April 2 - 1915

Dear Miss Goodell:

Mr Curry is ill in the hospital, therefore he will not be able to see Prof. Reiner for some time.

He was sorry not to have kept his appointment on the 23rd and hopes Prof Reiner recd his telegram to that effect —

He will write at a future date.

Sincerely, Virginia M. Curry

PHILADELPHIA, PA.
APR 2
1 30PM
1945
OAK LANE STA.

THIS SIDE OF CARD IS FOR ADDRESS

Miss Ruth S. Goodevin
Secretary for Prof. Norbert Wiener
Dept of Mathematics
Mass. Institute of Tech. Cambridge 39 Mass.

INSTITUTO NACIONAL DE CARDIOLOGIA
CALZADA DE LA PIEDAD NUM. 300
MEXICO, D. F.

NUM.

EXPEDIENTE

April 12, 1945

Professor H. P. Phillips
Department of Mathematics
Massachusetts Institute of Technology
Cambridge, Massachusetts, USA

Dear Phillips:

This is to tell you that I am safe and sound at the Cardiological Institute in México, after a week with my sister at Washington University. It may interest you to know that Arthur Compton is likely to become President of the Washington University and that they are likely to push the growth of the Engineering and Mathematical Departments very much. I also had a talk to the MIT group in Saint Louis.

Here I am having a delightful time. The Cardiological Institute is treating me as a temporary member, actually from courtesy, and nominally, on the chance that I may be able to help them in some of their mathematical problems. Meanwhile, I am learning Spanish and writing my paper for Guadalajara. I saw Manuel the other night together with María Luisa. Manuel, who has become the chief organizer of Mexican science, has pressed me into service for four informal lectures at the University.

The climate here is wonderful and I am enjoying life. When you get a chance to come down here, do. Meanwhile, will you pass the word along to the rest of the Department and to Pitts, that I am alive, well, and happy.

Sincerely,

Norbert Wiener

NORBERT WIENER

Princeton, April 21, 1945.

Dear Norbert,

many thanks for your letter of April 12, it is good to heare from You again.

I think that You did very well in discussing our ideas and plans at Washington U., in the first place I feel that we ought to interest anybody and everybody, and then see what happens - there are and there can be and there should be no monopolies in a new subject like this, and even if it were not so, it would be our function to oppose them. The best way to get "something" done is to propagandize everybody who is a reasonable potential support. In the second place Washington U. may be very much "on the map" in the future.

I am glad to ~~heare from~~ You about Guadalajara, but I haven't hearced from there directly - what is being planned there an when?

I was in Cambridge and saw ~~Taylor~~ R. Taylor and the Tech. mechanico - electronic

analyzer, we spent two days together. It was very interesting, particularly considering what Taylor might do in the future. We should by all means have a talk "à trois".

I think that there is more to learn from Taylor than from Aiken — and not on analyzers only or mainly.

I also had a very pleasant conversation with Dean Harrison. The proposition is certainly very serious and very tempting, but there are a few points which we must still discuss. I suppose that he will tell you about the difficulties. I hope that we will see each other as early in June as possible. I propose to come again to Cambridge a little later, but could you visit us in Princeton earlier?

I am going West in a week, and will be back around May 25 or 30, and I will write to you around May 20 or so — at that time I expect to know my precise time table.

Looking forward to seeing you soon again

I am cordially yours

John.

15-17

WASHINGTON UNIVERSITY

SAINT LOUIS (10)

SCHOOL OF MEDICINE
OSCAR JOHNSON INSTITUTE
EUCLID AVENUE AND KINGSHIGHWAY

May 6 1945

Dear Professor Wiener:-

I have been thinking considerably since your visit about the possible interrelation between the mathematics of mechanical brains and the physiological analysis of the animal nervous system. In fact I am still enthused over the idea, and take the luberty of consulting you about some of the difficulties as they confront a conventional physiologist.

I have been for some time impressed with the limitations of present and prospective physiological techniques in getting beyond the simpler components of the nervous system; and with the probability that beyond the presently forseeable range, another approach will be necessary. I had looked to psychology and psychiatry, with the possibility that behavioral patterns which appear in these realms might be restated in a form in which it would be possible for them to be resynthesized from the physiologically simpler patterns that can be directly studied by neurophysiological techniques.

Perhaps the common terms, in which the range of patterns in which the nervous system is capable of operating, can be described, will be mathematical ones. One complication is that neither physiologists nor psychologists in general are competent to understand, much less use the work involving such a terminology.

This might be all right, let the mathematicians do it, with neurologists to give them the crude data on the nervous system. This would almost demand the type of institute you are driving at. In the mean time the neurologists ought to know what it is about.

I have been reading such papers as I have found on mathematics of the C N S, and I cant understand even the terminology or the notation. I have submitted Pitt's papers to the physiologist best informed on mathematics hereabouts, and he cant understand them either. I am scheduled to write the section in annual reviews of Physiology on nerve and synaptic transmission this year, and I am incompetent to handle this material.

WASHINGTON UNIVERSITY
SAINT LOUIS (5)

SCHOOL OF MEDICINE
OSCAR JOHNSON INSTITUTE
EUCLID AVENUE AND KINGSHIGHWAY

From the fact that in the past four years only one author of this section has mentioned thes papers, and this only in the most cursory manner, I gather that nerve physiologists generall dont know what this stuff is about.

Can this material be put in terms a person not mathematically trained can comprehend, or must we wait for a generation of physiologists to grow up who know mathematics? I am sure present neurologists are not going to learn the mathematics necessary to read such papers. In other words, where can I get some help in writing this review?

Now a second practical point. Speaking recently with Dr Bubb, of our Math Dept, he expressed reluctance to attempt to interest our new chancellor in this matter. As I gather it, he feels that the engineers are doing pretty well without a knowledge of the nervous system, (even their own), and that this proposition is of interest chiefly to neurologists. This represent a considerable change in his attitude since I last talked with him, and I would infer that you might have had experience with engineers which would throw some light on this attitude. I might add that Bubb's son is working on electronic devices, I believe in Vanevar Bush's organisation.

Concerning the action of the nervous system itself, I suppose you are familiar with the work of Cole etal, on the change of resistance of nerve with excitation. If this is the central fact of excitation, something like a grid control acts to change current flow by change of resistance. We have not yet found out what operates the grid.

Anyway, conceived of as a "grid" operated mechanism, there is some evidence that the synapse is not all-or-none, i.e. that it operates over the whole range of the grid-plate characteristic. In other words, nerve networks may consist of alternate series of impulse-generators and accumulators, which discharge into impulse-generators again. I suppose you have such integrators in your mechanical nervous systems. I tried to find them in Pitt's papers, but couldnt detect them.

Finally, the Medical Division of the Rockefeller Foundation , Dr Gregg director,

WASHINGTON UNIVERSITY

SAINT LOUIS (5)

SCHOOL OF MEDICINE
OSCAR JOHNSON INSTITUTE
EUCLID AVENUE AND KINGSHIGHWAY

has been expecially interested in psychiatry. If this proposition were put to him as a possible means of correlating nerve physiology with psychiatry, he might see it. He usually knows the score. Have you talked to him?

Very truly yours,

Bishop

G H Bishop

May 28 1945

Dear Professor Wiener:-

I would indeed be interested in talking with you further, if it could be arranged June 17 or 18. All you would have to do is to let me know where you would be and when, at the station, at Dr Dodges or at my laboratory. I am at your service, and will also anticipate renewing a most interesting acquaintance.

I will be quite frank with you, that what I want to know is what this mathematical approach to neurology is about. My knowledge of mathematics is elementary, I took an engineering course through calculus and Stress and Resistance of Materials in 1910, and since then the notation even has changed materially, and I have not kept up. The younger men in the field will be better prepared of course. I take it I will not be able to keep up technically, and am not suggesting that you give me a course in higher mathematics condensed into a half hour discussion between trains, but rather that we discuss in such terms as we find mutually acceptable the nature of the problems in neurology that are susceptible of mathematical analysis, and the character of the solutions we might expect. This might give me some idea of the type of physiological work which would be appropriate as a parallel to such mathematical consideration.

