this case in condition for an allowance.

Your comments will be appreciated.

Very truly yours,

W. E. Beatty

WEB/b

Div. 65 Room 5624 Paper No. 12

Nov. 21, 1933.

William E. Beatty,
6362 Hollywood Blvd.,
Room 303,
Hollywood, Calif.

Applicant: N.Wiener and Y.W.Lee
Ser. No. 560,716
Filed Sept. 2, 1931.
For Electrical Network Systems.

Responsive to Amendment filed July 17, 1933.

Additional references made of record:

Zobel 1,644,004 Oct. 4, 1927 178-44-2

Claims 20, 21, 22, 26, 27, 28, 29 and 30 may be allowable as at present advised.

Claim 31 is rejected as unpatentable over Zobel 1,724,987 of record in view of Zobel 1,644,004. The input impedance of the networks shown in Zobel 1,724,987 will be very nearly equal to R, a simple resistance. These filters may be connected to receive input from a line or other transducer of resistance R and the filter output may be connected to receiving apparatus of resistance R. Furthermore, in the mathematical relationships set forth in Zobel's specification, the impedances are to be considered as variable quantities. The patent to Zobel 1,644,004 is relied upon for its disclosure of a network provided with adjustable impedances. In view of this disclosure, it is held that it would not involve invention to make the impedances of Zobel 1,724,987 adjustable in a similar manner. Claims 32,33,34, and 35, lines 2-3, the significance of the parenthesis marks is not apparent and it is believed that the same should be cancelled to make the claim clearer in meaning.

Claims 32,33,34, and 35 are each rejected on the same references and reasons as presented against claim 31. Lines 3-5 of claim 32 inclusive represent a functional difference unsupported by a proper structural foundation. The last four lines of claims 34 and 35 are functional for the same reason.

Claims 37-40 may be allowable as at present advised.

Claims 43-45 may be allowable as at present advised.

Examiner.

SCIENCE SERVICE

THE INSTITUTION FOR THE POPULARIZATION OF SCIENCE ORGANIZED 1921 AS A NON-PROFIT CORPORATION, WITH TRUSTEES NOMINATED BY THE NATIONAL ACADEMY OF SCIENCES, THE NATIONAL RESEARCH COUNCIL, THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, THE E. W. SCRIPPS ESTATE AND THE JOURNALISTIC PROFESSION. WATSON DAVIS, DIRECTOR.

TWENTY FIRST AND CONSTITUTION AVENUE

WASHINGTON, D.C.

November 28, 1933

Prof. Norbert Wiener
Massachusetts Institute of Technology
Cambridge, Mass.

Dear Professor Wiener:

A sheet from one of our daily news reports on science prepared for newspapers and magazines is enclosed because of your connection with one of the items that it contains.

Science Service issues more than seven regular syndicate services which carry to over ninety subscribing newspapers and other publications in this country and abroad, authentic accounts of current scientific progress in all fields.

I thank you for the aid and cooperation that you have shown Science Service. If you will continue to keep us in touch with your own work and that of your associates we shall value this aid to our work of science popularization.

Sincerely,

Watson Davis

WD:ll

Managing Editor.

P.S. If you are not acquainted with Science Service's weekly magazine, Science News Letter, I invite you to enroll for a special introductory subscription. Our various reports prepared for newspapers cannot be sent to individuals. Science News Letter was established as a magazine without republication privileges in response to requests from scientists and others.

W.D.

SCIENCE TODAY

Daily Feature Nov. 25,1933
SCIENCE SERVICE Washington,D.C.

For use Wednesday, Nov. 29, or after

ENERGY IN THE ATOM

By Science Service

A most important scientific quest now in progress is typified by the 10,000,000 volt Van de Graaff electrostatic generator just (Editors: On Tuesday, Nov. 28) given its full voltage tests in an airship dock at Round Hill, Mass. This gigantic machine, capable of snatching electricity from the earth and building it up to the highest man-made voltage, may itself be the instrument for the realization of a scientific dream of modern alchemy, the obtaining of power from the atom, the useful conversion of matter into energy.

For over a decade there has been serious, definite hope for the practical tapping of the energy of the atom. Frankly, that is one of the strong reasons why in a dozen centers of scientific research high voltage machines are being built and the atom is being bombarded. That is why President Karl Compton, the physicist-president of the Massachusetts Institute of Technology, has pushed to completion the novel electrostatic generator invented by young Dr. Robert J. Van de Graaff.

