November 21, 1962

Dr. Norbert Wiener
Instituto di Fisica Teorica
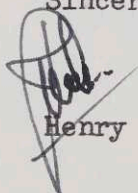Mostra d'Oltramare
Naples, Italy

Dear Norbert:

May we have your usual careful judgment of Dr. Edwin
J. Akutowicz's quality as a scholar, of his proposal
for study, and of him with reference to that proposal?
A statement of the project is attached. Dr. Akutowicz
has applied for a Fellowship and referred us to you.
The question, in short, is this: Is he a first-rate
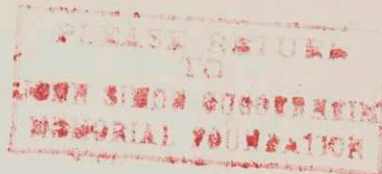scholar with a first-rate project?

As always, anything you say will be held in the
strictest confidence. With many thanks for your
assistance to the Foundation, I am

Greetings & best regards —

Sincerely yours,

Henry Allen Moe

PLANS.

The mathematical work that I plan to carry out might be described as <u>applications and extensions of the theory of distributions</u> and falls into two categories as follows:

(1) The theory of distributions has proved to be capable of successful application to many problems originating in classical analysis. It was in fact created with such applications in view. When one passes to the closure of classes of functions or measures with respect to numerous simple and natural topologies, distributions enter as ideal elements. The study of these therefore imposes itself. However, the relevance of such ideas to questions in the theory of approximation has remained hitherto relatively unexplored. In the study of approximation problems, and equivalent versions of these as developed by Mandelbrojt, one has been led to results in which distributions enter in an essential way [15], [16], [17], [19], [20]. This work leaves many interesting questions untouched. In addition to those explicitly mentioned in these papers, the following topics appear to be worthy of investigation.

(1) In the paper [13] I obtained several results on the approximating properties of the class E_a of functions that are of the form,

(A)
$$f(t) = \int e^{itu}\, dm(u),$$

where the support of the measure $\underline{m}$ is contained in a fixed interval $(-a, a)$. Among these results are several necessary

and sufficient conditions that the class E_a be dense in
certain standard Banach spaces of functions on the real
line. In that paper I did not take up the question of
sufficient conditions bearing directly on the norm or
weight function determining the Banach space in question.
Simple sufficient conditions are of interest, and it should
be possible to obtain several of these. It is also of
interest to study the dependence of such conditions on the
parameter a, especially as a $\Rightarrow$ 0 and as a $\Rightarrow \infty$.

(ii) Approximation with functions of the form (A)
is naturally connected with polynomial approximation (take
m = distribution of finite order concentrated at the origin).
One can consider approximation by entire functions that are
Fourier transforms of distributions with support contained
in the interval (-a, a). Can one obtain a general theorem
concerning approximation by such entire functions of expon-
ential type which contains simultaneously results of [13]
and those of Mergelyan on polynomial approximation?

(iii) What can be done concerning the spectral
approximation of entire functions with spectra not necessarily
on the real line?

(iv) A natural continuation of the studies embodied in
the paper [20] would be the subject of mean periodic functions
in the spaces of that paper.

(2) The theory of approximation has enjoyed considerable
development (to say the least) since the publication of Walsh's

treatise in 1935. In spite of the recent Russian book of
A. Timan, there is still room for a more or less extensive
book on approximation. Interesting results even of the
Russian school are not contained in the work of Timan.

The categories (1) and (2) are quite distinct, but
nevertheless it would be desirable and reasonable to regard
these as without priority, leaving the actual distribution
of effort to the investigator.

The present state of work on this project is not very
far advanced; however items [13], [15], [16], [19], [20]
listed in the attached bibliography would seem to justify
the research proposals under (1) above. I regard this work
as a part of a continuing activity with no foreseeable
conclusion. The book mentioned under (2) is nothing more
than a possibility at present. I have so far only written
down a list of topics to which chapters might be devoted.
I do not think a work of the scope I have in mind could be
completed in one year. It might be possible in two years.

The beginning date would be 1 Oct. 1963.

The place of study would be probably Paris, possibly
Stockholm or Bologna.