As to the review of which I spoke, the trouble is that this review is assigned specifically to me, I have to write it. I also would like to see Shannon or anybody else qualified write a review on the subject, and this might be arranged; what I have to do is to include in a general review of conduction and synaptic function the information available on its mathematical treatment. In a sense this information is <u>not</u> available at present to physiologists in general, they cant read it, and I know from enquiry what the attitude is toward this work among the average of neurologists, you are going to need an interpreter, to even sell the idea generally. That might even be a necessary preliminary to the kind of support you are working for now.

Give my regards to Rosenblueth, and I hope he is a better mathematician than I am. By the way, I couldnt find in the Medical Index the paper by Rosenblueth and yourself, and Arturo failed to send me one. Tell him his estimate of my logical perspicuity is probably correct, but as a S American, his diplomatic failure in the protocol of polite exchange of compliments is deplorable. I wont send him my review of Pain. Ask him if the Lady Baltimore tea room is still operating, and what does he think of Argentina as a United Nation? I will see him as soon as the war is over, Mexico is our first stop.

Very truly yours,

Bishop.

G H Bishop
Laboratory of Neurophysiology,
Washington Univ Medical School
St Louis 10 Mo

I. P. N.
ESCUELA SUPERIOR DE INGENIERIA
MECANICA Y ELECTRICA
DIRECCION

Sr. Prof. Dn. Norberto Wiener, Ph.D.

P r e s e n t e .

ALLENDE 38
ERIC. 16-60-08
MEXICO, D. F.

May 18, 1945.

Dear Norbert,

many thanks for your letter of April 27. I am very interested in getting a sample of your program in Mexico; I wish I were there now, and I hope I'll get there before too long — and, better, that we'll get there together some time.

I would also very much like to make the acquaintance of Rosenblueth, I appreciate fully what you say about his rôle.

Much to my regret I cannot now get to Guadalajara — in spite of the geography: I have to be in Washington on May 28 for a meeting. The meetings will obviously stay with us for a while yet, for our sins ...

I will be in Princeton and the East from May 29 on. Couldn't you come through Princeton on your way back? We could have a good talk de rebus omnibus sibiliis et quibusdam aliis. I think that there is no hurry with our plans, but we should keep continuously "at it" in all respects.

We could then discuss our MIT plans, too, I think this is best done orally and there is time for it. The "difficulties" are nothing very tragical, just technical matters. N.B.: Klari and I go to Montreal on June 20 and then to a short vacation in Canada, but I hope to get to Cambridge sometime in July — I am very particularly eager to see R. Taylor at MIT again.

Please return my very best regards to Rosenblueth and remember me to Vallarta.

Wishing you a pleasant stay,
and looking forward to seeing
you again soon

Yours,

John.

I. P. N.
ESCUELA SUPERIOR DE INGENIERIA
MECANICA Y ELECTRICA
DIRECCION

ALLENDE 38
ERIC. 16-60-08
MEXICO, D. F.

México, D.F., a 7 de junio de 1945.

Sr. Prof.Dn. Norberto Wiener,Ph.D.
P r e s e n t e .

Distinguido señor:

La Dirección de la Escuela Superior de Ingeniería Mecánica y Eléctrica, en representación del Personal Docente y de los alumnos, hace a usted presentes sus más sinceros agradecimientos, por haber aceptado la invitación que por conducto del señor Ingeniero Manuel Cerrillo Valdivia, se le hizo para sustentar en este día la conferencia sobre tema tan importante como lo es, "LA SINTESIS DE LOS CIRCUITOS Y LAS CONDICIONES DE SU REALIZACION", que fue escuchada con toda atención por el auditorio.

Esperamos que su estancia entre nosotros le sea grata, y le deseamos que alcance buen éxito en todos los trabajos de su especialidad.

Respetuosamente,
El Director,

Prof. Samuel Rodríguez V.

SRV/jce.

La Escuela Superior de Ingeniería Mecánica y Eléctrica hace patente al señor:

Prof. Norbert Wiener Ph. D

su agradecimiento por la conferencia dictada en su visita a este plantel.

México, D.F., a 7 de junio de 1945.

Prof. Samuel Rodriguez V.
Director.

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12 June 1945

Professor N. Wiener.
Institute of Technology,
Boston,
Mass., U.S.A.

Dear Sir,

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SOCIEDAD MATEMATICA MEXICANA
Calle de Tacuba 5
México, D.F.

Núm. 198/7.2

México, D.F., a 18 de junio de 1945.

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

Personalmente y en nombre de la Sociedad Matemática Mexicana, me es muy grato dirigirme a usted para darle las más cumplidas gracias por el honor que nos dispensó al aceptar la invitación de acompañarnos en el II Congreso Nacional de Matemáticas que se reunió últimamente en la ciudad de Guadalajara, Jal.

Seguramente la presencia del grupo destacado de hombres de ciencia de los Estados Unidos, entre los cuales figura usted de manera brillante, contribuyó al éxito de este evento científico. Espero que esta reunión científica sea motivo de un aumento en las buenas relaciones entre los matemáticos de ese país y del nuestro, y que redunde en beneficio mutuo, especialmente en el progreso de las matemáticas en México.

Aprovecho la oportunidad para reiterar a usted mi amistad y repetirme como su atto. y s.s.

El Presidente,

DR. ALFONSO NAPOLES GANDARA.

ANG/js.

MOUNT HOLYOKE COLLEGE
SOUTH HADLEY, MASSACHUSETTS

DEPARTMENT OF MATHEMATICS

June 20, 1945

Dear Professor Wiener,

A couple of weeks ago I got from Mr. Fu Traing Wang two mathematical notes, one of which - enclosed here - the author asked me to send to you. He did not say anything about what he would like to have done with this note.

May I add, by way of information, that the other note, which the author wanted me to publish somewhere, has already been published in the March '45 issue of "Duke Journal". Apparently the author has sent it a little long time ago, and not having heard of its publication, sent me another copy. I mention this fact only because, similarly, the note destined for you may possibly have already been published, or is about to be published somewhere.

I hope that you had pleasant time in Mexico. Best regards to you and to Mrs. Wiener from

Yours sincerely

A. Zygmund

INSTITUTO NACIONAL DE CARDIOLOGIA
CALZADA DE LA PIEDAD NUM. 300
MEXICO, D. F.

NUM.

EXPEDIENTE

a 26 de junio de 1945

Doctor Norbert Wiener
53 Cedar Road
Belmont, Mass

Dear Norbert:

It is just over a week since you left and it seems like a long time. I've been missing very much our work, our talks, our discussions, our walks, our chingcheckies, our crossword puzzles, our puns, our everythings !

I hope that you had a very pleasant trip and that you arrived in as good shape as you left us -- meaning nicely, O K, thanks and how are you? It is a little early yet to hear from you, but I'm very eager to learn about your trip and your conversations en route : specially the status of von Neumann's projects and what Mr. Moe had to say about our future plans.

I hope specially that the latter went well because, as far as I'm concerned, I think our work together was so successful that it would be a shame not to renew it and continue it. Indeed, I think it is rather urgent that we go on with what we have started and allied topics, and also that we write that treatise on scientific method that we have spoken about.

I am enclosing our manuscript for your thorough and final perusal You will note that I have added a sizable section on the applicability of our ideas to the physiological data as they stand. Please go over that critically. I also added a figure to discuss a statement of Lewis which I think is wrong. I marked in the margin in red, some questions for you to answer. I hope the arrangements for your operation are going through according to plan. I hope also that it ~~would~~ will be a minor

thing, which I am sure it should be, and that it will not inconvenience you any more than is strictly indispensable to satisfy your Puritan tendencies.

I will be very interested to know what Pitts thinks of our work. Please give him my regards.