The prediction of energies from atomic transformations rests upon an equation, the product of Einstein's genius, perhaps the most important consequence of his whole theories of relativity. It is, the physicists say in their symbol shorthand, E is equal to M c squared. In plainer language, energy is equal to the product of mass times the square of that great constant, the velocity of light. Energy is expressed in ergs and mass in grams. This means that mass and energy are interconvertible and that if mass disappears, energy takes its place.

Immense are the stores of atomic energy. The annihilation of one pound of matter, Dr. Compton has computed, would create enough energy to heat one hundred million tons of water from freezing to boiling temperatures. Or as Prof. Norbert Wiener of M.I.T. has put it, a pound of matter has 11,300,000 kilowatts of energy in it, while a pound of gasoline as used in an internal combustion engine has at most about one kilowatt hour. The ratio is so enormous, Prof. Wiener points out, that if even a modest part, an almost microscopic part, of the energy in matter can be made available for mechanical use, all other forms of energy storage, such as fuels, explosives, dammed water, storage batteries, etc. would be put far in the shade.

Some hint that physicists are on the right track of mass-energy when they bombard the atom came from the famous experiments of Cockcroft and Walton at Cambridge, England, who transmuted lithium into helium with a release of energy, but the percentage of hits scored by their projectiles flung at the atoms is so small as to be discouragingly useless.

A real industrial revolution, compared with which the present economic consequences of machines and energy replacing labor are mere minor adjustments,

would result from a practical release of atomic energy. Continuous flight over continents and oceans would become commonplace. Coal mines and oil wells would be valueless. Dams and electrical transmission lines would be as outmoded as stage-coaches. Unusual metals now expensive to extract from plentiful raw materials would become cheap. International planning of economic and industrial life would be necessary, conventional economics would be destroyed, and if man did not master the consequences of cheap atomic energy the world would be plunged into a great sociological disaster.

----WD----

The Public's Way to Science

SCIENCE SERVICE is the unique institution established for the purpose of disseminating scientific information to the public. It acts as a liaison agency between scientific circles and the world at large. It interprets original research and reports the meetings of learned societies in a way to enlighten the layman. The specialist is likewise a layman in every science except his own and he, too, needs to have new things explained to him in non-technical language. Scientific progress is so rapid and revolutionary nowadays that no one can keep up with it without some means of keeping in close contact with its new ideas and discoveries. Science Service provides life-continuation courses in all the sciences for newspaper readers without tuition fees or entrance examinations.

In a democracy like ours it is particularly important that the people as a whole should so far as possible understand the aims and achievements of modern science, not only because of the value of such knowledge to themselves but because research directly or indirectly depends upon popular appreciation of its methods. In fact the success of democratic institutions, as well as the prosperity of the individual, may be said to depend upon the ability of people to distinguish between science and fakes, between the genuine expert and the pretender.

Science Service spares no pains or expense in the endeavor (1) to provide the best possible quality of science popularization (2) to get to the largest possible number of people. If in doing this it makes both ends meet, so much the better. If not, it does it anyway.

Through the endowment by the late E. W. Scripps, Science Service has been assured of such financial support as to insure its independence and permanence. Mr. Scripps' long and wide experience as a newspaper editor and proprietor convinced him of the importance of scientific research as the foundation of the prosperity of the nation and the guide to sound thinking and living. He realized the need for an independent agency that would bring the results of research to the attention of the entire people so these could be applied to the solution of their personal, social or political problems.

Science Service was organized in 1921 as a non-profit-making corporation. Science Service is conducted on business principles and all receipts are devoted to the diffusion of knowledge and the developing of promising methods of popular education.

Science Service is under the control of a board of trustees composed of nine scientists and six journalists. The leading national organizations of all the sciences, the National Academy of Sciences, the National Research Council, and the American Association for the Advancement of Science, appoint three trustees each.

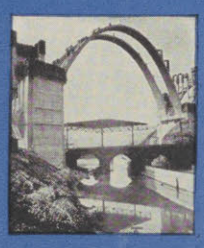
Science Service enjoys the cooperation of scientists and scientific institutions throughout the world. It welcomes suggestions and information. Although not a medium for the primary publication of original research, Science Service desires to receive copies of research reports, addresses and papers. When communication is urgent, any scientist is authorized to telegraph Science Service, Washington, D. C., using press rate collect.

