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CORRESPONDENCE April 16-30, 1950

N. WIENER - MC 22

THE FRANKLIN INSTITUTE  
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*Journal of The Franklin Institute*  
OFFICE OF THE EDITOR

April 17, 1950

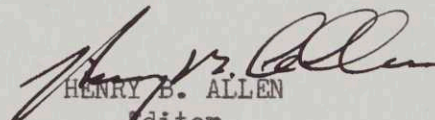
Dr. Norbert Wiener  
Department of Mathematics  
Massachusetts Institute of Technology  
Cambridge 39, Mass.

Dear Dr. Wiener:

I am glad that you have accepted our invitation to contribute a paper on controlled mechanisms for our anniversary issue. We are looking forward to a collection of papers that will prove most interesting to the scientific world, and we are happy that the important paper on controlled mechanisms is in such competent hands.

As to the contents of your paper, our outline serves to delineate the broad fields, but we are looking to each author to decide how much or how little of the subject he wishes to discuss. There is no doubt in my mind that you will be able to "restock with ideas" and give us a paper which will not only contribute to your own intellectual development, but will add greatly to the value of our anniversary JOURNAL.

Sincerely,

  
HENRY B. ALLEN  
Editor

615 Eastern Parkway  
Brooklyn, New York  
April 17, 1950

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

Dear Dr. Wiener:

I would like to invite you to appear on my television program, "Creative Frontiers", because of your pioneering work in "Cybernetics".

You have been referred to me by Mr. Waldemar Kaempffert of the New York Times. He has informed me about the prologue which you wrote to the play "R U R".

Briefly, "Creative Frontiers" is a one-half hour live program which will appear once each week. This program brings the creator and his work--"a person who is doing original creative work to benefit mankind" to the television audience. An opportunity is afforded the creator to explain his contribution to the world and to a board of critics, critics of the fields whose frontiers this man has broadened. It will be these prominent men who will over the air discuss and evaluate whatever it may be that the program's guest creator has presented.

On the Advisory Board of "Creative Frontiers" we have The American Federation of Art, The American Engineering Societies, The New York Academy of Sciences, The American Institute of Architects, and the Julliard School of Music.

Critics will be supplied by the Advisory Board. Mr. Waldemar Kaempffert is one of our sustaining critics in science and engineering.

Kindly send me any available information or pamphlets which would be helpful in evaluating material for purposes of writing the script.

A prompt reply is imperative as the scripts must be planned months in advance of the broadcast time.

Thank you.

Sincerely yours,

*Celia Raeder*  
(MISS) CELIA RAEDER

April 17, 1950

Mr. Norman Garnezy  
3 Elmwood Avenue  
Millbury, Massachusetts

Dear Mr. Garnezy:

I regret very much that I have already accepted so many items on my schedule that I will be unable to give the talk which you request. The large number of invitations which I have received for such talks has left me in a very fatigued condition, and I regret that I cannot conserve my health without cutting my schedule to the bone.

Sincerely yours,

Norbert Wiener

NW:z

April 17, 1950

Mr. Bernard S. Lee  
Squier Signal Laboratory  
Fort Monmouth, New Jersey

Dear Mr. Lee:

The phenomenon to which you refer is extremely interesting and may throw a considerable amount of light on the process by which we recognize speech. It seems to me almost certainly at cortical level. I am not yet prepared with any impromptu theory of just how it operates. It is a phenomenon which a good many of us have casually observed when one hears at the same time two or more loud speakers which are sufficiently remote from one another to have a noticeable lag in the acoustic pattern between time and the ear.

Sincerely yours,

Norbert Wiener

NW:z

April 17, 1950

Mr. David K. Maxfield  
The University of Illinois Library  
Chicago Undergraduate Division  
Navy Pier  
Chicago 11, Illinois

Dear Mr. Maxfield:

I am insufficiently enthusiastic about the prospects of a machine of the sort you name to be willing to go to the effort which is necessary if my advice is to be more than formal. I am a very tired man at present and I am taking nothing new on.

Sincerely yours,

Norbert Wiener

NW:z

April 17, 1950

Miss Miriam Stuart  
International Press Alliance Corporation  
235 East 45th Street  
New York 17, New York

Dear Miss Stuart:

I regret that in the intervening time my manuscript of the AAS address has been sent to the publishers. I say, "I regret" this, although in view of the fact that the publicity about this work of mine has attracted so many letters--pitiful letters--from people who have believed that our hearing aid was already in commercial form, I am very glad of anything that can cut off publicity until we are more ready to really give the public something.

If I had been aware in advance of the emotional impact of the announcement of a new and hopeful but not yet produced device on the public, you may be sure that I should have chosen another theme for my talk, and that I would have kept the whole matter strictly within a narrow group until we were ready to go full steam ahead.

I plead guilty to lack of judgment in this matter, and I hope the press will back me up in not discussing the matter until it becomes a matter of immediate practical politics.

Sincerely yours,

Norbert Wiener

NW:z

April 17, 1950

Miss Joan Weiss  
Miss Joan Weiss  
c/o Miss Frances Fuchs  
Room 105, Barnard Hall  
Barnard College  
New York 27, New York

Dear Miss Weiss:

Dr. Wiener has asked me to write to you and say that he will not arrive in New York until Saturday April 28th and so will not be able to attend the early morning sessions of the Eastern Colleges Science Conference. He will go straight to the King's Crown Hotel, and I suggest that you either leave a message there as to how he can contact you, or have someone there to meet him. At present, he has not decided whether he will fly down or take the early morning train, but he should be there by 1:30 or 2 p.m. at the latest.

Very sincerely yours,

Mrs. Margot Zemurray, secretary  
to Dr. Norbert Wiener

NW:z



Chaumes 18 Avril 1950

Monsieur le Professeur,

Je viens de lire sur un journal français "Le Courrier Picard" d'Amiens (Somme) un article relatif à vos recherches sur la façon de rendre la parole aux Sourds - muets. Vos expériences ont pour moi un grand intérêt ayant un jeune homme de 20 ans Sourd - muet.

Dans ces conditions je vous demande instamment de bien vouloir me tenir au courant des résultats obtenus et de m'indiquer si vous avez l'intention de venir à Paris ce qui me permettrait de vous conduire mon fils.

Je pense que vous comprendrez

mes espoirs et mes angoisses  
Monsieur le Docteur, et que vous  
voudrez bien répondre à ma lettre.

De tout cœur je vous  
remercie, et vous prie d'agréer  
mes salutations distinguées

Baillet

Baillet boucher à Chaulnes  
(Somme) France.

Ci-joint un coupon réponse

458 S. Catalina St.,  
Los Angeles 5, Calif.,  
18 April 1950

Dear Dr. Wiener:

Perhaps you will not take it amiss if an absolute layman, neither a scientist nor a mathematician, writes a few lines, upon completion of a first reading of your amazing and somewhat disturbing book, "Cybernetics." First, let me say that in spite of a woeful lack of the necessary mathematics to march step by step with the book - I have found great enjoyment and stimulus in reading it. It is a major contribution to significant contemporary thought, in my opinion.

Of the many comments I might make, I would like to confine myself to one. That one, I shall present in the form, more or less, of a question, relating in particular to the final chapter.

In that chapter, you have discussed with some heat the phenomena connected with group levels of information in the community, and phenomena affecting the control and usage of the means of communication. In so doing, you brought in - inferred - judgments of worth - or, in philosophical terms, of good.

As I thought over what I had read, I was aware that nowhere are there any

criteria of good in the philosophical sense. Putting aside religion - as I am sure you need I agree we must in any such considerations - how are we to judge, and to declare that any group of phenomena, generated in a community by or around the usages of communication, are abstractly or ultimately "good" or "bad."

In short, can we devise and write a "calculus of good"?

Immediately we are faced with the need of some definitions. "Good" may perhaps be taken as including those phenomena which tend toward a result which is itself "good" in a philosophical sense, and "bad" as the opposite. But here we have no determinacy in absolutes, unless we go further afield and first establish an ideal for the race, the community, or the individual, in this world we live in, and not in a purely speculative (and therefore unreal) hereafter - be it heaven, Nirvana, or whatever.