I should hope to have some contact with mathematicians
such as J-P. Kahane, S. Mandelbrojt, L. Carleson, P. Malliavin.

I should expect that the results of this work might be
published in the normal way.

342 E Toole Ave
Tucson Arizona
Nov 22, 1962

Dr. Norbert Wiener
Mass. Inst Tech
Boston Mass

Dear Sir:

I note that Colliers Encyclopedia
which was on file at the University
of Arizona in 1960 states that
you developed the science of cybernetics
through work conducted with aid
of Gordon Brown —

Is this Gordon Brown, the Albert
Gordon Brown, of Tucson, Arizona,
who formerly worked at Railway
Express Agency?

You may pencil a reply on the
bottom of this letter, using enclosed
envelope for your reply.

Thank you —

Mrs Angie Goodman

P.S: Note the pocket book "The Human
Use of Human Beings" seems to have been
written by a ghost writer — This is of no consequence
however I am merely interested at this time in
paragraph 2 — above —

Mr. C.A.B. Smith
The Galton Laboratory,
University College London,
Gower Street WCI

LONDON, ENGLAND

Dear Mister Smith;

          I have taken a long time in answering your letter
because I had a very busy summer. I am very much in sympathy
with your idea of trying to use cybernetical ideas for the aboli
tion of war but frankly I do not feel too sanguine about the
development of sharp techniques for that purpose.

          I shall think the matter over more but I do not
know what to do about it.

                              Sincerely Yours,

                              Prof. N. Wiener

NW:ac

November 24, 1962

Professor N. Wiener
Università di Napoli
Instituto di fisica teorica
Mostra d´ Oltremare, Pad.19
Napoli

Dear Professor Wiener,

        I wish to thank you on my own behalf and on behalf of the
Yugoslav Committee for Electronics and Automation for your active
participation in the Opatija meeting and for your contined
interest in the problems discussed at the Meeting. I wish
particularly to thank you for the kind words contained in your two
recent letters.
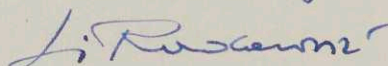
        I have forwarded copy of your letter of November 7 to the
Institute "Mihajlo Pupin" where the prosthetic hand is being
developed. I was told that they would be able to make an example
of the hand and they will communicate directly with you and
Dr. Barr concerning the terms and conditions.

        I would like to use this opportunity to enquire whether
you have received copies of the minutes of meetings that were
not distributed in Opatija. It might happen that they were
sent to your address in the United States and have not yet
reached you. I have therefore asked our secretary to send a
copy to your address in Italy. It would be very important for
us to receive as soon as possible any corrections or additional
comments you may have so that we can publish the proceedings
without delay.

        Thanking you once again for your kind cooperation,

                I remain,

                                Yours sincerely,

                                L. Radanović,
                                Secretary

November 24, 1962 2

Dr. J. P. Schadé, Associate Director
Netherlands Central Institute for Brain Research
59B Mauritskade
Amsterdam
The Netherlands

Dear Dr. Schadé:

Many thanks for your letter of November 16. As to the "Brain"
it has probably gone the way of all lent books. Don't worry about it.
As to the plans for the Netherlands, we agree and are very grateful.
The details of our dates will have to wait until I am home again in
February and can talk with my colleagues. It is quite possible that
I shall not be able to come before the end of January 1944 because
of my obligations to M.ITT. The term does not end until then.

I am enclosing a report I made to Dr. Barr in Boston on the prosthetics
meeting at Opatija and other obserbations in Europe. I have heard from
Dr. Barr that they have done some interesting work on an amputee un-
covering radial, median and ulnar nerves and applying electrodes.

When they asked the subject to think of closing his fist and making
other movements with the missing hand, they obtained what Dr. Barr des-
cribed as usable signals. There is little I know of the experimental
work in Boston but it seems to me significant.

Any further report will have to wait until I am back in the States
and until we are further progressed in our experiments. As to the work
on statistical mechanics Del Aricia and I are now busy on a paper on
which I shall report at a meeting at M.IT.T. next June. We find that
our work connects very closely with that of Bohm and Bopp, but we have
succeeded in doing in detail many things which they only contemplated,
and their work is fragmentary as compared with ours. We have no new
numerical results as yet but there is a clear indication that our work
will be of great importance in nuclear physics and in other fields
where very short intervals of time are accessible. Confirmation of our
work must await further experimentation in these fields.