Science Service invites editors of newspapers, magazines and other publications to avail themselves of its product. It invites individuals of the public to cooperate by reading the newspapers and other publications using Science Service. Teachers, students, and individuals specially interested in science are invited to subscribe for the SCIENCE NEWS LETTER and utilize Science Service records and other services that may be made available.

For feeling and reporting the pulse of science day by day, Science Service has a staff of scientist-writers at its headquarters in Washington. Science Service contributors of scientific competence are located in the centers of research in America and abroad. The principal national and international science meetings here and abroad are reported by staff or other scientist-writers. A working information file and library provides quickly the necessary background to the current happenings in science.

Science Service occupies offices in the magnificent building of the National Academy of Sciences and the National Research Council, opposite the Lincoln Memorial, in Washington.

Science Service is not under the control of any clique, class or commercial interest. It is not under the control of any particular publisher or syndicate. It is not a governmental institution, but it is in close contact with the nu-


merous governmental bureaus of research. It is not the organ of any single scientific association. It serves all the sciences. It engages in no propaganda, unless it be called propaganda to urge the value of research and the usefulness of science.

In fulfilling its function as the institution for the popularization of science, Science Service operates as a newspaper syndicate specializing in the field of science, provides science copy to other newspaper agencies, edits books for publishers, provides science articles for magazines, publishes the SCIENCE NEWS LETTER, arranges radio programs, sponsors lectures, produces phonograph records on science, and sponsors research and reporting in the field of seismology, archæology and cosmic data.

The Activities of Science Service

Newspaper Services

Daily Mail Report—A daily syndicated service to newspapers, consisting of brief non-technical news articles on discoveries, inventions and events in the various fields of science, with special reference to their application to industry, commerce and daily life.

Daily Wire Report—Spot news such as new inventions and discoveries, earthquakes, comets, explorations, etc., and the meetings of the larger scientific societies here and abroad are covered by dispatches telegraphed daily to newspapers.

Interpretive Articles—Short, concise articles, interpretive of science today and suitable for editorial or feature page use are issued thrice weekly.

Science Shorts—An assortment of interesting and authoritative short items on science, old and new, issued as a daily feature or for use as fillers.

Feature Series—Sequences of six to ten articles on important and timely subjects, written by eminent scientists or staff writers. Recent subjects of these feature series include: The fight against drugs, Manchurian backgrounds, depression diets, the next great invention, etc.

Map of the Stars—A monthly chart of the heavens which enables the layman to understand and enjoy the beauties of the night sky. Descriptive text accompanies map which is furnished in matrix form.

Preparedness—A preparedness file or "science morgue" is supplied each newspaper using Science Service. This contains authoritative background stories that the course of the news may at any moment make timely.

(The seven newspaper services listed above are supplied newspapers as a unit 7-in-1 service and constitute a complete and authoritative coverage of current science.)

Why the Weather—A daily series of brief authoritative explanations of meteorological phenomena, syndicated to newspapers.

Feature Articles—A weekly Science Service release of a newspaper feature article illustrated with photographs and drawings is distributed as a part of Every-Week Magazine for Sunday newspapers.

Special Newspaper Features—Important events of a scientific nature, such as eclipses, expeditions, explorations, etc., are covered for newspapers in special articles distributed by mail and telegraph.

Other Syndicate Features—Other newspaper features are offered from time to time either produced by the Science Service staff or in cooperation with outside authors.

Books, Radio, Records

Radio—Each Friday afternoon under the auspices of Science Service an eminent scientist talks over the nation-wide network of the Columbia Broadcasting System. Each week more than fifty independent radio stations use a science news talk prepared by Science Service. Science Service has been engaged in the presentation of radio talks on science continuously since the early days of broadcasting.

Phonograph Records—As a new educational tool, Science Service has introduced phonograph records of talks by eminent scientists. These records are long playing, faithful reproductions of the voice and are furnished teachers and others at a cost that should allow their wide use.

Books—Science Service is engaged in writing, editing, revision and criticism of manuscripts for many publishers.

Magazine Articles—Science Service is prepared to supply periodicals of any kind with readable and accurate articles on scientific subjects, written either by its staff or the investigators themselves in any specified style and length and illustrated if desired.

Photographs—Science Service carries in stock for immediate mailing to individuals and newspapers portraits of men and women working in science and a large collection of other scientific photographs.

Research Activities

Seismological Reporting—Instrumental data upon earthquakes recorded at more than thirty seismological stations throughout the world are collected telegraphically by Science Service. These are made available to the U. S. Coast and Geodetic Survey and the Jesuit Seismological Association for the prompt determination of the epicenter and for further investigational use.