Do not these "groups" tend through loss to transformations quite as varied, yet quite as definite, as those discussed earlier in the book? And cannot these be continuous or discrete, preservative of measure or not, and so on, in a similar manner?

Let us take an assumption, and write that the life-ideal (in the sense mentioned above) is to create and maintain a "region"

in "sociological space" in which such human individual cognate thereto may live in the optimum of freedom for the full exercise of his powers - creative, procreative, knowledgeable, informational, communicative as to such information, and so on.

This is a considerably broader objective, I think, than that usually comprehended in the phrase, "standard of living." It embraces or at least touches a continuum in time far beyond the life-space of any one individual. Yet it should, and perhaps does, "scan" all the facets in the life of the individual as well. It should, and I think does, cover needs a limit far short of the "ideal" the Nazis had and the Soviets have - that the individual per se has no worth save as one element of the state - and I conceive it as being likewise well above the limit implied by freedom which has degenerated into license.

I am perfectly aware that mathematics in itself has no objective. But somehow I feel that cybernetics must not be without an objective - an objective in the philosophical sense. Otherwise, pragmatically, it affords a tool for the would-be "man on horse back" which would have as its very first result, the suppression of information, the disastrous lowering of the informational level, and the throttling or destruction of the very means of communication which brought cybernetics into

being.

Accordingly, I am wondering if we cannot somehow devise a "calculus of good", such as I mentioned above - integrating between some such points as those proposed, the group implied over the complex but necessarily definite quantity representing "Good" in the sense mentioned.

Please do not bother to make response to this letter, which after all is written only as an offhand and ill-considered response to the many stimuli presented in your book and especially by its final chapter.

Sincerely,

William A. Gross

JACOB FLAMAN  
1222 E. 13th Street  
The Dalles, Oregon

April 18, 1950

Dr. Norbert Wiener  
Professor of Mathematics  
Massachusetts Institute of Technology  
Massachusetts

Dear Sir:

Can you give me any information with regard to your studies concerning the possibility of bringing hearing back to deaf persons by hearing through the fingers?

An article in The Lethbridge, Alberta Herald of March 27th, 1950, brought this matter to my attention. It appeared in a column entitled "The Left Hand Corner" in which Maurice Goldsmith, UNESCO science editor reports on your studies.

Could you inform me whether there is a possibility the results of your studies will be put on the market in the near future. I am one of many hard-of-hearing persons and am very much interested in endeavoring to locate something other than the present form of hearing aids which do not help me with my particular hearing problem.

Sincerely yours,

*Jacob Flaman*



## DIVISION OF PLACEMENT AND UNEMPLOYMENT INSURANCE

342 MADISON AVENUE  
NEW YORK 17, N. Y.

April 18, 1950

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

Dear Prof. Wiener:

This is to express my thanks for your very stimulating visit and talk.

The opportunity of discussing with you various problems in mathematics, statistics and other general matters was one that I appreciate very much. You left with me enough food for thought to last quite a while.

I believe that the problem concerning Confidence Intervals and Bayes Theorem which you discussed with Professor Wald at the end of the meeting is an extremely important one. I hope very much that you and Professor Wald will work out the solution as outlined in your conversation, and publish it.

It was extremely interesting to me to listen while the two of you, in effect, verbally outlined the solution to a rather difficult and hitherto unsolved problem.

From the comments of other people who were present I believe that the meeting was one of the best we have had in the seven years that I have been connected with these programs.

Very sincerely yours,

*Nathan Morrison*

Nathan Morrison  
Principal Actuary

NM/rc



215 East 95th St., New York 28, N. Y.  
April 18, 1950

Dear Doctor Wiener:

Recently I became acquainted with the new science of cybernetics through reading your book on the subject. I found it of great interest though I do not claim to have mastered it yet. No doubt it is capable of much greater development and that is the reason I am writing to you.

One of the points at which cybernetics may be applied presumably is that of gravitation but first it is necessary to clear up the fundamentals of the subject. Viewed from the standpoint of scientists collectively the situation is a disgrace though it is understandable enough from the standpoint of the individual.—I myself did not get straightened on the subject until I was nearly 40 years of age.—I refer to the definition of gravitation as "an attraction, drawing or pull." There are literally thousands of authorities for such a definition and all of them are wrong. The reason is a very simple one, namely, there is no general agreement as to what gravitation is. Consequently we should not try to define gravitation by telling what it is, since we do not know. The proper procedure is to tell what it does. In other words, the definition should be functional.

When Sir Isaac Newton came upon the scene, the word "attraction" was already in use and so he accepted it but in order to make it fit the facts as to what was known--or rather unknown--about gravitation he defined his use of the word very carefully in both his Principia and in his Opticks. (Consult Masterworks of Science, edited by John Warren Knedley, Jr., p. 204, also Newton's Opticks, McGraw-Hill Book Co., 1931, p. 376.) In both instances Newton made his definition of "attraction" functional instead of following the etymology of the word.

On page 45 of your book you speak of the moon attracting or pulling the waters of the earth. That is the usual explanation but it doesn't fit the data of observation. According to the experts on tides, the high tides occur somewhere or other on the earth at all possible times before and after the meridian passage of the moon. Sir George H. Darwin in his article "Tide" in the 11th edition of the Encyclopaedia Britannica (vol. 26, p. 942) said, "In fact, observation shows that ~~that~~ it is more nearly low water than high water when the moon is on the meridian." Darwin knew the facts but, talented man though he was, he was unable to free himself from a faulty definition of gravitation. (Consult H. H. Marmer, The Tide, 1926, p. 43; Sir G. H. Darwin, The Tides and Kindred Phenomena in the Solar System, 3rd ed., London, 1911, p. 118.)

I have seen many theories of gravitation but I never saw one that shows it to be an attraction or pull. Some theories, on the other hand, indicate that it may be a push. The latter idea fits in very nicely with the law of falling bodies, which turns out to be a system of limits, representing successive equal displacements in equal periods of time. I have often wondered why

the texts do not make note of this. Of course, it is not too obvious to the student if we take a second of time as the basis of computations but it quickly becomes obvious if the time measurement unit is a tenth of a second or smaller.

I have spent a lot of time in developing an original theory of the physical universe on the basis of wave dynamics and have had some success due to the fact that I have worked in fields relatively unexploited by others. I have also been lucky in hitting upon neglected components that have supplied physical events where others have used mathematical postulates. I have also accepted Prof. Bridgman's common-sense position that there are a great many known uniformities in nature, that there are probably many more yet to be discovered and that the investigator who is looking for them has a better chance of finding them than the scientist who is merely looking for whatever may happen to turn up.

By the use of internal resonance I have found it possible to develop feedbacks, some of which are negative, pointing to a catastrophic collapse of the system, while others are positive and act to restrain the negative ones. As a by-product, my system leads to a new explanation of gravitation as incidental to certain differential combinations. I have not explained my results previously in terms of "feedbacks," though after reading your book it seems obviously applicable to what I have done.

I will be glad to supply you with a summary of my theory, consisting of about a dozen pages or so, if you are interested. At present, I seem to be blocked more or less by a lot of sacred cows that stand in my way, and it appears to me that cybernetics possibly offers a way to circumvent most of those useless cattle. I am interested in the good life the same as you are and am thoroughly in sympathy with the sentiments you have expressed. For that reason I would like to boost this new science of cybernetics, if I can, as a means of demonstrating the superiority of the life of reason. Believe me, the man in the street is not the only gullible one. I find a great deal of illogicality in the field of science and I know that many academic logicians and philosophers agree with me on this point—men like John Dewey, E. A. Burtt, A. C. Benjamin and others. There is, however, something the matter with professional philosophers for they have failed to make logic an art in a notable way. I mention this because I think you and I can do something to correct that condition. Cybernetics may be able to supply the answers not only to the problem of gravitation and also that of entropy but it may even have wider applications to the problem of the good life.

Sincerely yours,

*John B. Penniston*  
John B. Penniston

SOCIÉTÉ MATHÉMATIQUE  
DE FRANCE

19.4.1950

11, Rue Pierre Curie

PARIS-5

Chèques Postaux : 52-15 Paris

1°) Conférences de la Société Mathématique de France: (à l'Institut Henri Poincaré, 11 rue Pierre Curie, PARIS 5°, amphithéâtre Hermite) :

Lundi 24 avril 1950, à 17 h 30 mn :

F. POLLACZEK, Généralisation des polynomes orthogonaux classiques.

Lundi 8 mai 1950, à 17 h 30 mn :

M.H. STONE, Algebraic Formulation of the Problem of Measure.