I hope Peggy's operation is already satisfactorily over. With our very best to all your family and to you,

Cordially,

Arthur

June 21, 1945

Professor L.L. Silverman
Mathematics Department
Dartmouth College
Hanover, New Hampshire

Dear Silverman:

I just have returned from a delightful trip to Mexico. I think the man you had best get in touch with for orienting yourself in the life of the University is Dr. Carlos Graef Fernandez. I think you can address him care of the Physics Department at the University.

The building in which he has his office is the old mint and I believe the address is Number 5 Calle de Tavuba. He will see to it that you make all other contacts necessary.

Sincerely,

Norbert Wiener

NW:rg

June 21, 1945

Dr. Arturo Rosenbluth
300 Calzada de la Piedad
Mexico D.F., Mexico

Dear Virginia and Arturo,

I arrived here safely day before yesterday. I wasn't able to see Neumann en route but he is likely to be up here in a day or two and anyhow I have learned that negotiations are going on uninterruptedly.

I have definite information about Manuel. The school never received a reply to the letter they sent him inquiring about his pension and while it would be well worthwhile to him to adjust his personal arrangements here he is no longer a member of the Institute or ever will be. This I have from Dean Harrison.

Except for Peggy's operation the family is well. Peggy had her appendix out this morning and is getting along well but the operation was quite necessary and the appendix was in a semi-acute state.

My eye operation will be put off for some months now. In the meanwhile I will have to do full summer work this summer. By the way if my plans should go through down where you are I am quite certain M.I.T. will be cooperative.

deSantillana has not yet gone to Italy. He tells me that the younger Volterra, the son of the older one, may want to send out an invitation to me for Florence in the near future.

I shall spend the summer alone in the city as the family is going up to the mountains. I shall get up when and as I can for a few days. I have plenty of work to keep me busy including war work. Pitts is interested in the possibility that he may run down to you sometime for lab work.

I want to say again how delightful and useful my Mexico trip was and I want to thank both of you for the hospitality, help and guidance you have given me. Gretel is delighted at the state in which you have returned me.

Sincerely,

NW:rg

15-14

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June 30, 1945

IN REPLY REFER TO

Professor Norbert Wiener

REPLYING TO

Massachusetts Institute of Technology

Cambridge 39, Massachusetts

Dear Professor Wiener:

We are giving some consideration to strengthening our applied mathematics group in the Bell Laboratories for the post-war period. Among others, the name of Dr. Bernard M. Friedman, who was, I believe, a student of yours about eight or nine years ago, has been suggested. He seems to have some interest in our work. I wonder what you can tell us about his general competence as a mathematician, and more particularly about his ingenuity and resourcefulness and his probable aptitude in work with a strong flavor of physics or engineering. I am thinking particularly of such fields as electric network theory, non-linear mechanics, and, possibly, miscellaneous analytical studies for fire control apparatus.

There has been some suggestion that Friedman is rather unstable nervously which might interfere with his work or with his relations with other people. Any information you could give us in this matter would be very helpful, and we would, of course, regard it as confidential.

With best personal regards,

Sincerely yours,

Hendrik Bode

Research Mathematician.

HWB:KJ

AMERICAN MATHEMATICAL SOCIETY

J. R. KLINE
SECRETARY

UNIVERSITY OF PENNSYLVANIA
PHILADELPHIA, PA.

July 9, 1945

Dean R.G.D. Richardson
Brown University
Providence 12, R. I.

Professor Norbert Wiener
Massachusetts Institute of Technology
Cambridge 39, Mass.

Dear Colleagues:

Recently Professor Lefschetz resigned as Chairman of the Society's Committee on Visiting Lectureships and included in his letter of resignation a recommendation that this committee be dissolved. I am enclosing a copy of his letter to President Hildebrandt, giving his reasons for the recommendation.

As you two gentlemen are the other members of this committee, I would like to have you express your opinions on the point of view as expressed by Professor Lefschetz.

President Hildebrandt and I intend to present this matter to the Council at its meeting at Rutgers University in September. I shall welcome any comments which you care to make at this time.

Sincerely yours,

J. R. Kline,
Secretary.

JRK:M

June 20, 1945

Dear Hildebrandt:

You have probably heard by now from Kline of my resignation from the Society's Committee on Visiting Lectureships. I wish to supplement this by urging upon you to take due action to suppress this Committee altogether, and for the following reasons. From its beginning two decades ago this Committee has functioned (in a very desultory manner) as impresario for visiting foreign mathematicians. This is a doubtful function for the Society to undertake at best, all the more since tours are easily organized otherwise. We have so many other more pressing problems that we may well leave this one aside.

As I have held the above opinion for many years, I should have refused to serve on the Committee and even more so to serve as its Chairman. I accepted at the time for the following two reasons: (a) Kline told me that you were very anxious to have me take the post and I did not wish to disappoint you; (b) there was a chance of organizing a trip for an old friend, G. H. Hardy, and this was a mitigating circumstance. As it now turns out, Hardy is not coming to Toronto, and I only learned the names of the probable visitors a few days ago. This being too late to organize anything, I felt that now was a good time to follow my initial inclination. As I wrote to Kline, I am now more or less overwhelmed by our local problems and so must abandon as many Committee activities as possible.

Sincerely yours,

S. Lefschetz.

Professor T. H. Hildebrandt
University of Michigan
Ann Arbor, Michigan

CC: Professor J. R. Kline

Department of Mathematics July 10, 1945

Mr. Hendrik Bode
Research Mathematician
Bell Telephone Laboratories
Murray Hill, N.J.

Dear Mr. Bode:

Mr. Friedman is known to me as a first rate mathematician and a very conscientious, hard-working person. I have never had any feeling on my part that he is nervously unstable or that he has any difficulty in working with other people.

I would certainly consider him as a very good acquisition.

Very sincerely yours,

Norbert Wiener
Professor of Mathematics

NW:rg

July 11, 1945

Dear Gretel:

Johnny has been and gone and it looks as though he is in the bag. Everybody is delighted and we are going to go places.

Phil is overworked and a bit under the weather, but it doesn't look very serious. Janet is working around M.I.T. as a bottle washer.

I have an invitation this weekend to see McCulloch at his farm in Connecticut and intend to go. It is emportant to keep fences mended in that direction. I shall be able, by the way, to come up weekend after next.

Toby got me a room at $8. The first night I spent at an inexpensive hotel at $1.50 before I heard from Toby.

Dubois is back here for a visit. Larry made it over to the coast in time but took a bus back and will be several days late. Everything else is going on wheels. Wish I were up with you.

Love to you and the children,

July 11, 1945

Head of the Department of Mathematics
Univ. of California at Los Angeles
Los Angeles
California

Dear Sir:

I wrote at your request some time ago recommendations for Professors Zygmund and Feller for the vacancies concerning which you wrote to me earlier. I hear that both of these men have accepted positions elsewhere and that you have appointed Beckenbaugh. If the other vacancy remains unfilled, could I suggest Dr. Hurewicz as a possible candidate? Hurewicz is a first-class topologist who has recently been working on Ergodic Theory. He has also been employed at the Radiation Laboratory at M.I.T. where he has done important engineering work on servo-mechanisms and electric circuits. You will thus see that he is a many-sided mathematician, both pure and applied.

I regard him as one of the really strong men of the country. I shall see that you get more complete documents concerning him as soon as it is available.

Sincerely,

Norbert Wiener

W/h

July 11, 1945

Professor Bishop
Washington University
St. Louis, Missouri

Dear Dr. Bishop:

I am sorry that the rigidity of schedule caused by a train ticket bought in advance didn't permit me to make a stop over in St. Louis. I intend to give a more detailed answer to the scientific parts of your letter in the very near future. Meanwhile I thank you for what you taught me about the situation at Washington University. It looks very much as if our scientific plans are going through on a full scale at M.I.T. so that the issue of starting something elsewhere does not arise in the same form.

I enjoyed so much my conversation with you and your colleagues in the Medical School. We must renew those acquaintances the next time I come through St. Louis.