Cosmic Data—Science Service receives daily reports from Mt. Wilson Observatory on sunspots, from the U. S. Coast and Geodetic Survey observatory at Tucson, Ariz., on magnetic conditions, from Smithsonian Institution on solar constant, from College of Agriculture and Mines, College, Alaska, on aurora, and from U. S. Bureau of Standards on Kennelly-Heaviside layer heights. These are transmitted by U. S. War Department radio to Science Service, assembled into an ursigram message and distributed by U. S. Navy radio throughout the world.

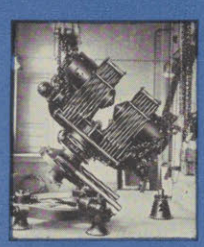
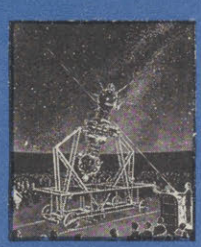
Archæological Investigations—Leading archæologists, anthropologists and geologists throughout the country constitute a corps of "minute men" who investigate for Science Service reported archæological and anthropological discoveries. In this way authentic information on important finds is made available to the public and erroneous reports are corrected.

Research Announcements—The results of Science Service research activities are summarized in mimeographed research announcements issued as necessary and sent gratis to cooperating scientists.

Science News Letter

Each week the current progress of science is summarized in the fully illustrated pages of this concise, easily read and authoritative magazine. It is a quickly read story of what is newest in science. Rarely more than 16 pages large, it restricts the size of its articles to save the time of its readers. It reprints classics of science, reviews new books and serves scientists and non-scientists alike. Its subscription price is $5 a year, special introductory offer, 17 weeks for $1.

Address: Science Service, 21st and Constitution Avenue, Washington, D. C. Watson Davis, Managing Editor.

AMERICAN MATHEMATICAL SOCIETY
501 WEST 116TH STREET
NEW YORK CITY

December 4, 1933.

Professor Norbert Wiener,
Mass. Institute of Technology,
Cambridge, Mass.

Dear Wiener:

One of the most difficult things that we have in the Society is concerned with publicity. The A.A.A.S. always asks for material to be used for the press and generally we have nothing that we feel would be of interest to the people. I think our main trouble is that we have never found anyone who is gifted in the direction of making mathematics spectacular for the people. Bell and Huntington probably could do it, but they are busy with other things. Some day I hope we shall find some person who can serve to advantage.

But I am writing you this note to see if you do not want to attempt something in connection with this publicity. Can't you people at M.I.T. write up a paragraph that would at least seem to the people to be readable and understandable? If so, I would like to have it to send to Mr. Woodley in Washington.

The program went off to the printer on Saturday and I hope it will be in the mails within a week. There are about sixty papers to be read in person and so we had to put an extra session on Tuesday evening.

I am looking forward with great pleasure to the meeting in Cambridge which promises to be quite eventful.

Cordially yours,

R.G.D. Richardson,
Secretary.

RGDR:L

The Gables
Mount Pleasant
Cambridge
Dec 10th 1933

Dear Professor Wiener,

Your most kind letter of sympathy reached me some time ago, & I am sorry I have been so long in replying. I value it greatly & thank you for it very sincerely. It is comforting to hear his friends speak so kindly & appreciatively of my dear husband & his work; and you will allow me to say that he always thought very highly of yours. It was always a pleasure to him to see you whenever you came to Cambridge.

The thought of your last longer visit always calls up pleasant memories in my mind too, of Mrs Wiener, yourself & the children. I hope you are all keeping in good health & that things go well with you in these troubled times. You will have heard from Miss Young before this, & know that she is very happy in her post as Assistant Lecturer at the Royal College of Science in London. She comes & stays with me for a short visit from time to time.

It was very kind of Mrs Wiener to send me her kind greetings & condolences, & I like to think that she remembers me.

Again thanking you both very warmly for your welcome sympathy, & with my best wishes to you all for Christmas & the New Year

Yours sincerely Rosa Hobson.

Please remember me very kindly to your parents.

29/12/1933 TRINITY COLLEGE
CAMBRIDGE

Dear Wiener

I have sent your letter to the Press, asked them to do what they can for you: I said, any odd volumes of math? exam^n papers of an elementary kind. It is a little difficult to know what is the 'entrance' exam^n here — I don't whether, strictly, there is such a thing. But there is, or was, a university exam^n commonly called the 'Little-Go' (= 'Smalls' at Oxf.), and then an entrance exam^ns in Colleges. Most people, however, get in on some other qualification.