Lundi 15 mai 1950, à 17 h 30 mn :

R. CAMPBELL, Quelques équations généralisant l'équation de Mathieu.

2°) Cours et Conférences de la Faculté des Sciences; Séminaires d'Algèbre supérieure, de Théorie des Fonctions, d'Analyse mathématique, de Topologie algébrique, de Calcul des Probabilités, de Physique théorique, de Calcul numérique, d'Histoire des mathématiques, d'Econométrie, Séminaire Bourbaki, etc, cours du Collège de France, Conférences polytechniciennes, Palais de la Découverte, Société des Radioélectriciens, autres réunions mathématiques, Congrès et Colloques: voir le tableau d'affichage placé dans le hall d'entrée de l'Institut Henri Poincaré.

Séminaire d'Algèbre supérieure (Institut Henri Poincaré, amphithéâtre Darboux)

Lundi 24 avril 1950, à 10 h 30 mn :

C. PISOT, Sur une classe de nombres remarquables (suite).

Séminaire d'Analyse mathématique (Institut Henri Poincaré, salle de Géométrie supérieure)

Samedi 29 avril 1950, à 10 h 30 mn :

J. COLMEZ, Les espaces à écarts abstraits, et les espaces n'ayant que des structures uniformes très compactes.

Mardi 23 mai 1950, à 10 h 30 mn :

M. BRELOT, Sur les trajectoires orthogonales des surfaces de GREEN, et le problème de DIRICHLET géodésique.

Séminaire d'Histoire des Mathématiques (Institut Henri Poincaré, salle de Géométrie supérieure)

Jeudis 20 avril et 4 mai 1950, à 15 h :

F. LEBLONNAIS, Histoire du parallélisme.

Colloque International de Mécanique (27 au 30 avril 1950, à POITIERS)

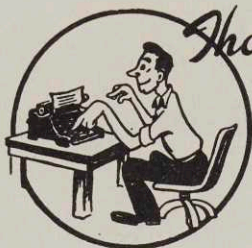
Sur invitation seulement; s'adresser à Mme LIGER, à l'Institut Henri Poincaré.

Cybernétique : Conférences sur "Les Théories du Signal et de l'Information", sous la présidence de M<sup>r</sup> L. DE BROGLIE, à l'Amphithéâtre de l'Ecole Polytechnique, 14 rue d'Arras, PARIS 5°.

Les mardis 25 avril, 2, 9, 16 et 23 mai 1950, à 15 h.

Commémoration du Centenaire de la naissance de HEAVISIDE, (Amphithéâtre Richelieu, 17 rue de la Sorbonne, PARIS 5°), Samedi 20 mai 1950, à 21 h : Communications de MM L. DE BROGLIE, E. PICAULT, E. APPLETON, W. JACKSON, P. HUMBERT, S. COLOMBO, P.M. PRACHE, L. BOUTHILLON).

Les Secrétaires : J. LERAY et P. BELGODÈRE



*Thomas A. Dickinson*

MAIL ADDRESS:  
BOX 67, STATION "M"  
LOS ANGELES 32, CALIF.

TELEPHONE  
CAPITOL 1-9082      April 19, 1950

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

Dear Professor:

I just finished reading your book on CYBERNETICS, and was curious to find that it brought out so many of the points of an article I wrote for one of the labor publications last year.

Enclosed, you will find tear sheets of the article--which I trust will be of interest, if not of practical value, to you.

I enjoyed your book very much, and found myself in complete agreement with virtually all of your opinions. However, I was a little amused to find that you apparently lack confidence in the sciences concerned with human nature.

My reaction in this connection doesn't mean a lot, I suppose, since I'm a writer and not a scientist; but it seems to me that the curious nature of our sociological and anthropological history is due not to a lack of consistency in human nature, but to a tendency of most of us to allow our most important affairs to be handled by any charlatan who is willing to assume the burden--while we devote ourselves to the more interesting tasks such as literature, mathematics, and possibly even cybernetics.

In fact, I'd say that the inherent stability of human nature is proved by the simple miracle that we haven't yet managed to exterminate ourselves.

Cordially yours,

*Thomas A. Dickinson*

TAD:sm



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FITCHBURG, MASS., U. S. A.

Office of the President

April 19, 1950

Professor Weiner  
Massachusetts Institute of Technology  
Cambridge, Massachusetts

Dear Professor Weiner:

I am writing to you on behalf of our Jewish Community Center here in Fitchburg. We are desirous of holding an evening of discussion on the subject of religion, and being an alumnus of M.I.T. it occurred to me that you might be willing to participate in this discussion.

The thought was for three or four different persons to each discuss one of the following topics:

1. Religion is a Harmful Illusion.
2. Religion is a Harmless Illusion.
3. Religion is a Wholesome Illusion.
4. Religion is Truth.

It is our intention that the Rabbi here in Fitchburg and the Rabbi in Leominster would take two of the topics, for you to take a third, and I have in mind another party who would be well versed to take the fourth.

Tentative open dates for this evening of discussion would be either May 7, May 9, May 10, or May 24. I am writing to you before I make contact with any of the other individuals so that if you feel disposed to be with us for this evening you would set the date which would be most convenient to you and we would make certain that the others are available for that particular date.

I hope that I am not imposing too much upon your good nature in writing to you with this suggestion but I feel sure that not only can we make an interesting evening for our audience but that you too will enjoy a visit with our Jewish community here in Fitchburg and Leominster.

I hope to have the pleasure of hearing from you in the near future.

Sincerely yours,

*George W. Falk*

BRANCHES

NEW YORK, N. Y.  
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BOSTON, MASS.

GeorgeWFalk:jo

THE UNIVERSITY OF CONNECTICUT  
STORRS, CONNECTICUT

April 19, 1950

Dr. Norbert Weiner  
Department of Mathematics  
Massachusetts Institute of Technology  
Cambridge 39, Massachusetts

Dear Dr. Weiner:

Each year, it is the custom of the University of Connecticut chapter of the Society of Sigma Xi to hold an open meeting in connection with its annual Spring initiation. At this open meeting, we try to obtain a speaker who will be of general interest to the public at large. As chairman of the program committee, I should like to cordially invite you to be our speaker of the evening.

I know that you have an extremely full schedule and, therefore, I should like to suggest one of the following dates: May 10 or 11, or May 17 or 18. We are in hopes that you will be willing to accept one of these dates. If you find one of these dates convenient, then we will schedule our initiation on that date. Any topic of your choosing will be satisfactory to us. The Society, of course, will reimburse you for your expenses.

Should you be able to accept our invitation, we would like to have you on the Campus around four o'clock in the afternoon. I will personally assure you that, aside from the dinner and your talk, you will be under no obligation to play the role of visiting fireman. We will also see to it that everything possible is done for your comfort and enjoyment during your stay with us. I think you would find it personally very interesting to visit this University to see the changes that have been accomplished during the past few years.

One can best reach the University of Connecticut by train or plane to Hartford. In either case, you would be met in Hartford and driven directly to the Campus. On the other hand, I think you would find the drive from Cambridge to Storrs not only easy, but a delightful one at that time of year.

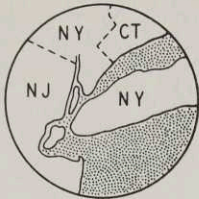
The Society and myself hope that you will be able to accept our invitation and are sure that not only the Society, but its guests would enjoy and profit by anything you might have to say.

Sincerely yours,

*Chas. E. Waring*

Chas. E. Waring, Head  
Department of Chemistry

CEW:ah



# METROPOLITAN STATISTICAL SOCIETY

NEW YORK AREA CHAPTER · AMERICAN STATISTICAL ASSOCIATION

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April 20, 1950

Professor Norbert Wiener  
Department of Mathematics  
Massachusetts Institute of Technology  
Cambridge 35, Mass.