I shall keep you in touch with our progress so that you will be up
to date on it at the time of my arrival. My wife joins me in sending
you our best wishes.

Sincerely,

Norbert Wiener

P. S. Please return to me the copy of the report to Dr. Barr, as it
is the only one I have here.

November 25, 1962

JOSEF FRANK
17594 EVERGREEN
DETROIT 19, MICH.
KE 8-3118

Massachusetts Institute of
Technology

Cambridge 33, Mass.

Prof. Norbert Wiener, Ph.D.

Re. Homeostasis.

Sir:

As an ardent admirer of your work, I take the
liberty to write this letter; a humble response to your
influences. This letter is related to mechanical, me-
dical diagnosers.

In the light of the limited knowledge of the
functioning of the human body, the question is ventured
to the degree of conclusiveness achieved by medical com-
puters like the Perceptron (Cornell) or the matching
comparator of Zworikyn (Rockefeller Inst.).

Searching for a more positive link between the
human body and the machine, an information model was
found which shows the main components of the principle
of homeostasis. The information model is taken in a
known manner directly from the human body and without
any physical interference.

The concept of a recorder was adopted into which
the information model is fed and analyzed, writing out
in four channels:
Autonomic nervous system, blood, lymph and the permanent
losses of substance in the main organs. The x-axis of
the chart is the autonomic nervous system, to which all
read-outs are related. The chart shows only the negative
deviations from normal.   -

The information model is not all-inclusive. Changes in
some small glands do not appear. Therefore diabetes,
Meniere's and Parkinson's diseases are out of range,
at least for the present time. Yet it shows the type
especially susceptible to these disturbances. However,
it shows other and up to now intangibles on the patient
as for instance arteriosclerosis and its extent.In the
observed cases, arteriosclerosis starts in the brain.

A further aspect clearly shown seems to be the
hereditary pre-load of the organism, insofar as grave
disturbances are shown in young children, when there
was no time to aquire these damages.

A test was found to check the information model
linking and relating to the principle of homeostasis.
A natural drug is used, of which the yearbook of a leading
pharmaceutical company states: The working principle of
this drug is unknown. Very little research results on
this drug are published as it shows little commercial
potential.

The drug is applied locally in accordance with the
information model with beneficial effects. After a
time lag, the feed-back changes also the information
model. In some cases however, the organism does not
tolerate this application and detrimental side-lines
occur, and the local influence of the blood-lymph
balance with this test is not feasible. Yet the same
beneficial effects to the disturbed organ is obtained
if the drug is applied on or near the levels of out-
flow of the autonomic nerves on the cortex.

-

Working with the information model shows sometimes the utter unreliability of the perception level of the patient and the limitations of some medical diagnosis.

The model shows an organism for instance with all organs in excellent condition but the autonomous nervous system dangerously diseased. Here, probably for years neither the patient, less his doctor has the least perception of near disaster. This are the cases where the patient has to undergo surgery and is given a period of five years to hear the real result. The extraordinary configurations of the autonomic nervous system at decreased conductivity or change in substance are astonishing.

Having seen the above mentioned test drug used in many rather complicated cases, I applied it on myself in two coronary cases with remarkable results.

The contemplated instrument would write-out the distributions and relations of the main components of the principle of homeostasis, and could be termed a homeostasis parameter recorder.

The scope of the instrument could be widened in a higher generation by superposing case history data on the read-out of the recorder.

Fields of use are in preventive medicine, in explorative surgery, in pharmaceutical research to check try-out patients for new drugs, in special purpose selection of men in the armed services, life insurance companies e.t.c.   -

Engineeringwise, the instrument is but a chart
analyzer and recorder of which the components are known,
however different the fields of their conventional
application.

Up to now, I did not find a company interested
in such instrument or concept. I understand also that
such development is not in the direction of the actual
interesting industrial demands. As I lived with this
concept for many years I aquired some patience.