I have corrected my notes of Poker, making full use of your material, which, as you said might, I

rearranged, rewarded at my discretion. Fortunately, in the Journal, I am allowed a little more space: say 4-5 pp., enough to quote a number of actual theorems due to P. or to P. and one or other of his collaborators. I regret very much that I never worked with him myself.

I should like to dictate some collaborations: say D. Hilbert, I. J. Schwatt, and W. H. Young. (death penalty if the paper is not finished in 3 months)

Yours very sincerely

G. H. Hardy

Fine Hall, Princeton 14/12 33.

Dear Professor Wiener:

I enclose two copies of my talk at the Christmas meeting. It may be that I change it a little but ostainly not in any essential point. If you have suggestions which might be useful to me I should be very glad if you would let me know. I believe you agree with me in the general remarks with which I begin; did you intend to say precisely the same? At any rate I don't think it will do any harm if it is repeated twice.

I got the impression at the meeting in Harvard that the inequality

$$\int_0^1 \overline{\underset{0\leqq t\leqq 1}{\text{Bound}}}\, |F_t(\chi)|^p\, d\alpha < \left(\frac{p}{p-1}\right)^p \int_0^1 |F(\chi)|^p\, d\alpha \qquad \text{(unless } F\equiv 0\text{)}$$

(where $\chi = \chi(\alpha, t)$ is a random function, $F(\chi)$ belongs to $\mathcal{L}^p$, $p>1$ and $F_t(\chi)$ means $F(\chi)$ integrated „with respect to the behaviour of χ in the interval $(t,1)$") was not familiar to you. I have not worked out the proof in detail but it should run as follows. Take $0 \leqq t_0 < t_1 < \cdots < t_n = 1$ and let α_ν be the parameter with respect to which to perform integration over the behaviour of χ in the interval $(t_{\nu-1}, t_\nu)$. Then we may write $\alpha = (\alpha_1, \alpha_2, \cdots, \alpha_n)$. Also if we write $F(\chi) = f(\alpha) = f(\alpha_1, \alpha_2, \cdots, \alpha_n)$ we shall have $F_{t_\nu}(\chi) = \int_0^1 \cdots \int_0^1 f(\alpha_1, \alpha_2, \cdots, \alpha_n)\, d\alpha_n \cdots d\alpha_{\nu+1}$. This is a function of $\alpha_1, \cdots, \alpha_\nu$ alone but I prefer to consider it as a function of α, constant in the variables $\alpha_{\nu+1}, \cdots, \alpha_n$. Let us denote it $f_\nu(\alpha)$. The above theorem will follow by a passage to the limit from the following lemma:

If $f(\alpha) = f(\alpha_1, \alpha_2, \cdots, \alpha_n)$ belongs to L^p, $p>1$ and if we write

$$f_\nu(\alpha) = \int_0^1 \cdots \int_0^1 f(\alpha_1, \alpha_2, \cdots, \alpha_n)\, d\alpha_n \cdots d\alpha_{\nu+1} \qquad \nu = 0, 1, \cdots, n$$

then

$$\int_0^1 \underset{0\leqq\nu\leqq n}{\text{Max}} |f_\nu(\alpha)|^p\, d\alpha < \left(\frac{p}{p-1}\right)^p \int_0^1 |f(\alpha)|^p\, d\alpha \qquad \text{(unless } f\equiv 0\text{)}.$$

It is sufficient to consider the case where $f(\alpha)$ is real and $\geqq 0$. Put $\underset{0\leqq\nu\leqq n}{\text{Max}}\, f_\nu(\alpha) = M(\alpha)$. We shall prove

$$\int_0^1 M(\alpha)^p\, d\alpha < \left(\frac{p}{p-1}\right)^p \int_0^1 f(\alpha)^p\, d\alpha \qquad \text{(unless } f\equiv 0\text{)}.$$

It is known*) that this inequality is a consequence of the following proposition:

If for a given $B \geq 0$ we denote by E the set of points α where $f(\alpha) \geq B$ we have

$$\int_E f(\alpha)\, d\alpha \geq B\, m E.$$

Denote by E_ν the set of points in which $f_\nu(\alpha) \geq B$. We have clearly

$$E = E_0 + E_1 + \cdots + E_n$$
$$= E_0 + E_0^* E_1 + E_0^* E_1^* E_2 + \cdots + E_0^* \cdots E_{n-1}^* E_n .$$