Dear Professor Wiener

On the behalf of this Chapter, I wish to express our great appreciation for the privilege of having you as our guest speaker last week. It was indeed not only a pleasure to hear you talk but to meet you beforehand.

As a small token of our appreciation, Dr. Lorge, Mr. Morrison and I have agreed to defray your expenses incurred by your visit. Therefore, will you kindly inform me of the amount so that our Treasurer can remit payment. This, I believe is the least that this Chapter can do in return for the honor you extended us.

At this writing, I would like to inquire a bit more specifically into your reasons for discrediting the use of the so-called cyclical analysis of time series as a basis for their projection. I am not an enthusiast for this approach and hence I was very much interested in your remarks strongly negating that method. However, several analysts in the electric utility industry appear to be sympathetic to and a few are employing the cyclical approach in their various projections of the time series of electricity production in the United States.

I trust that you can at least refer me to some references in your writings about the cyclical approach which will aid me in becoming fully opposed to that method. A brief reply from you on this matter, I will greatly appreciate.

Sincerely yours

Waite S. Brush  
President

WSB:get

Copies to: Mr. Irving Lorge  
Mr. Nathan Morrison

Please reply to:  
Waite S. Brush  
Consolidated Edison Co. of N.Y., Inc.  
4 Irving Place - Room 1315-S  
New York 3, N.Y.





CABLE ADDRESS "RESEARCH"

IN YOUR REPLY PLEASE QUOTE

FILE NO. 3-N-4

NATIONAL RESEARCH COUNCIL  
CANADA

RADIO AND ELECTRICAL  
ENGINEERING DIVISION

OTTAWA, 20 April, 1950

Professor Norbert Wiener,  
Department of Mathematics,  
Massachusetts Institute of Technology,  
CAMBRIDGE, Mass.

Dear Professor Wiener,

I should like once again to take the opportunity to express to you the thanks of my colleagues and myself for your kindness in coming to Ottawa last month to address the Science Association. We are keenly aware of the many demands made on your time, and are most grateful that you were able to arrange to visit us. It was an experience and a great pleasure to meet you and to hear your talk.

I am enclosing a cheque for \$100.00 which we should like you to accept as an honorarium.

Please give Mrs. Wiener our best regards.

Yours sincerely,

C. F. Pattenson,  
Chairman, Section E,  
N.R.C. Science Association

CFP:HP

Encl.

TEACHERS COLLEGE  
COLUMBIA UNIVERSITY  
NEW YORK 27, N. Y.

INSTITUTE OF PSYCHOLOGICAL RESEARCH

April 20, 1950

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

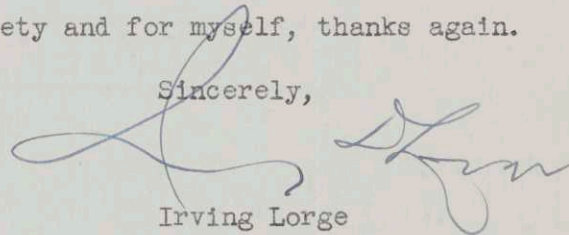
Dear Prof. Wiener:

On behalf of the Statistical Techniques Division of the Metropolitan Statistical Society I wish to express our appreciation for the splendid lecture that you gave us last Thursday. The comments that I have heard from the members that were present were so flattering that I felt certain your points got over and that you made a distinct contribution to the field.

Personally I appreciated the kindness in discussing the problem of communication. I do feel that the supplemental concept of the person as an additional source of ~~input~~ input is a very useful one. I do hope that sometime you can find an opportunity to supplement your material by mentioning that point.

On behalf of the Society and for myself, thanks again.

Sincerely,



Irving Lorge

*Chairman*

*Statistical Techniques Div.*

IDL:EP

April 20, 1950

Mr. Waite S. Brush  
American Statistical Association  
Consolidated Edison Co. of N. Y., Inc.  
4 Irving Place - Room 1315-S  
New York 3, New York

Dear Mr. Brush:

Thank you very much for offering to defray my expenses for the trip. They were as follows:

Airplane ticket	\$ 25.65
Hotel room	4.00
Taxis	6.00
Life Insurance	1.25
Breakfast	.75
Limousine	1.75
	<u>\$ 39.40</u>

As to the question of cycle study, my reasons for being a non-enthusiast concerning this are very specific. They are that the predictable part of the statistical phenomena is much more extensive than the cyclical part. In almost no statistical case have we a superabundance of predicatability, and the discard of all the predicatable material which is not periodic or almost periodic represents an inescapable squander of statistical data.

Very sincerely yours,

Norbert Wiener

NW:z

April 20, 1950

Mr. George W. Falk  
Independent Lock Company  
Fitchburg, Massachusetts

Dear Mr. Falk:

Thank you very much for your kind invitation.  
Unfortunately my health and my previous schedule  
of talks and lectures makes it impossible for me  
to take on anything more at the present time.

Very sincerely yours,

Norbert Wiener

NW:z

April 20, 1950

Mr. J. R. Myhill  
Department of Philosophy  
Temple University  
Philadelphia 22, Pennsylvania

Dear Mr. Myhill:

Dr. Wiener has asked me to write to you and say that he will be glad to see you in his office here at Tech at 2 p.m. on Friday, April 28.

Very sincerely yours,

Mrs. Margot Zemurray, secretary  
to Dr. Norbert Wiener

NW:z

April 20, 1950

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

Dear Arturo:

Thanks for your letter of April 21st. I agree fully with you that the main objective next fall should be the book. By that time I think we should have made some substantial progress in the design of non-linear apparatus. At present, I am devoting most of my time simply to getting shape for next fall.

I have been very tired, tireder than I had realized, but I have not been seriously ill, and I think my vacation in the mountains will make me thoroughly active again. I am already on the up-grade, and my heart has shown no signs of acting up. I have had a minor eye operation to remove a secondary membrane in my left eye, and this has been altogether successful. Margaret is in splendid condition, and my two daughters are doing very well indeed. Peggy graduates this year from Tufts, and Barbara has shown herself both adaptive and a hard-working Mother and is very much in love with Toby. Little Michael Norbert is a strapping child, and shows every sign of being well taken care of.

The other day Margot had the Lucos up here as her guests--that is Mrs. Luco and children numbers one and two, and Margaret and I had them at the house and showed them around Tech. They are a delightful family, fantastically light-hearted and cheerful.