Sincerely,

Norbert Wiener

W/h

15-14

July 11, 1945

Dr. Arturo Rosenbluth
Instituto Nacional de Cardiologia
Calzada de la Piedad Num. 300
Mexico, D.F., Mexico

Dear Arturo:

I have had several consultations with von Neumann after coming back and it really looks to me now as if the appointment and his acceptance were in the bag. Neumann is enormously interested in our joint paper and as soon as I get the manuscript I want to pass it on to him. Pitts is also interested. I will say that the value they both place on it does not differ from that which we have placed.

It is quite clear that if the appointment comes through, all of our ideas concerning an organized collaboration between physiological and mathematical subjects will follow as a matter of course. In particular I have had a talk with Moe. Moe wants you to write to him concerning any ideas you may have of coming up here, and I am quite clear from his attitude that there will be no difficulty in getting what you want. Let me know about this at the first opportunity. In addition Moe has sent Pitts application papers for Guggenheim and he is to fill them out now. When he is in a position to, he intends to work partly with McCulloch and partly with you in Mexico if you will accept him, which I told him was a foregone conclusion. We shall be delighted to see you up here. As to Pitts it might be very easily the best time for him to come down to Mexico when we do. Let me know about your opinion of that matter.

We have another windfall. Schrecker, the authority on Leibniz and the former custodian of the Leibniz documents in Germany, wants to come to Tech and work partly with me on the role of Leibniz in connection with modern scientific development. He also intends to give his personal library on Leibniz to M.I.T. This is a great compliment to us. There is Rockefeller money behind this.

I can't tell you how my stay in Mexico contributed to my well-being both personal and scientific. I want to thank Virginia and you again and again for the many things you have done for me. Please remember me to my friends.

Some time next winter Hurewicz who is now working in the Radiation Laboratory wants to come down to Mexico on his own. He is a first-rate mathematician with a very borad scope of ideas and has recently been particularly interested in the Ergodic theory. If you could possibly pass on to Graef or Napoles Gandara that he might well be used for a lecturer, I don't think it would do any harm. He doesn't speak

Spanish as yet but fluent Italian and I think he can very rapidly learn the generalized romance language that Lefschetz uses.

I find that the Institute is going to take a very cooperative attitude about my future scientific travels that I may take. In particular there is some time in the future a possibility that I may go to Europe to give some lectures. Salem is going to France soon and is apparently going to try to see if there is any interest in my ideas at the Sorbonne. De Santillana is in close touch with the younger Volterra the son of the old man who died recently and thinks that some use may be made of me at Bologna. These things are completely indefinite at present and when it comes to a possible trip, my first interest will be to come down with the family in your general direction if it can be arranged.

I believe that I didn't collect all the laundry coming to me in the interns' quarters. At least Gretel observed that I cam home shy about one week's wash. Could you find out if there are any unidentified clothes over there of elephant size? There is very little chance of any question. Please remember me to all my friends around the Instituto and elsewhere. In particular tell your relatives how much I enjoyed meeting them. I want to see more of Emilo in the future. As to the others don't forget your physiological team and Dr. Garcia Ramos and the rest. Tell your secretary too, please, that I haven't forgotten her and her kindness to me. More especially, pass on my gratitude to Dr. Chavez. With best regards from house to house,

Sincerely,

Norbert Wiener

W/h

BROWN UNIVERSITY
PROVIDENCE 12, RHODE ISLAND

July 11, 1945

Professor J. R. Kline, Secretary
American Mathematical Society
University of Pennsylvania
Philadelphia, Pennsylvania

Dear Professor Kline:

I have your letter of June 9 addressed to Professor Wiener and myself and a copy of the letter which Professor Lefschetz wrote to Professor Hildebrandt on June 20, 1945.

This scheme for the Society's Committee on Visiting Lectureships was originated by Professor George Birkhoff. It has proved only a moderate success but in one or two instances, it has been very useful. So far as I know, there is no competent body to arrange tours of mathematicians except this Committee. The Institute for International Education does not know mathematicians and they could not do a competent job.

In the next few years, there will doubtless be a considerable number of mathematicians coming here from foreign countries. Some of these might very well appear at several institutions to lecture. Unless and until some other agency appears to be able to handle such a question, I do not favor abandoning the Society's Committee. This does not seem to me to be the appropriate time to raise the question of the abandonment of this agency.

Cordially yours,

R.G.D. Richardson,
Dean of the Graduate School

RGDR:T
cc. to Professor Wiener

July 12, 1945

Professor J.R. Kline
American Mathematical Society
University of Pennsylvania
Philadelphia, Pennsylvania

Dear Kline:

Enclosed find the abstract of my summer meeting paper. As to the question of the foreign lecturers, I thing it can be left in abeyance. The committee should certainly be continued but its activity should be nominal unless and until an actual case of an available foreign lecturer occurs.

Sincerely yours,

Norbert Wiener

W/h

5000 Broadway
New York 34, N.Y.
July 24, 1945

Dear Prof. Wiener,

You are a successful scientist. I am but a freshmen college student interested in science. Can you tell me from your experience what unanswered scientific problems offer the greatest opportunities for study. For this purpose I have enclosed a self-adressed, stamped envelope. I thank you for your trouble.

Yours very sincerely,

Lawrence Weller

Lawrence Weller

INDIANA UNIVERSITY
BLOOMINGTON, INDIANA

July 26, 1945

Dear Wiener,

It is my intention to recommend Herewig for a professorship here and the administration would be interested in receiving information from the outside concerning him. I would greatly appreciate it if you have time to write such a letter giving not only your opinion of his mathematical ability but any other comments concerning teaching, personality, etc. which you care to make.

With best personal regards, I remain,

Sincerely yours,

Tracy Thomas.

P.S. Please excuse the writing which is due to the fact that the math. sec. is at present strewn with poison ivy.

Department of Mathematics July 26, 1945

Dr. Carlos Graeff-Fernandez
University of Mexico
Calle Tacuba #5
Mexico City, Mexico

Dear Graeff:

I have returned safely to Tech and find the prospect for our future plans very favorable. I can't tell you the details as yet, but it seems as though everything is coming up to my best expectations. In particular the work of Rosenbluth is already interesting such physicists as Gasser and McCulloch. I have already talked with Shapley and he is delighted at the way the Guadalajara meeting came out. If anything comes of your suggestion concerning a future visit, he is likely to be most cooperative with funds over which he has control.

My young colleague, Pitts, will probably obtain a Guggenheim fellowship to go down and work with Rosenbluth as soon as the war is over. It is also likely that Rosenbluth may take a visit to the states some time soon and that we shall continue some of our work up here.

You wanted more or less of a syllabus of what to study in preparation for a hypothetical course which I might give in Mexico. I don't think I can do more than say something about the course I am giving now for people from the Radiation Laboratory. I have started with a discussion of Fourier series from the group point of view. Almost any of the better modern textbooks on group will contain something on the character theory of Abelian groups. I then go on to an elementary study of the Lebesque's integral. You can find what is necessary in Titchmarsh's "Theory of Functions". After that I will take up the fundamental theories of Calculus and the Ergodic theory. Here you can use my paper in the Duke Mathematical Journal together with Hopf's little book in the Ergebnisse Series. From that I am going on to the final non-linear prediction theories. I think I gave you a ms. on that for the bulletin of your Society. I shall proceed to a discussion of the linear prediction theory. By that time I hope to be able to send you two government pamphlets on that subject; one by myself and one by Levinson, but I don't think I can get them out of the country at present. I shall have a good deal to say about probability as Lebesque measure and about random functions. There is something about random functions in my book with Paley on the Harmonic Analysis in Random Plane and something more in my Fourier Integral book. After that I shall go into a good deal of discussion of zeros of Random Functions as this is an interesting field. There is a series of three articles by a man named Rice in the Bell System Technical

Journal which covers this field. Two are out , but I think the third has not yet been published. I shall go into filter theory too to a considerable extent. There is a book on filter theory which is being published by Bode from the Bell Technical Laboratory and if you write to him, he can tell you how to get it. He is direcotr of mathematical research for that organization. In addition, as Mr. Cerillo will tell you the standard book is that of Guillemin on Circuit Analysis in two volumes.