I have used the star to indicate the complementary set. Write

$$F_\nu = E_0^* \cdots E_{\nu-1}^* E_\nu .$$

This set F_ν has the property that if some point $(\alpha_1, \cdots, \alpha_\nu, \alpha_{\nu+1}, \cdots, \alpha_n)$ belongs to it then any point $(\alpha_1, \cdots, \alpha_\nu, \beta_{\nu+1}, \cdots, \beta_n)$ with the same first ν coordinates will also belong to it. Moreover it contains E_ν. Consequently

$$\int_{E_\nu} f(\alpha)\, d\alpha = \int_{F_\nu} f_\nu(\alpha)\, d\alpha \geq B\, m F_\nu .$$

Adding these relations for $\nu = 0, 1, \cdots, n$ using that the F_ν have no common points we get the result.

The idea of this proof is very similar to that of the proof of Birkhoff's ergodic theorem, but the proof here is somewhat simpler.

With kind regards,

Yours sincerely

Borge Jessen.

*) Compare the last part of a proof of F. Riesz, Journal London Math Soc I (1932), 10-13 with Hardy's inequality (proved simply by F. Riesz, Journal London Math Soc 5 (1930), 167-168).

ANNALS OF MATHEMATICS
FINE HALL, PRINCETON, N. J.

December 22, 1933.

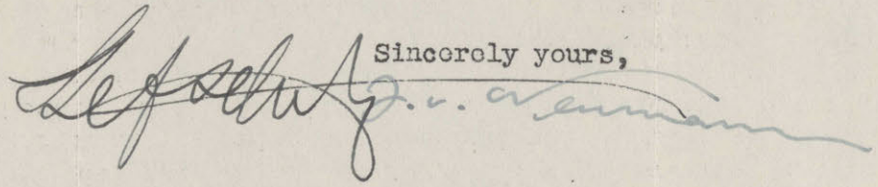
Dear Professor Wiener:

In the course of the past year certain changes have taken place in the management of the Annals of Mathematics which we wish to communicate to our Associate Editors. In the first place, the Institute for Advanced Study is now cooperating with Princeton University in issuing the Annals, and Professor von Neumann of the Institute has become one of the Editors. On the other hand, Professor Hille, by going to Yale University, has had to relinquish his post as Editor, so that the present Editors are Professors Lefschetz and von Neumann. We are keeping Professor Hille as Associate Editor and hope to continue to have his friendly and active collaboration, but those who have known what his untiring devotion has meant for the Annals of Mathematics will realize our loss. We have also added Professors Albert, Morse, Stone, and Zariski to our Board of Associate Editors.

Another major change has been the transfer of the printing of the Annals from Hamburg back to the United States, our new printer being the Waverly Press of Baltimore. The reasons for this move, long overdue, are obvious enough. There is every indication that the new printers will do most satisfactory work. They have eagerly collaborated with us in making a thorough study of the most expedient type, size of page, etc. The minor modifications resulting therefrom will decidedly improve the appearance and durability of our journal, and particularly the latter because of the high rag content in the paper used by the Waverly Press. We may add that the rate compares favorably with the Hamburg rate.

Regarding reprints, after canvassing the situation with some care, we have adopted the following policy: each author is to receive 100 reprints free with covers for articles of 16 or more pages, but without covers otherwise. However, in the future the first page of each paper will bear a note stating the year and number of the Annals in which it appears, thereby reducing the covers to a mere protective device.

Sincerely yours,



S. Lefschetz,
J. von Neumann.

Professor Norbert Wiener,
Cambridge, Massachusetts.

South Jamworth, NH [ca 1932]

76 CROSS STREET
BELMONT, MASSACHUSETTS

[ca 1933]

July 2

Dear Parents:

We are all well & happy. I have had my first hike up north with the Hopes. The house is being fixed over, but more work was necessary on the fireplaces than we had expected.

We shall be ready for you the week of July 10, but not sooner, as the painting inside has not started yet. Even then, you will not find things completely done, but they will be livable, and we want you. Please let us know definitely the day of your arrival, and care of Meredith. We shall make arrangements for fetching you as soon as we know the date.

We have just received an interesting note from Lichtenstein. We shall have a lot to talk over.

We are glad to hear that Dad is getting on so well.

Love

Norbert