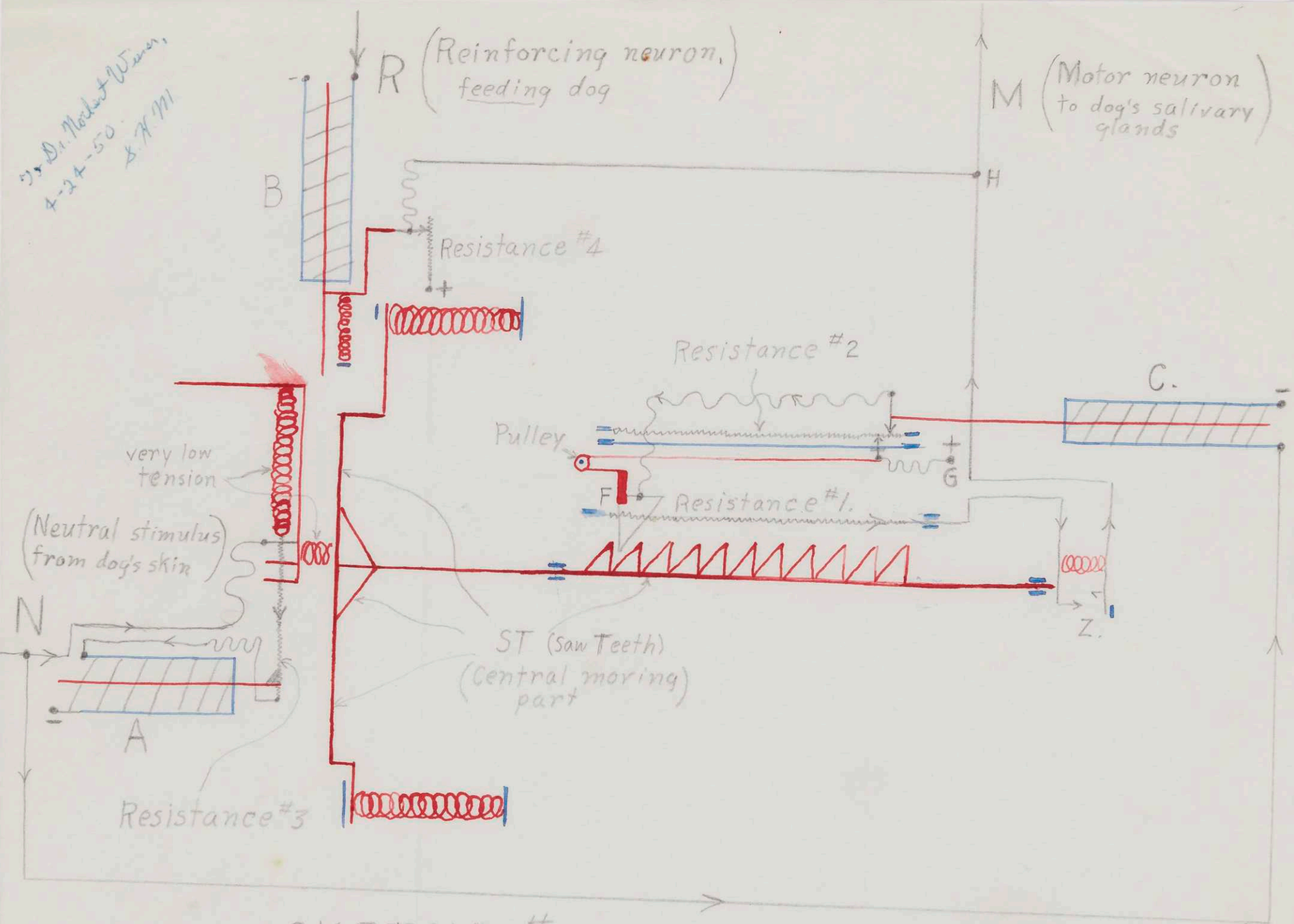
My book is now in the protracted last stages of publication. I shall get copies early in June, and I shall send you one, but the official debut is at the end of the summer just in time for the Math meeting. Please send Margaret's love to Virginia, and give our regards to all of our friends.

Sincerely yours,

Norbert

NW:z

Dr. D. M. Winer  
4-24-50  
A. H. M.



SKETCH #1.

April 20, 1950

Mr. Charles E. Waring  
Department of Chemistry  
University of Connecticut  
Storrs, Connecticut

Dear Mr. Waring:

Thank you very much for your kind invitation and I wish that I could accept it. Unfortunately the state of my health and the number of previous engagements that I have made make it absolutely impossible for me to take on anything new for the rest of the spring term.

Sincerely yours,

Norbert Wiener

NW:z



April 20, 1950

Mr. Clifton Webb  
Twentieth Century Fox Studio  
Hollywood, California

Dear Mr. Webb:

I have recently had the pleasure of seeing the movie entitled Cheaper By The Dozen in which you took the principal part. I wish to congratulate you and Mr. Walter Lang, who I understand undertook the direction, on what is not only a very amusing, but a very intelligent job. The proof of the intelligence is the number of undertones that one is able to catch from the picture about Galbraith the man and the Galbraith family, which go considerably beyond the expectations which form the bare bones of the movie.

If you do not mind the importunity of a member of your public, I have some comments to make concerning this. In the first place, it was not made perfectly clear in the movie, but it was implied that the whole size and education of the Galbraith family was part of the father's very high idea and ideal of efficiency. I do not imagine, although I do not know that the usual considerations against birth control played much of a role with him. He was, however, obviously convinced that much too much work is made of the average task of bringing up a family, and that it can be reduced by the same methods that bring about efficiency in business, to a level where the bringing up of a dozen children is not excessively difficult for the parent. The technique of family councils, of assignment to tasks, etc., was obviously part of the general plans of Galbraith for industrial management which had been carried over into the home. As I understand it, Galbraith's great accomplishment was the introduction and development of time studies in industry. He carried this on to the point where the precise series of operations ~~was~~ a factory employee was fixed, and as far as I can see did not consider what the next stage after this should be. In the quarter century which has followed Galbraith's death, this has led to new developments which are not yet useable, but bid fair to make as great a change in industry as Galbraith's own work.

Mr. Clifton Webb--2

Once a human operation has been reduced to a succession of consecutive decisions, each made on the basis of those past, it may at least theoretically be performed by a machine. Machines capable of performing such sequences of consecutive decisions are already known as the mechanical brains which do so much of the modern work of computation. It was inevitable that these machines should take over the work of consecutive decision necessary for the whole factories or assembly line. If you read last Sunday's New York Times, there is an article in the business section which indicates the factory without employees or substantially without employees as already being used by the Fords for manufacturing parts and sub-assemblies of the Ford car.

In this sort of factory without employees which is rapidly leading to a second industrial revolution, the work of Galbraith in analysing human operations, and the sequence of consecutive unit operations is converted into the work of making punched cards or their equivalents by which the whole task of the assembly line is regulated. In other words, the spirit of Galbraith's work is now developing to the point where the efficiency engineer of the Galbraith type is essentially the only important employee of the factory. The maintenance crew still exists, but its work is cut to a minimum by a process in which defective parts signal their existence by marks on the line, and before the period at which they actually have to be replaced. This modern automatic factory will do its own cost accounting, and its own statistical work, and has as little need for the white collar operator as it has for the man in overalls.

Thus the result of Galbraith's work which was intended to signal a new period of human efficiency has actually gone so far that it is destroying the possibility of human employment. The mechanized human being whom he worshiped, and whom he tried to imitate in his own family is giving way to the machine of glass and steel. It is a sardonic fact that the type of living to which he assigns such human values that he based his whole family existence upon it, is finding less and less place not only for human values, but for human beings. In this connection, a thing that was surprising to me, and which I suppose to be faithful in fact in the movie is that a man whose work had so completely succeeded in upsetting the scale of human values on the one hand, and of such great commercial value to the industries on the other, should have lived a life not of a rich man, but of a cultured gentleman of the average upper middle.

Mr. Clifton Webb-3

class. The size of the family explains much, but not everything. It is an interesting fact that such a high development of the life of the upper middle-class should result from the work of a member of it whose whole life had the tendency to destroy its fundamental assumptions.

The movie ends with Galbraith's death just before a proposed trip to Prague which his wife makes for him. Unless I am mistaken this trip was a great historical event, because it was in Prague that the Galbraith ideas were most seriously taken up by the Bata Shoe Manufacturing Company which introduced the methods that Galbraith had already developed for the United Shoe Machinery Co. throughout Europe, and developed production of shoes to such an extent that they were able to compete with American shoes on American soil. Branch Bata factories were established even in India. In the course of this process, the speed-up which was held down in America by the efforts of the Labor Unions was pushed to such an extent that the Bata factories became among the most hated by labor throughout the world. Finally the Bata industrial empire perished in the absorption of Czechoslovakia by Hitler Germany.

You see all of these things are relevant to the events depicted in the movie, and yet to the casual movie goer one is left with the impression nearly of a glorified Life With Father. I do not for a moment wish to protest against the play up both of the humorous and of the human aspects of such a family, and yet I feel that the American movie public does contain sufficiently mature elements to be interested in the fact that the events of the movie are played upon a much greater scale than that of the family eccentricities and family love. There are many aspects of the picture which I think might have even been more poignant if it were realized that this delightful and eccentric background was of a historical significance whose overwhelming importance is not even yet realized by the public. This

This is a very prosy letter. I would not write to you if I did not feel that the sensitivity of your acting and the directing shows an understanding of these same facts going beyond the details which you have seen fit to outline for the benefit of the movie public.

Sincerely yours,

Norbert Wiener

NW:z

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

CAMBRIDGE 39, MASS.

DEPARTMENT OF MATHEMATICS

April 20, 1950

Mr. Clifton Webb  
Twentieth Century Fox Studio  
Hollywood, California

Dear Mr. Webb:

*explicit statement*

I have recently had the pleasure of seeing the movie entitled Cheaper By The Dozen in which you took the principal part. I wish to congratulate you and Mr. Walter Lang, who I understand undertook the direction, on what is not only a very amusing, but a very intelligent job. The proof of the intelligence is the number of undertones that one is able to catch from the picture about Galbraith the man and the Galbraith family, which go considerably beyond the expectations which form the bare bones of the movie.