There is no published work as far as I know on the general design of computing machines, but if you write to Mr. Walter Pitts, care of the Mathematics Dept., M.I.T., I am sure you can get his reprint concerning the Application of Algebra of Logic to Nerve Networks. There is also an interesting paper by Dr. Warren McCulloch of the University of Illinois Medical School on Synapse questions in the Bulletin of Mathematical Biophysics in a very recent number. I would suggest by the way that you try to get a file of these publications. In addition if you want to prepare the students they should have an elementary knowledge of the algebra of logic such as can be obtained from Birkhoff and McLane's Modern Algebra. If Birkhoff comes down you will be able to get direct information from him. I think you will see how to organize a preliminary course on the strength of this. There should be a good deal of emphasis of the real variable and measure theories and on the study of trigonometric functions. A certain amount brai n theory will be needed but this minimal. If you can give the Ergodic theory in your course but that is not necessary as I can handle that when and if I come.

I am quite certain that if there should be any question of my coming down again, M.I.T. will be very cooperative. We have very big plans for this department and are developing them in the most liberal spirit.

With best wishes to Mrs. and Miss Graeff, Napoles-Gandara, Monjes-Lopez, and Barrajas, and all other friends in Mexico, I remain,

Sincerely yours,

Norbert Wiener

W/h

Department of Mathematics July 26, 1945

Professor Manuel Vallarta, Director
Instituto Poletechnica
Mexico City, Mexico

Dear Manuel:

I had hoped to see you here in Cambridge on your way back from Moscow. I saw Shapley and he spoke very much of his conversation with you. I want to thank you enormously for all you did for my Mexican stay and to tell you that it has been one of the high points in my life. We all of us are hoping that you can visit here soon and that you don't put it off very long. I have been talking with the whole Physics group and they miss you very much.

I have written a letter to Graeff about what preparation would be necessary make a course by me profitable. By the way the paper that Rosenbluth and I did is exciting much interest and curiousity in physiological circles. McCulloch and Gasser are very much interested in it.

The family is up in the country while I am teaching a summer course. Margaret and the children want to be remembered to Maria Luisa and hope for the time when we can see one another on the other side of the frontier.

Sincerely yours,

Norbert Wiener

W/h

Department of Mathematics July 26, 1945

Mr. Lawrence Weller
5000 Broadway
New York 34, New York

Dear Mr. Weller:

You will understand that if I am recommending unanswered scientific problems which offer great opportunities for study, I cannot hope to say which offer the greatest opportunities nor can I tell you anything that will not be colored by my own personal interests. However, I do happen to have in view certain fields which are obviously going to be important in the near future and which I have an interest in developing. One of these is the region in which physiology and mathematics come together. In particular, both in the nervous system and in such muscular systems as the heart, we possess at present a great deal of information as to the mode of action of the individual nervous and muscular fibers and of the mode of interaction of individual fibers where they make contact with one another. We possess, however, far too little an acquaintance with the way in which these elementary actions pile up into an organized behavior. The problem is in part statistical involving the same type of considerations as occur in statistical mechanics and the kinetics of gases, but we have neither an adequate mathematical knowledge of this requirement nor adequate experience to proceed on. The study of histology or the microscopic matter of tissues is primarily a statistical study but has never been adequately studied from this point of view. It is from this discussion that we must look for a lot of information as to organization in living tissue.

There are other biological fields which are developing rapidly at the present time. Professor Schmitt of M.I.T. has been making use of the electron microscope to give information both of the Chemistry of tissue and their ultra-fine histology. This is a field in which knowledge of biology of physics and of mathematics are simultaneously needed not to mention biochemistry. As a matter of fact in the biological sciences of the future so much work is going to be done with electronic instruments that no first-rate biological scientist of this generation cannot afford not to understand his biological tools and to have a thorough basis in physics.

Closely related to the problem of the analysis of organization in living tissue is a problem of the synthesis in organization in such devices as computing and control machines. Here at M.I.T. we are starting a program which will lead to the simultaneous and connected study of the two types of questions I have just mentioned. By the time you will be prepared for graduate work, both directions of study will probably be in full swing.

Closely related to these fields is a revision of statistical theory in which the procession of events in time is fully considered. I know we are going into this in a big way concerning government planning in England after the war.

In mathematics and physics themselves there is a general feeling that we have already got the most out of linear problems where cause and effect are proportional. The non-linear problems, however, remain very imperfectly understood. As emphasis of these let me mention the problem of turbulence in gases and liquids, the problem in regard to the state of the gas and the problem of shock waves. I know that mathematicians and physicists such as Prof. John von Neumann of the Institute of Advanced Study at Princeton are very much interested in these problems.

Now as to the preparation of work in these fields, you will need a good background in physiology and, or, engineering as they now exist. You will need a thorough foundation in mathematics devoted very largely to theories of complex and real variables and trigonometric developments. You will want an acquaintance with the present state of statistical theory and most of all you will want a readiness to go into any problems by unconventional methods.

You have not stated to me at what school you are now studying. If you do, I might give you more suggestions concerning the individuals at the school from whom you can get a profitable start in these directions. 5000 Broadway sounds rather like Columbia University. If I am right in my interpretation, a good man to get into contact with in these matters would be Professor Meyers of the Chemistry Department. If you are at City College, I do not know of what individual you can get the most from, but I do know that City College training in mathematics has started the career of quite a number of leading mathematicians in the country. If you are at New York University you can get an excellent mathematical foundation and you can learn a good deal about my ideas in work by Professor Boyce, the new Head of the Physics Department.

Don't feel that I have given you any exclusive account of the fields in which you should work. Nuclear physics has recently been developing instruments which will carry one far beyond the present use and is well worth considering. There are undoubtedly many other fields that I have not had a chance to think of in a casual letter such as this. After you have made more progress in your studies let me know how you are coming and where your interest are and I may be able to give you more specific advice. You will remember that in a scientific career besides what a student teaches himself, there is practically only one effective way of studying in the more advanced stages. That is, the apprentice method. Know what you want to work in and then attach yourself to one or more of the leading men in this field of work irrespective of the University at which they will be teaching. But you will find this out for yourself as you go along.

Sincerely yours,

Norbert Wiener

W/h

July 28, 1945

Professor Tracy Thomas
Indiana University
Bloomington, Indiana

Dear Thomas:

I am glad that you are writing to me concerning Hurewicz because I have been very much interested in his case and have looked into it in great detail. You know of course better than I that Hurewicz as a topologist is at the very top. What you may not know is that as analyst and in applied mathematics he has rendered very important services to the Radiation Laboratory in the study of noise and of filter circuits.

He has done all this as a quiet and modest person which has won him friends wherever he has been. His outlook on mathematics and I think on other subjects has stood well above reproach and has matured greatly in the last few years. His English is much better than it has been and his attitude towards life is one of contributing and of making very few demands on it.

I have direct contact with his teaching experience insofar as we have discussed mathematical problems together and as I have heard him lecture in various mathematical seminars. I am impressed with his clarity of thought and his ability to get ideas over. I am also impressed with his latest work on ergodic theory which is along lines interesting to me.

Sincerely yours,

Norbert Wiener

NW:rg

5000 Broadway
New York 34, N.Y.
July 28, 1945

Dear Prof. Wiener,

The letter that you wrote in reply to my question concerning opportunities for study in science has been immeasurably stimulating and informative. I thank you very much for the trouble you took in your reply, and wish to tell you that it has clarified much that I knew vaguely or not at all.

There are times in my mind when I understand things but do not see their interconnections immediately without some intermediary cause, and so it was in this case. You made very clear what research integrated with the use of many seperate sciences can accomplish. I know that there are subjects such as biophysics and biochemistry, but did not really grasp the possibilities of discovery by their use coupled with mathematics.

I wish also to thank you for your kindness in allowing me to ask you for advice in the future "when I have made some progress in my studies." It may be clichéic to say it, but if there is any thing I can ever do to help you in any way, please let me know, as I would really like to help.