Regarding the volume of superficials on the market,
it appears worthwhile at least to try the realisation
of such a concept.

Sir, permit me to thank you for your time.

Yours very truly

Josef Frank.

I have known Dr. Akutowicz for some four or five years. In addition to
our being together at M. I. T. he visited Naples in the winter of 1960-61
and in the fall of 1962. I have also spoken at Montpellier and know the
high opinion they have of him there. I have discussed his project with
him in some detail and think very highly of him.

Dr. Akutowicz is a very able and original scholar. He follows his own
line of thought without distraction and has a critical ability equal to
his very great productability. I consider him a mathematician of whom
America has every right to be proud and of whom America will be even
more proud in the future.

I give my unqualified support to his application for a Guggenhein fellow-
ship.

                                        Prof. Norbert Wiener

SYSTEMS RESEARCH   CYPRESS 3–2331
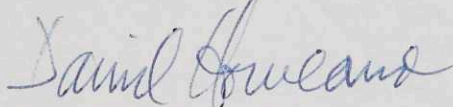
26 November 1962

Professor Norbert Wiener
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Professor Wiener:

I was struck by the opening sentence in the editorial of Science, 9 November 1962 which was quoted from your paper "Science and Society," The Technological Review of July 1961, and I should like to request a reprint of your paper. Your statement that the "purpose of society is to enable us to react homeostatically to the vicissitudes of the future" so exactly states my own research interest that I thought you might be interested in some of the work we are doing.

For a number of years I have been working on the problem of measuring patient care. Although patient care is a rather vague construct in much of the hospital literature, it seems to me that a relatively precise definition is possible if we take the position that it can be measured in terms of the hospital's ability (as an organization) to artificially provide homeostasis for people (patients) who are unable to perform this function for themselves. Some ideas about this measure are expressed in the enclosed reprint.

Yours very truly,

Daniel Howland

Daniel Howland, Director
Systems Research Group

DH:jas

Enclosure: Engineering in Interdisciplinary Research

Your ref: 9801/3.

Our ref:

Date: 26th November, 1962.

Prof. Norbert WINER
Universita di Napoli
Instituti di fisica teoretica
Mostra d'oltremare, Pad. 19
N a p o l i
ITALIA.

Dear Prof. Winer,

We confirm with thanks receipt of your favour dd. 7th inst. by which
we have been kindly informed about Dr. Joseph S. Barr's interest in
the Automatic Artificial Hand we produced in our Institute.

For your guidance, we have sent today our offer to Dr. J.S. Barr by
the mediation of one of our enterprise for foreign trade - Messrs.
"JUGOELEKTRO", BEOGRAD, a copy of which you shall find enclosed.

We trust to be favoured with us and thank you once again for your
kind attention done to this matter.

Yours faithfully,

Assistance Director
Dr.Dipl.Ing.Velimir Kostić

Encl.:copy

26th November, 1962.

Dr. Joseph S. BARR
Department of Orthopedic Surgery
MASSACHUSETTS GENERAL HOSPITAL
B o s t o n 14,
Mass. U.S. A.

Dear Dr. Joseph S. Barr,

We have pleasure to inform you that we receipt the letter directed
by prof. Norbert WINER, your appreciated collaborator from the In-
stituti di fisica teoretica, Napoli, being informed about your
interest for the characteristics of the prosthetic hand we produced
in our Institute.

The precise title of the herementioned prosthetic aid is AUTOMATIC
ARTIFICIAL HAND.

Its technical characteristics are as follows :

- movability of all fingers and knuckles of the fingers and
  natural handling obtained by one mechanical kinematic system

- movability of thumbs enable catching with the top of the fingers
  as well as theirs contraction into the fist

- catching and dropping at ones willingness

- determination of the moment of catching and dropping the subject
  is automatically

- the state of fingers to the subject form are automatically adopted

- fitting the squeeze of the catched subject are at ones willingness

Automatical Artificial Hand is moved by dc motor with permanent magnet
"Size 11".

All logical circuits and the power supply are made as one unit and
will be delivered together with the Hand.

p.t.o.