*galbraith*

If you do not mind the importunity of a member of your public, I have some comments to make concerning this. In the first place, it was not made perfectly clear in the movie, but it was implied that the whole size and education of the Galbraith family was part of the father's very high idea and ideal of efficiency. I do not imagine, although I do not know, that the usual considerations against birth control played much of a role with him. He was, however, obviously convinced that much too much work is made of the average task of bringing up a family, and that it can be reduced by the same methods that bring about efficiency in business, to a level where the bringing up of a dozen children is not excessively difficult for the parents. The technique of family councils, of assignment to tasks, etc., was obviously part of the general plans of Galbraith for industrial management, which had been carried over into the home. As I understand it, Galbraith's great accomplishment was the introduction and development of time studies in industry. He carried this on to the point where the precise series of operations of a factory employee was fixed, and as far as I can see did not consider what the next stage after this should be. In the quarter century which has followed Galbraith's death, this has led to new developments which are not yet useable, but bid fair to make as great a change in industry as Galbraith's own work.



Mexico City, Mex., April 21, 1950.

Dr. Norbert Wiener  
Department of Mathematics  
Massachusetts Institute of Technology  
Cambridge 39, Mass.

Dear Norbert:

I have written to Ted Martin today suggesting how I think we could best distribute our equipment funds. I am sure that he will show you the letter and I trust that you will O.K. my suggestion.

I am very sorry that the curves I sent you were not amenable to a simple treatment. We will discuss them at length when I go over in the fall. I still do not know when that will be, because my probable trip to Europe for the Congress of Cardiology has not been decided yet. I will let you know as soon as I have any definite plans.

I am very happy to hear that everything is going well over there and that the new apparatus that you have designed is on its way. I am also glad to learn that the philosophical seminars have been renewed. I am looking forward to meeting the group again, because I think it is a very stimulating group. The seminar here has also been meeting regularly and successfully.

I have been thinking about possibilities for our joint work this fall. The two alternatives I see are 1) to collect some experimental data and take them over for a theoretical treatment; or 2), to begin to make a draft of the book which we intend to write together. I would like to have your views on the subject because my preparation for our joint work will be clearly quite different in one or the other case. Personally I feel that we have made a rather definite commitment to write the book. If you have the same impression I expect that we ought to carry that plan through.

With best regards to everybody, I remain

Cordially,

Dr. A. Rosenblueth.

SUZANNE SCHICK-MARTEL.

ALGIERS,

21st April 1950

33, Bd. Bugeaud.

---

Dr. Norbert WIENER, Esq.,  
Professor of Mathematics,  
Massachusetts Institute of Technology,  
M A S S A C H U S E T T S / U . S . A .

---

Dear Sir,

Mr. Gerard von BEHM, the son of a famous  
ear, nose and throat specialist and whose brother is  
the Medical Officer in charge of the City Hospital in  
KASSEL, is very interested in importing your glove  
hearing aid.

He is the distributor of all apparatus  
for deaf people and would be pleased for details and  
information of your appliance with a view to becoming  
an agent for your invention.

I have personally known this family for  
many years and can personally vouch for their reliability  
and anti-nazi political leaning.

Should you care to contact Mr. von Behm directly,  
his address is:-

Gerard von BEHM, Esq.,

42, Koelnischestr.

K A S S E L (Germany)

---

For your information this application was made  
a propos to an article appearing in the DAILY MAIL of the  
16th March 1950 the cutting is enclosed.

If you are at all interested in this application,  
would you kindly reply to the gentleman in question or the  
above address.

Thanking you in anticipation,

I remain,

dear Sir,

Yours faithfully,

*S. Schick-Martel*

---

April 21, 1950

Miss Celia Raeder  
615 Eastern Parkway  
Brooklyn, New York

Dear Mis Raeder:

Dr. Wiener has asked me to write to you and say that he will not be able to accept your kind invitation to appear on your television program. He has such a heavy schedule for this term and next that it is impossible for him to take on anything else at this time.

Very sincerely yours,

Mrs. Margot Zemurray, secretary  
to Dr. Norbert Wiener

NW:z

April 24, 1950

Mr. John B. Peniston  
215 East 95th Street  
New York 28, New York

Dear Mr. Peniston:

Thanks for your letter of the eighteenth. Of course, the picture which I presented of the tides is a simplified one when the damping effects of shoal waters and the deforming effects of the coasts of the continents are eliminated.

About every second letter I get these days from some bright amateur or other contains the suggestion that he has found a new cosmology. Believe me, I think this is the wrong end to begin to come to grips with science. It takes a great deal of success of a theory in detail before it is ripe to be married with another theory to cover still more systems. I do not mean that big work cannot be done by amateurs, but that too many amateurs succumb to the temptation to say something about everything before they can say anything about something. This is a caution and not a scolding.

Sincerely yours,

Norbert Wiener

NW:z



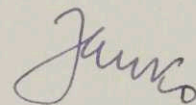
ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ  
V PRAZE  
ÚSTAV MATEMATIKY POJISTNÉ  
A MATEMATICKÉ STATISTIKY  
PŘEDNOSTA  
Prof. Dr. JAROSLAV JANKO  
PRAHA II, NA BOJIŠTI 3, TELEFON 252-86

Prague, April 22, 1950.

Dear Dr. Wiener,

I have just received your book "Cybernetics", which you were kind enough to have sent to me by the publisher. I feel much obliged to you for your kindness and I am going to study your work, I am most interested in.

Sincerely Yours,



Prof. Dr. Jaroslav Janko.

Mr. Norbert WIENER,  
Massachusetts Institute  
of Technology,  
Massachusetts,  
U.S.A.

AMERICAN ACADEMY OF ARTS AND SCIENCES  
28 NEWBURY STREET  
BOSTON

April 24, 1950

Mrs. Margot Zemurray  
Secretary to Dr. Norbert Wiener  
Mass. Institute of Technology  
Cambridge 39, Massachusetts

Dear Mrs. Zemurray:

As I promised on the phone, I am sending you a copy of "Science May Make or Break your Business," on the first page of which you will find Dr. Wiener's idea of the second industrial revolution presented as the basis for an argument that follows to the effect that this is significant for secondary education.

I wrote this booklet and printed it early in 1949.

Sincerely yours,



Ralph W. Burhoe  
Executive Officer

RWB:C  
Enclosure

HARVARD UNIVERSITY  
THE BIOLOGICAL LABORATORIES  
16 DIVINITY AVENUE  
CAMBRIDGE 38, MASSACHUSETTS

April 24, 1950

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

Dear Prof. Wiener:

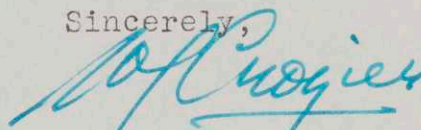
I want to thank you, personally and on behalf of the Biological Colloquium at Harvard, for the beautifully stimulating job you did on Friday last. As always, your warm humanity shone through, even when the most careful phraseology was used. It was a most valuable discussion, as I have reason to know from the reactions of graduate students.

As you of course know, a considerable body of valid quantitative information has been accumulated with respect to the compounding of tropistic responses. My original desire was to study the properties of the descriptive constants appearing in the formal description of tropistic conflicts. I was sidetracked into the necessary study of the quantitative interpretation of the performance of cellular assemblages. Which is where I am now. But my abiding interest is with the abstract analysis of the basis of elementary neural 'decisions'. I found your discussion decidedly provocative.

Under another cover I am sending several off-prints which may serve to illustrate the basis of some points mentioned in our discussion.

Again, thanks.

Sincerely,



W. J. Crozier  
Prof. of General Physiology

4th Annual  
EASTERN COLLEGES SCIENCE CONFERENCE  
BARNARD COLLEGE

Address correspondence to:

FRANCES FUCHS  
B. C. S. C.

Room 105, Barnard Hall  
Barnard College  
New York 27, N. Y.