Yours sincerely,
Lawrence Weller
Lawrence Weller

PRINCETON UNIVERSITY
PRINCETON NEW JERSEY

Department of
MATHEMATICS

August 6, 1945

Dear Colleagues:

I am enclosing a copy of a note which, with your approval, I should like to send to SCIENCE. Any suggestions that you may make would be enormously welcome. I should like to have the note be representative of all four of us (no copy going to Rufus) and, therefore, would not care to send it unless you are all agreeable to my doing so.

With all my best wishes, I am

Sincerely yours,

S. Lefschetz

SL:EW
Enc.

The yearly Congress of the Mexican Mathematical Society met this year in the week of May 28th at Guadalajara. Five American mathematicians were in attendance: Nelson Dunford, S. Lefschetz, F. D. Murnaghan, Rufus Oldenburger and Norbert Wiener. There were sections devoted to both pure and applied mathematics with many papers presented in each, among them one from each of the American visitors. In the middle of the week a day was provided for excursions and the like, particularly to beautiful Lake Chapala, an hour's ride by automobile from the meeting place.

The first evening of the Congress was devoted to a memorial to the late G. D. Birkhoff, a great friend of Mexican mathematicians, with addresses presented by Professors Graef, Lefschetz and Wiener.

The meeting was a success in every way and the attendance was considerable, mathematicians and other scientists coming from all parts of the Republic. The fame of these yearly meetings is spreading and there is no doubt that they are making a noteworthy contribution to the development of mathematics in Mexico, and, through the American visitors, to the good relations between Mexican scientists and those of the United States.

PRINCETON UNIVERSITY
PRINCETON NEW JERSEY

Department of
MATHEMATICS

August 10, 1945

Professor Norbert Wiener
Masaachusetts Institute of Technology
Cambridge, Mass.

Dear Wiener:

The other two "companions in good fortune" have more or less O. K.'d my proposed notice to SCIENCE. In order not to delay things too much, unless I hear from you by Tuesday, I shall forward this notice to SCIENCE as it is. Let me say that I was trying to get Shapley to do such a notice but he simply told me that he was swamped and that it was up to me.

With my best greetings, I am

Sincerely yours,

S. Lefschetz.

SL:EW

August 11, 1945

Dr. Arturo Rosenbluth
Instituto Nacional de Cardiologia
Calzada de la Piedad Num. 300
Mexico, D.F., Mexico

Dear Arturo:

I was thoroughly sorry to hear of Virginia's thyroid trouble but I assume the operation is over, that she is in good hands, and that everything is going well.

Your manuscript came some weeks ago. Pitts has looked it over thoroughly and McCulloch spent some time on my last visit there two weeks ago in giving it the once over. At present Neumann is looking at it and I shall have it back in a day or two to send to you with our comments and criticisms. I am delighted to hear that it has gone off so well in Mexico. The opinion here is equally favorable.

The end of the war is at hand and the use of the atomic bomb is leading to a lot of soul searching on the part of American scientists. What a horrible potential responsibility we have to live with from now on.

Johnny was down here the last two days. He is almost hooked but he has to clear up his business with regard to Princetitute first. He has privately admitted to me that it is practically all over but the shouting but he can not take that formal attitude in view of their kindness to him. We are going ahead with big plans. By the way Johnny had an offer from Chicago which did not seem to attract him in anything like the way that ours did. Walter and I have some very nice new stuff on random distributions of points. We shall show it to you when you come up.

The family is in the country and very well and happy. Barbara and Peggy are driving trucks and tractors in a hay field.

Do you remember Best Maugard at the meeting? Apparently his caricaturing of me and an accompanying article appeared in a Mérida paper but not as far as I know in Mexico City. I got a copy of it through devious channels. They kid the pants off me but apparently in a good natured way. I feel very complimented because they do not once refer to me as <u>un matemico norte americano</u>.

I certainly had a marvelous stay in Mexico and it tastes like more.

In the present almost certain to come interval between wars (and I hope to goodness it will be a long one) I think we can do an enormous amount with our new schemes. Everything at least has gone far better than I would have expected.

Well, don't improve too much on Chinese checkers and let me hear from you often until I see you.

Sincerely,

NW:rg

RADIATION LABORATORY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE 39, MASSACHUSETTS

OPERATING UNDER THE SUPERVISION
OF THE
NATIONAL DEFENSE RESEARCH COMMITTEE

IN REPLY REFER TO:

REPLYING TO YOUR REFERENCE:

17 August 1945

Dear Professor Wiener:

The celebration interfered with my plan to continue attending your class this week and then bid you farewell. I am leaving Cambridge for a vacation, at the end of which I'll return to Syracuse. Thanks for letting me sit in — it was interesting and fun. I'm sorry I have to miss the juiciest parts. And thanks also for letting me look at Lifetime of learning once more — it's an excellent course in the history of American math. and exciting reading.

I hope that all the rumors about Tech. are true — V.N. and W.H. would be splendid additions.

Sincerely,

Paul R. Halmos

August 20, 1945

Dr. Arturo Rosenbluth
Instituto Nacional de Cardiologia
Calzada de la Piedad Num. 300
Mexico, D.F., Mexico

Dear Arturo:

I enclose the manuscript of our paper. Pitts, McCulloch, and Neumann have seen it and all take a very favorable view of it. However, Pitts, McCulloch and myself have tried to do a little with the choice of words. I am certain that you will not agree with us in everything we have done but at any rate my conscience is now clear.

There is also one formula missing but I have filled that in. I have also done the best I can about the references. Atchison called to my attention some recent work on fibrillation which he first thought was in some conflict with ours but appears to be completely in accord.

I hope Virginia is thoroughly well by this time. Hurewicz is probably coming down to Mexico this fall or winter and will get in touch with the mathematicians and physicists there. As to arrangements for Pitts it depends, as you know, very largely on your own arrangements. We are counting on seeing you here as soon as possible.

As to our big plans they are in the stage where we have done everything we can and are waiting for an answer. Frankly, we expect that answer to be favorable but it may be a bit slow in coming.

Regards to all our friends in Mexico.

Sincerely,

NW:rg

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

A. N. WILLIAMS
PRESIDENT

1220

(57)

SYMBOLS
DL = Day Letter
NL = Night Letter
LC = Deferred Cable
NLT = Cable Night Letter
Ship Radiogram

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WALTER H PITTS DEPT OF MATHEMATICS=

=MASS INSTITUTE OF TECH CA=

=OFFICIAL DECLARATION OF CESSATION OF HOSTILITIES WITH JAPAN DOES NOT IN ANY WAY ALTER SECURITY LIMITATIONS ON RELEASE OF INFORMATION ON THE ATOMIC BOMB PROJECT. THE PRESIDENT IN HIS BROADCAST OF NINE AUGUST EMPHASIZED THE NECESSITY IN THE INTEREST OF NATIONAL SAFETY FOR CONTROLLING RELEASE OF INFORMATION ON THIS REVOLUNTIONARY DEVELOPMENT. LOOSE TALKAND IDLE SPECULATION MAY JEOPARDIZE THE SECURITY OF THE NATION. OFFICIAL WAR DEPARTMENT RELEASES HAVE BEEN MADE OF THE PURPOSE AND SCOPE OF THE MANHATTAN DISTRICT. SECURITY OF INFORMATION NOT RELEASED CONTINUES TO BE OF VITAL IMPORTANCE. IT IS YOUR DUTY TO WITHHOLD ALL INFORMATION THAT DOES NOT APPEAR IN THE OFFICIAL RELEASES. MAKE THESE OFFICIAL RELEASES YOUR GUIDE. WE KNOW WE CAN COUNT ON YOUR CONTINUED COOPERATION. PLEASE ACKNOWLEDGE RECEIPT OF THIS TELEGRAM=

THE KELLEX CORP T A KRIEG SECURITY AGENT

August 27, 1945

Appalachian Mountain Club
5 Joy St.
Boston 8, Mass.