As we have no Artificial Hand prepared for consignment we are ready to met your request and to manifacture either one or couple of hands (right and left).

The Time of Delivery is 8 months from the date we receive your firm order. We regret for such a long time, but we are so pressed with the other orders at present that our collaborators are not in possibility to deliver the same as promptly as we would wish.

Payment :

      the price of one Hand fco Beograd is amounting to $ 1300.-
      while the price for the couple is amounting to $ 2400.-

The cost of eventual travelling and stay of our experts because of montage, demonstration and instructions are not included. The herementioned expences and the expences of your specialist eventualy comming to Beograd in undertaking the Hand - will be on your account.

Kindly receive this offer through Messrs. "JUGOELEKTRO", BEOGRAD, Knez Mihajlova 33, authorised to conduct that and similar services for us in foreign trade.

We shall be glad to receive your early order.

Always at your service, we remain,

Yours faithfully,

Assistance Director
Dr.Dipl.Ing.Velimir Kostić

Herrn
Professor
Norbert Wiener
Massachusetts Institute Of Technology
Department of Mathematics
Cambridge 39, Mass.
U.S.A.

Ihr Zeichen	Ihre Nachricht vom	Unser Zeichen	Datum
		m/ki	26.11.1962

Sehr geehrter Herr Professor Wiener!

Ich bin im Verlaufe einer U.S.A.-Reise in der
Zeit zwischen dem 24.12. und 1.1. in Cambridge.
Ich würde mich sehr freuen, wenn ich Ihnen anlässlich
dieser Reise einen Besuch machen dürfte und wäre
Ihnen dankbar, wenn Sie mir freundlichst an die
U.S.A.-Adresse in Cambridge bei meinem Sohn
(c/oA.W. Kenneth Metzner, 1o St.Paul Street,
Cambridge 39/Mass., Tel. UN 4-7488) mitteilen
könnten, ob und wann ich Sie treffen kann.

Mit freundlichen Grüssen

Ihr

(Dr.Wolfgang Metzner)

called his son

Professor E. F. Beckenbach
Department of Mathematics
University of California
Los Angeles, California
U. S. A.

Dear Professor Beckenbach:

I have just received your letter of November 5, which was
forwarded to me here in Italy. I am sorry, but I shall not be
able to submit a manuscript to your series for publication.
My time is at present so heavily committed already that I could
not undertake any more writing and do a good job of it.

With best wishes for undertaking, in the hope that you will
understand my reasons, I remain,

very sincerely yours,

Norbert Wiener

Professor L. Radanovic
Etan, Yugoslav Committee For Electronics and Automation
Terazie 23
Belgrade
Yugoslavia

Dear Professor Radanovic:

I am in receipt of your letter of October 10, which was for-
warded to me here in Naples from M. I. T. in Cambridge, Mass. U. S. A.
in which you ask for corrections for corrections and possible
additions to the minutes of the Prosthetics Symposium in Opatija.
The minutes you speak of were not enclosed in the letter as my
secretary writes. Unless they were sent seperately, would you
please send them to me here in Naples where I shall be until
the 10th of January, 1963.

I wrote to you a week or so ago passing on a request of
Dr. Darr, Chief of Orthopedics at the Massachusetts General hos-
pital for a model of the artificial hand exhibited at the Opatija
meeting, if possible and hope for a favorable reply from you in
the near future.

With best wishes, I remain,

Very sincerely yours,

Norbert Wiener

Herrn von Wehrenalp
Econ Verlag
Kreuzstrasse 21
Düsseldorf
Deutschland

Sehr geehrter Herr von Wehrenalp:

Vor einigen Wochen schickten Sie mir einen Brief von einem
Herrn Anton J. Prummer, dessen Erfahrung im Leben viel Ähnliches
hatte mit der Geschichte in meinem Buch "Die Versuchung".
Wollen Sie so freundlich sein ihm ein Exemplar auf meine Kosten
zuzuschicken? Besten Dank und freundliche Grüsse.

                    Ergebenst,

                    Norbert Wiener

Anschrift: Herr Anton J. Prummer
               Ingenieur und Bodenforscher
               Penting
               bei Neunburg vorm Wald.