CHARLOTTE GRANTZ, *Executive Chairman*

DOROTHEA BENNETT, *Executive Secretary*

FRANCES RYDER, *Executive Treasurer*

FRANCES FUCHS, *Corresponding Secretary*

April 24, 1950

Dr. Norbert Wiener  
Department of Mathematics  
Mass. Inst. of Technology  
Boston, Mass.

Dear Dr. Wiener:

This is to inform you of more detailed information as to the Eastern Colleges Science Conference lecture which you have so kindly consented to give. Miss Charlotte Grantz, Chairman of the conference, will meet you at 1:45 p.m. on Saturday, April 29, 1950 at the Kings Crown Hotel to escort you to the lecture hall for your speech. We hope this will meet with your approval.

Very respectfully yours,

*Frances Fuchs*  
Frances Fuchs

91 Riverside Drive,  
S. Charlotte, N.C.  
April 24, 1950.

Boston School of Technology,  
Boston, Mass.

Gentlemen:

I am interested in  
the new invention "The  
Hearing Aid." What is  
the price, can it be  
sent on approval?

Please advise by  
return mail, or at  
your earliest conven-  
ience.

Yours truly,  
Ida MacQueen.

April 24, 1950

Dr. Norbert Weiner  
M.I.T., 77 Massachusetts Ave.  
Cambridge 39, Mass.

Honored Sir:

Many thanks for the gracious letter. It has proved a tremendous stimulus to me. I hope that you will see that I am taking much of your wise and pertinent advice to heart and being guided by it.

I find your advice, on cutting the complexity of my designs to the bone, particularly appropriate to the whole present situation. This is desirable, not only for purposes of initial construction and experimentation, but is peculiarly suitable to purposes of its exposition. By sending you some of the more basic and simplified material, I will be enabled to gain time for preparation of additional material while you are digesting the previous material. Furthermore, you will be in a position to exert a highly selective influence, both on the material itself and the innumerable practical forms and uses which are possible for it.

I would like to make it unmistakably clear that I am primarily interested in achieving a materialization of my ideas, regardless of the financial gain it might bring me. If, in the future, it appears expedient to sign over claims and rights to some scientific institution, I would readily agree to do so upon your advice. As for Dr. Walter and yourself, I hereby authorize your use or publication of any material I may send to you, and without any financial reward to me. It seems to me that if any considerable development, along the lines of the Pavlovian metal brain, does take place, plenty of interesting and profitable work will be created for many of us.

Quite candidly, Dr. Weiner, my most immediate aim is to interest your versatile and imaginative mind in my particular work, to try to provide a worthy and enjoyable food for your intellect. I feel that there is no great rush. I feel that, if I succeed in this immediate objective, other important things will flow naturally therefrom. You will be the first, besides myself, to check the following material. I hope that you find that I am making a systematic effort to give a clear exposition and evolve special means for our mutual communication.

S. A. M.










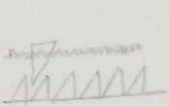
In the enclosed sketch you will find little more than the seed, or core, with which I began nearly twenty years ago. The sketch consists of a schematic representation of how the three essential neurons meet and make possible the formation of a conditioned reflex. On the extreme left, we have "N", for the "neutral stimulus", and this "N" is directly analogous to the neuron from a tactile stimulus which is to become a conditioned stimulus to salivation (as in a classical Pavlovian experiment). At the upper left corner, we have "R", for the "reinforcing stimulus" (feeding the dog). At the upper right corner, we have "M", for the motor (effector neuron), which leads out of the diagram and to the dog's salivary glands.

### Symbols for the Sketch

Blank lines and parts conduct electricity

Blue parts represent those which are rigidly attached to body of the machine.

Red is the color of all moving parts, other than electrical conductors.

-  ---The dot denotes an electrical connection.
-  ---Connection with a positive source of electric energy or "grid"
-  ---Connection with negative source, "ground"
-  ---Electric wire to allow for moving parts
-  ---Resistance wire, seen in the four rheostats
-  ---Direction of nervous impulse
-  ---Steel spring
-  ---Electrical switch, coil spring usually assumed
-  ---Same switch with hook to make it stay closed
-  ---Saw teeth pushing triangular conductor over resistance wire. Moderate mechanical resistance to moving triangle

4-24-50  
S.M.



Specially constructed electrical relay unit. The current extends rod "A" in direction of arrow, the distance and force of its extension being directly proportional to the strength of the current.



---Represents simple relay

Let us examine the location and function of the parts before we attempt to trace the electrical circuits during the various stages of conditioning. It is well to notice that a current, flowing through N, activates two of the specially constructed electrical relays (A and C). Likewise, a current, flowing through R, activates special relay (B). It is notable that there are four rheostats which are denoted as "resistance #1", #2, #3, and #4. An extension of relay B decreases resistance #4, and also decreases resistance #3 if relay A has already been (and still is) extended. The extension of relay A is too weak to move the big red "ST" (saw tooth) part, which occupies the center of the diagram, unless the relay (B) removes some of the effective resistance of resistance #3 by depressing the coil spring at E. When ST moves, it changes the resistances of #1 and #2. Relay C extends to change resistance #2 (again). The six coil springs are working under compression.

#### Mode of Operation

##### (a) Activation of relay A, and results

It will be noticed that the current flowing into relay A, from N, first passes through resistance #3. This full resistance is just sufficient to allow enough current to flow into relay A to extend it, carrying with it the whole rheostat arrangement of resistance #3 up to the moving part, ST. The extension is so weak, due to the full resistance of #3, that there is not sufficient force to move ST.

Now, if relay B is already extended (before A is)-- this prior extension of B forces B's plunger (D) down so that it cannot press at E and thus compress the coil spring (for #3) and decrease the effective resistance of resistance #3.

4-24-50  
8.7.71



However, if relay A extends first, and then relay B extends while relay A is still activated--relay B compresses the coil spring at E, the resistance of #3 is decreased, more current flows into relay A, relay A has sufficient force to move ST somewhat to the right, the red saw teeth move the triangular part (F), the resistance of resistance #1 is decreased, the effective resistance of resistance #2 is increased (in inverse proportion to #1), and switch at Z is permanently closed. Now there is a circuit established from a positive source (at G) through part of resistance #2 (what "part" depending on circumstances), then through the wavy wire to the triangular conductor (F) which slides on resistance #1, then from left to right through resistance #1 (a shorter distance as the maximum intensity of conditioning is approached), and then through the switch (Z) and on to M (motor neuron to salivary glands).

(b) Mutual compensation of resistances

Resistance wires #1 and #2 are of equal length and resistance. The movement of ST decreases the effective resistance at #1 to the same degree that it increases the effective resistance at #2, making the total resistance in the circuit (disregarding the action of relay C) constant and equivalent to either of the two wires. This constant resistance is the amount necessary to cut down the current in the circuit to a practical zero.

(c) Activation of relay C

It will be noticed that current from N also flows into relay C. When relay C extends, it tends to nullify whatever effective resistance that already exists in resistance #2, letting the effective resistance at #1 be the sole governor of what part of the effective resistance, remaining at both resistances, is to be removed temporarily, i.e. the degree of extension of relay C governs the proportion of the existing potential of current which determines the force of the nervous impulse sent through M (to salivary glands).

(d) Function of relay B

If relay A is already in extension, the extension of B reinforces the strength and distance of the extension of A and the whole saw tooth arrangement. If relay A is not already in extension, B's reinforcing action of A is precluded.

4-24-50  
SXM

In this primitive diagram, the extension of B always decreases the resistance of resistance #4, thus, not only initiating a current through that resistance, into M, but increases it in proportion to the degree of its extension. The coil spring, opposing the extension of B, operates under considerable tension, whereas the coil spring for resistance #3 is barely sufficient to return the rheostat to its position of maximum resistance.

#### Pavlovian Functions Performed

- (a) Principle of priority or simultaneity of the neutral stimulus.

This principle is guaranteed in this design because, if relay A extends its rheostat (resistance #3) after relay B is extended, relay B's pusher (D) is already down and is therefore unable to remove some of the resistance out of A's rheostat so that A will have enough strength to move ST and establish a connection with M.

- (b) Whether gradual or rapid conditioning

The use of the saw tooth arrangement allows for either a gradual or rapid conditioning.