Gentlemen:

I wish to recommend very strongly Mr. Walter Pitts of the M.I.T. mathematics department as a member of the Appalachian Mountain Club. I have known him for more than two years during which he has been my colleague and scientific assistant and we have been engaged in much scientific effort.

He is an energetic, able and interesting young man and one of the coming great scientists of America. He is very fond of bicycling, tramping and skiing and we have made many trips together to the Appalachian huts in addition he has made some on his own initiative. He is a candidate for the Doctor's degree at M.I.T. As to his affiliations, I know of none except the American Mathematical Society of which he is a member.

He is a close friend of mine and I shall be very glad to see him a member of the group.

Sincerely yours,

Norbert Wiener

NW:rg

August 28, 1945

Professor J.R. Klein
Center Harbor
New Hampshire

Dear Klein:

I am writing you this letter instead of waiting until I come up this weekend because I don't know whether you will still be on the farm and I want this letter to get to you.

The news is that Tech is putting through a program of fellowships--teaching fellowships and research associateships in mathematics--particularly Applied Mathematics in a big way. While I am not in a position to state what the sums are to be yet, the research associateships will be on a basis contemplating that they may be taken by young married men. The fellowships of which there will be probably something like four will be on the basis of ordinary academic scholarship and will be full-time without teaching obligations. There will also be a considerable number of teaching fellowships.

We are aiming in all this at two classes of people. The professional mathematician both pure and applied and people with engineering and physical associations who want to be labeled Applied Mathematicians and want to keep their training in this direction. We are going out for people from war research laboratories. In applied mathematics we are taking the view that we shall cover biological and statistical applications as well as applications in elasticity theory etc.

This is to prime the grapevine. When I come to the meeting I shall have an official prospectus on the situation for the Mathematical Society as well as for the Association. We shall send these in to the Bulletin and the Monthly at the earliest possible date but things are moving fast and we would like the mathematical world to know that we are out for good young men whether they are officially labeled as mathematicians or not.

If you are up in the mountains please tell Gretel that I will be in on the Costello bus from Laconia Friday evening. I have a lot to talk over with you.

Sincerely yours,

Norbert Wiener

W/h

Prof. Wiener

OFFICE OF THE DEAN OF SCIENCE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

COPY

August 30, 1945

MEMORANDUM

To: Mr. J.R. Killian, Jr.

Re: Fellowship Aid in Mathematics Department

On August 28th a meeting of the Applied Mathematics Committee was held at which Professors Phillips, Wiener, Stratton, Guillemin, Beattie, and myself were present.

It was decided that immediate steps should be taken to make available various types of fellowship aid for the large number of excellent mathematicians who will soon be leaving war projects at the Institute.

It was voted to recommend that the following positions be set up as soon as possible:

1. 4 graduate fellowships in Applied Mathematics, paying $700 per year plus $600 for tuition, or a total of $1300 each. Holders of these followships would have full-time for graduate study.

2. 10 research associateships in Mathematics, paying from $1600 to $4000 each per year, on a 12-months basis with a 6 weeks vacation, and requiring up to two-thirds time for the Institute. These should be on the same basis as research associateships in other scientific departments.

3. 4 half-time teaching fellowships, paying $700 each for two terms work, plus a half-time tuition scholarship, or a total of $1000 each.

Total funds required to support this program would be about $31,000.per year. At the present time $36,700 remains of funds appropriated by the Executive Committee to encourage the program in Applied Mathematics.

I recommend that appointments to these positions be made as rapidly as the Committee on Applied Mathematics and the Mathematics Department can recommend candidates satisfactory to the Head of the Mathematics Department and the Dean of Science.

It seems desirable to hold perhaps half of the research associateships until we can see how the program for supporting these through research projects and from industrial grants turns out. We might well plan to treat the funds now available as a revolving fund, and make them last at least two years even if the fund fails to revolve.

Professor Phillips is now preparing a statement similar to those recently released by the Departments of Physics and Biology, announcing the availability of research associateships without specification as to number.

G.R. Harrison

GRH D

INSTITUTO NACIONAL DE CARDIOLOGIA
CALZADA DE LA PIEDAD NUM. 300
MEXICO, D. F.

NUM.

EXPEDIENTE

September 3, 1945

Dr. Nobert Wiener
Massachusetts Institute of Technology
Boston, Massachusetts

Dear Norbert:

Our manuscript arrived Friday. I am very glad to hear that Pitts, McCulloch and Neumann did not see any obvious loopholes in our argument. I can imagine you going to town with the editor's blue pencil (even though you used a black one); I can also imagine your exclamations of disgust and despair in a continous crescendo every time you met one of my ~~quotation marks,~~ " it may be concluded, therefore; " I can also see your pencil strokes becoming bolder as the pages went on. Anyhow, you will be happy to hear that I have incorporated well over 80% of your suggestions; I retained some of my original concoctions, (a) because I thought they were much better than those you proposed and, (b), because I also have to assert my independence. Anyhow, be at ease, because every single correction that refered to any mathematical statement is included.

I am getting the draftsman busy on our formulae and diagrams to day. If a few of the formulae should turn out to be unsatisfactory, I may still ask you to have them drawn over there. Incidentally, I have not yet heard from Malisoff whether our paper for the Philosophical Science has been accepted for publication. It might not be a bad idea if you should drop him a few lines inquiring about it.

I think I told you in my last letter that Virginia had been operated on and made an excellent recovery. She is already up and about and is planning to renew her lessons within a few days.

My plans for next year are a triffle indefinite. I wrote to Moe some

15-14

JOHN SIMON GUGGENHEIM MEMORIAL FOUNDATION

551 FIFTH AVENUE • NEW YORK 17 • N. Y.

September 4, 1945

Dr. Norbert Wiener
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Dr. Wiener:

Mr. Walter Pitts' application is here.

Will you please write for the committee approximately what you have said to me concerning Mr. Pitts' abilities and promise in scholarship?

Greetings!

Sincerely yours,

Henry Allen Moe

M:wms

[Sept. 6, 1945]

Dear Mr. Moe:

In reply to your inquiry about Mr. Pitts' qualifications I should like to make the following statements:

I have known Mr. Pitts for some two years. Dr. Rosenbluth and I had heard of him before then. Two years ago this summer he came to Boston to get in touch with me and Rosenbluth had the two of us over for dinner. On that occasion we were extremely eager to find out what Mr. Pitts' ability was as we had heard very impressive statements about him from McCulloch and others. The result was that informally at the dinner table we subjected Pitts to what amounted to a very severe consecutive Doctor's examination in physiology and physiological psychology, mathematical logic and mathematics. The result of this inquisition was so remarkable that I immediately urged on our department the acquisition of Pitts.

Pitts had worked with McCulloch on the mathematics of the nervous system but at that time he was not so aware of how definitely his work bore on the design of computing machines. Since then he has plunged into this line of investigation with great enthusiasm. His ideas and theories have been used by Von neumann and others with much profit. In addition he has increased his knowledge of both pure and applied mathematics and has many times given me suggestions in my own research work which I have found sound and important.

You will see by this that we consider Pitts not merely as a promising young man but as one of the really significant scientists of the country. His obtaining the Doctor's degree is purely a matter of formality. We are counting on incorporating him permanently in our department and regard him as one of us for the future. These accounts speak louder than any words I could say but if you prefer an expressed verbal estimate of his ability I should like to tell you that he is without question the strongest young scientist whom I have ever met. With his broad basis of knowledge both in the physiological sciences and in mathematics he occupise a place which is not filled by any other person.

I should be extremely astonished if he does not prove to be one of the two or three most important scientists of his generation not merely in America but in the world at large.

With all this he is a good deal of a youngster. Fundamentally he is objective and intelligent in his relationships with people but there some edges which discipline will smooth out. These do not give me the slightest concern in the long run. Pitt's work already is far too valuable for it ever to be a flash in the pan but does not begin to compare with what we have every right to expect from him in the future.

Of the people that I have had work with me in the past Paley is the only one who compares with him as a mathematician and Paley's scientific abilities were not to be compared with Pitts' magnificent equipment.