No. 15 sent Nov 26

No. 16 " Nov 29

No. 17 " Dec. 6

Nov. 27, 1962.

Dear Mrs. Ritter.

Letter No. 19 has been received. No, don't send any books now. The one book we did want was "Mathematik, Mein Leben", which I asked for in a previous letter. If you have not sent it yet, it is too late now to arrive by ordinary mail in the Christmas rush.

All is well here. The Tempter has not arrived as yet for us to sign. Why must people have books autographed? It is a silly and meaningless custom, when done on request for people one knows only slightly.

In forwarding our mail, don't forward any after the 3rd of January, because in winter weather mail is often delayed. We shall be staying at the

Rockefeller Institute
New York 21, N.Y
½ of Dr. Theodore Shedlovsky,
for a week after arrival on the 21st of January, not at the Gorham Hotel this time. So send our mail there. If Mr. Flint Taylor of the Travelers Insurance Company calls up to find out where

to send our car license plates; give him
the name of our boat and date of arrival.
Or better still, call his office to tell him
or his secretary.

In reporting your income, the "retainer"
sent recently is not part of it.

As for the bills for gas, electricity and
telephone for our Belmont house, they
should be sent to the Ellis'. The only
reason they sent the check for the
previous ones was that part of it was
really for the McCarthy's. You have pro-
bably attended to this already. Please
find out when they are leaving, and
check to see if Mrs. Sandberg knows, so
she can start checking on the house.

Yesterday the temperature was al-
most down to freezing here, but the sun
(when it isn't storming or raining) gets
quite strong thru the day. In six weeks
from today we shall be on the boat.

Take care of yourself. With best wishes
(in a hurry, my husband is waiting for
this letter to mail, and many thanks,
cordially
Margaret Wiener

November 28, 1962

Dr. Norbert Wiener
281 Via Posillipo
Naples, Italy

Dear Dr. Wiener:

A one day conference, entitled Vistas in Information Handling, will
be held at the Hotel Plaza, New York City, on February 26, 1963.
International scientists will report on advanced concepts and future
vists in the augmentation of man's intellect by machines.

The conference is designed to provide a comprehensive preview of the
newest advances. Tutorial in nature, this symposium will furnish
professional people in industry, science, and government with a broad
perspective on the latest world-wide developments in the communication
sciences as a background for their own work.

The sponsor of the conference is Information for Industry, Inc., of
Washington, D.C., who are specialists in the Communication Sciences.
The keynote speaker at the luncheon will be the Honorable Hubert H.
Humphrey, Senior Senator from Minnesota, who will speak on New Advances
in the Communication Sciences.

Frankly, we hope that you would consent to participate in this conference
by assuming the role of "Anchor Man" by discussing the Future Role of
Intelligent Machines. My role in this conference is that I will be pub-
lishing a book entitled Vistas in Information Handling and the speakers
will be using this book as a kind of platform for further discussion on
the subject.

Information for Industry, Inc. will, of course, be delighted to pay all
of your expenses, as well as an honorarium for this conference.

It will be a privilege and a pleasure to personally, as well as collectively,
welcome you to this conference. I do so trust that this letter finds you
in good health and receptive to this invitation.

                                        Sincerely,

                                        SPARTAN BOOKS

                                        Robert Teitler
                                        Vice-President

P.S. It is hoped that you can wire collect your reply since we would
      like to finalize the program for this extremely significant meeting.

                                                        [ans 1/14/63]

November 30, 1962

Mr. Norbert Wiener
281 Via Posillipo
Naples, Italy

Dear Mr. Wiener:

We stand in need of reprinting your Nonlinear Problems in Random Theory and I write
to inquire whether you have any changes or corrections that you feel you would like
to see incorporated in this reprint. We have enough books to sustain us for two
or three months so we should have any suggested revisions by the first of the year.

I find your impress indelible and resting on a surprisingly broad range of compe-
tences. As I go about my business combining personal education with editorial in-
quiry, I am more than ever proud of our representation of your published work.
Would there were more.

With best wishes,

Carroll Bowen,
Director

CB:fm

P.S. Shall we list all your books on our
copyright page, or only those published
by us?

[ans 12/4/62]