Sincerely.

Norbert Wiener.

NW:rg

IN REPLYING PLEASE QUOTE

JWS:RM
FEA-149

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
REGIONAL OFFICE
120 BROADWAY
NEW YORK, N. Y. 5

September 10,1945

Professor Norbert Wiener
Massachusetts Institute of Technology
Cambridge, Mass.

Dear Sir:

Your name has recently been submitted by Assistant President R. M. Kimball as a member of the Massachusetts Institute of Technology faculty who is acquainted, either personally or by reputation, with German scientists.

This office is assembling a roster of outstanding German scientists, engineers and technicians who have directed or had a leading part in research and the practical application of new equipment and processes.

Any assistance you can give by providing names and addresses of such Germans, or others in German scientific fields, whether in Germany or not, will be most helpful.

It is also essential that we obtain certain specific information regarding these people and I am therefore enclosing some self-explanatory forms which should be filled out in as much detail as possible and returned to this office in the enclosed envelope.

I will also appreciate receiving from you names and addresses of other persons in the United States or elsewhere, who, in your opinion, may be able to furnish additional information on this subject.

Thanking you for your cooperation in this matter, I am

Very truly yours,

Peter T. Byrne

Peter T. Byrne
Regional Administrator

Enclosure

9-10-45

TO WHOM IT MAY CONCERN:

Mr. Sheldon Hill has handed in his term paper in G7, Problems of Modern Philosophy, and I shall give a grade on it as soon as possible. He has thus made up his deficiency.

Very truly yours,

Norbert Wiener
Professor of Mathematics

NW:rg

PRINCETON UNIVERSITY

PRINCETON NEW JERSEY

Department of
MATHEMATICS

September 11, 1945

Professor Norbert Wiener
Department of Mathematics
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

Dear Norbert:

This copy of a letter to Phillips is quite sufficient, I hope. If not, I shall send you a magnificent special letter of recommendation for my young friend.

Cordially yours,

S. Lefschetz

SL:mh
Enclosure

September 11, 1945

Professor H. B. Phillips
Department of Mathematics
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

Dear Professor Phillips:

I understand that Dr. C. A. Truesdell, one of our most recent Ph.D.'s, is applying for a position in your department, and he has asked me to write a word in his behalf. I can only say that if I were a member of a Department of Mathematics in an engineering institution he would certainly be one of the men whom I would be most anxious to acquire. Truesdell is an A-1 student of Bateman and has the deepest possible interest in all the functions which one meets in applied mathematics; Bessel's functions, Fourier series, and so forth. We have never had a student who knew half as much about questions of this nature as Truesdell. I think also that he is a very capable young mathematician with a keen interest in precisely the kind of mathematics that one utilizes in most applications and more particularly in engineering. He has also a very wide general culture, and I believe that you would find him a most valuable member of your department.

Yours sincerely,

SL:mh

S. Lefschetz

cc: Professor Norbert Wiener

THE INSTITUTE OF MATHEMATICAL STATISTICS

September 19, 1945

Dear Professor Wiener,

It was a pleasure to talk with you at the meeting and to hear about your plans for future meetings in teleology. I shall be pleased to contribute anything within my ability when the time comes.

If you wish to join the Institute of Mathematical Statistics, just fill out the enclosed blank. Your support of the Institute would be encouraging. We are working toward establishing standards of the profession, and standards in teaching, and it takes funds and encouragement to do these things. With kind regards I am,

Sincerely yours,

Ed

W. Edwards Deming
President

Professor Norbert Wiener
Mass. Institute of Technology
Cambridge, Massachusetts

MONSANTO CHEMICAL COMPANY

CENTRAL RESEARCH DEPARTMENT
DAYTON 7, OHIO

September 24, 1945

Prof. Norbert Wiener
Massachusetts Institute of Technology,
Department of Mathematics,
Cambride, Massachusetts.

Dear Prof. Wiener:

I would appreciate very much a reprint of your paper "Generalized Harmonic Analysis", Acta Mathematica 55 118-258 (1930) if you still have one available.

Respectfully yours

Julius M. Hastings

Julius M. Hastings

mf

1050 Ackerman Avenue
Syracuse 10 New York
September 24, 1945

Dear Professor Wiener:

A few days ago I had an inquiry from Washington University asking me if I was interested in being considered for the Chairmanship of the Department of Mathematics in the College of Liberal Arts there. I took the liberty of giving your name as a reference; consequently they may write to you about me. I hope you don't mind my having given your name.

As you know, I am very happy here and have given no thought to moving. There are, however, certain things about the position at Washington University which interest me so I felt that I should look further into it.

I enjoyed seeing you at Rutgers. It was an interesting meeting, scientifically and socially.

Our school year is starting off well here. We have begun graduate work towards the doctorate in a small way and are quite pleased with graduate students we have.

Please give Mrs. Wiese and the daughters best regards from Lucy and me.

Sincerely yours
Ted

UNIVERSITY OF MICHIGAN
ANN ARBOR

UNIVERSITY HOSPITAL
DEPARTMENT OF INTERNAL MEDICINE
CYRUS C. STURGIS, M.D.,
PROFESSOR OF MEDICINE

September 27, 1945

FILE NO.

Prof. Norbert Wiener
The Massachusetts Institute of Technology
Boston, Massachusetts.

Dear Prof. Wiener:

I read with very great interest the note regarding your work in collaboration with Rosenblueth which appeared in the last number of the Archivos del Instituto de Cardiologia de Mexico. I shall be grateful if you will send me reprints of the papers mentioned there when they become available.

I am happy to see that a mathematician of the first rank has become interested in the problems presented by the action currents of excitable tissues, because the physiologists who have any worthwhile knowledge of higher mathematics or physics are few indeed. I may add confidentially that, in my personal opinion Rosenblueth is not one of them. He is a competent physiologist and my personal relations with him has always been very pleasant.

You may be well aware that there is a wide devergence in point between two groups of workers who are interested in the basic principles that apply to the interpretation of electrical records of the heart beat. I am sure that this is the case if you had any contact with Sodi-Pallares, who is chief of the electrocardiographic laboratory at the Institute in Mexico. I am nevertheless sending you a few reprints which will give you an idea of the nature of the disagreement, which depends primarily upon a difference of opinion as to most desirable reference point for the measurement of the potential of the Heart's electrical field.

I want to say that I do not have any great respect for my own knowledge of mathematics and physics. I have tried to learn as much about these subjects as the time at my disposal and my lack of any special talent for them have permitted. For counsel in these fields I have leaned pretty havily on Kenneth Cole. You maybe interested in articles by him published in the Journal of General Physiology, particularly the following:

1938	vol. 22	p. 37
1939	vol. 22	p. 649
1941	vol. 25	p. 29
1939	vol. 22	p. 671
1941	vol. 24	p. 441
1941	vol. 24	p. 771

and also in the articles by Weinberg in the Bulletin of Mathematical Biophysics (1941 vol 3, p 39 and 1942, vol 4, p 107.)

If you should read any of the reprints which I am sending under

separate cover I shall be glad to have your criticism of the views expressed therein.

Very sincerely yours,

Frank N. Wilson

Frank N. Wilson, M.D.

FNW:mh

OFFICE FOR EMERGENCY MANAGEMENT
NATIONAL DEFENSE RESEARCH COMMITTEE
OF THE
OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT
1530 P STREET NW.
WASHINGTON 25, D. C.

Room 5500
49 West 49th Street
New York 20, New York

September 27, 1945

Dr. Norbert Wiener
Massachusetts Institute of Technology
Cambridge 38, Massachusetts

Dear Dr. Wiener:

I made inquiries about your suggestion that your report on "The Extrapolation, Interpolation, and Smoothing of Stationary Time Series" be declassified, and about your request for a number of copies of the report; and found that you should take these questions up with Professor Karl L. Wildes.

Very truly yours,

Alice E. Buckner

Secretary to
Mr. Warren Weaver.

AEB

cc - Professor Karl L. Wildes