- (c) Rate of conditioning increased by intensity of reinforcement

This Pavlovian principle is achieved at E on the rheostat containing resistance #3.

- (d) Rate of conditioning increased by strength of the neutral stimulus

It can be seen that, once the effective resistance of relay A's rheostat has been reduced, the force of the ~~force of the~~ current from N (sensory impulse) is an important factor in determining how far ST is to be pushed each time. In other words, resistance #3 is not the only variable resistance in N's circuit.

- (e) The direct proportionality (within limits) of the intensity of the conditioned stimulus and the intensity of reaction (governed by intensity of current through M).

This effect is achieved through relay C's action on resistance #2.

4-24-50  
J. T. M.

- (f) Principle that combined action of the conditioned and unconditioned stimuli give a greater reaction than either in isolation

This "summatory" effect is made possible by the fact that currents from both N and R are channeled into M at point H.

#### Shortcomings of this Design

Now, Dr. Weiner, I already have detailed sketches of conditioning units which are greatly refined over the one presently enclosed. They include mechanisms for forming "delayed reflexes" (determining the period of time from the beginning of the conditioned stimulus to the beginning of the conditioned response), the conditioned duration of the response, "inhibition of extinction" (temporary inhibition caused by repeated non-reinforcement (boredom), "reconditioning" (changing the conditioned stimulus to evoke a different response, a different M), and three different "functions" whose representative neurons travel back with the Neutral neuron to various organs. However, the mechanisms of "delay" and duration of the response are relatively complex, involve turning parts from the electric motor for the conditioning units, and therefore should be held in abeyance for the time being. Nevertheless, I'd be glad to send them to you soon.

I am now making plans to simplify greatly the mechanism for the initial generalization of stimuli and their subsequent differentiation (in accordance with your advice) so that a greatly simplified version can be available soon for simple construction, experimentation, and dramatic demonstration (in the tradition of Pavlov).

Now, Dr. Weiner, in the near future, if it please you, I will present several simplified plans to utilize the rather primitive conditioning unit which is enclosed. They will be just complex enough, just typically Pavlovian enough, and just dramatic enough to justify their construction. In your next communication to me you may give me the clue as to which plans offer the best immediate possibilities. At the same time, at a very early date, I will send you a mere outline sketch (the most complex mechanisms being blocked out) of my general advanced organization of the Pavlovian brain. This will be more in the nature of intellectual food for you and it will cast some light on the long range perspectives for construction.

4-24-50  
S.H.M.

I hope you agree with me that the enclosed plans are very simple and that actual models can be made from them without excessive time or expense. Though they are indeed crude, nevertheless, they have a certain historic importance which I am certain, of all people, you would be the first to recognize. Again, let me assure you that I entrust them to you and world science to do with as you see fit.

Now for plans for possible immediate construction. The method of designing of the special relays should not be difficult. I have my own ideas about them, but yours will probably be better.

#### First Plan

My first plan involves only one conditioning unit, one which is a bit more complex than the present enclosed one. Then there will be one simplified unit to generalize and differentiate one conditioned stimulus. (initial generalization means a spreading of the positive conditioned qualities of the new conditioned stimulus to its neighboring areas (of the skin), while differentiation means a later process wherein only the original conditioned stimulus is made the only one capable of evoking the reaction.)

This would entail a relatively simple construction, while, at the same time, we add the graphic and important Pavlovian functions of initial generalization and the subsequent differentiation of the stimulus. We would be dealing with only one conditioned reflex, although the ~~although~~ the initial spreading of the conditioned effect to the adjoining skin areas can be regarded as different reflexes. We are using only one unit of each so we thereby obviate the necessity of constructing the various master switching organs. We would be using the ultimately simple form of stimulus, a simple push-button (tactile) arrangement, thus obviating the immediate necessity of constructing my complex mechanisms for the channelling of many sensory impulses into a single wire (neuron) to form a complex stimulus.

Now, please allow me to visualize the truly dramatic demonstration or lecture we could give with the aid of this relatively simple apparatus. There would be a line of about twelve large and numbered push-buttons (representing the tactile stimuli, (in a famous public lecture by Pavlov), easily visible to the audience. Instead of the tiny glass vial, attached to the dog's jaw, in which the amount of salivation was measured, we would have a much larger and more easily visible one. To clarify the whole

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S. 8/11

process, as well as to accentuate the historic importance of our duplication, in steel, of the famous Pavlovian functions--it would be well to have the apparatus superimposed on a large drawing of a dog, the push-buttons on the skin, the reinforcing button (feeding) on the dog's open mouth, and the large vial on the side of the dog's jaw.

(a) First stage of the demonstration

At the beginning of the demonstration, we could show that no matter how many times any of the numbered push-buttons were depressed, while the reinforcing lever (feeding) is being held down (signifying period of eating), no conditioned reflexes can be formed, though there is a copious flow of water (saliva) into the vial as the result of "feeding".

(b) Second stage

Then we would take the middle push-button (#6) as our neutral stimulus to become conditioned; press it; while pressing it, press the reinforcer (on mouth); and then show, after this sequence has been completed, that by pushing button #6, in isolation, that there will be evoked a small secretion.

Then we repeat this routine until the conditioned reflex is at maximum strength. Thus, we not only demonstrate our mastery of gradual conditioning, but also complete our demonstration of our mastery of the principle of priority of the neutral stimulus to the reinforcing stimulus.

(c) Third stage

Next we demonstrate that the conditioned effect of #6 has spread to buttons on both sides, the ones more distant from #6 evoking smaller secretion than those which are nearer.

(d) Last stage

Lastly, we push #12 (or #1) a number of times, but never reinforcing it. This routine creates inhibition of differentiation, i.e. it gradually loses all its ability to evoke any excretion. Then we carry this process of differentiation on until only #6 retains its power to evoke salivation. Buttons #5 and #7 are the last to lose their positive qualities.

In all this, we have another dramatic or expositional advantage over the classical Pavlovian experiment in that

4-24-50  
S. P. M.

we are able to telescope weeks and months of animal experimentation into a matter of minutes with our apparatus. There is also the possibility of making the lecture further interesting by describing the exact mechanisms involved, even to the extent of having them visible during actual demonstration.

Well, Dr. Weiner, I find my time and space running out for the time being. I have another sketch and material, especially prepared for your kind, and, I hope, interested perusal. I will continue with their preparation while you are looking over the present little sketch. I have much material and many types and varieties of plans.

For those, who are a bit rusty on Pavlov's discoveries, I have written seven streamlined lessons on Pavlov. Not only is this material highly organized and brief, but it is constantly related to the reflex character of human thinking and behavior. I would be glad to work over several of these lessons for your special convenience.

Dear sir, I would like to take the liberty of encouraging you not to take a defeatist attitude to this material because of its great novelty and seeming complexity. May I remind you, respectfully, that we are "in on the ground floor" and can be expected to keep well ahead of the scientific world in this respect? Also, I fancy that there is a possibility, that through this incomplete and inclusive material, you may overlook many points of its bearing on many of your expressed ideas and objectives. There is always the chance for abstracting certain functions and mechanisms, herein, which could ~~be~~ be put to relatively rapid and practical uses. Please feel free to call upon me in any way possible for a long time to come. I am going on and on with my multifarious activities, but I confess that I crave the luxury of immediate and lofty discourse that you can provide for me. Then--there must be an actual beginning made, sometime, of actual construction and experimentation.

If I may be allowed a few words about myself, I am 44, have wife and child, record completely free of criminality, "white", reasonably good health, no occupational or geographical attachments, parents living and well to do, several years as civil engineering draughtsman with government, army three years, teacher and writer on tennis, and long an enthusiastic student of psychology. As a youth I always fancied myself as an inventor, but, after recognizing my insufficient training, I deliberately

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J.H.M.

started probing into the present virgin field, where  
I would not be at too great a disadvantage.

I dare hope that your broad outlook and undoubted lack  
of many common types of professional narrowness will  
help to make possible our sincere friendship.

Most Respectfully Yours,

*S. H. Mathews, Jr.*

S.H. Mathews, Jr.

WILLIAMS COLLEGE  
WILLIAMSTOWN, MASSACHUSETTS

DEPARTMENT OF MATHEMATICS

April 24, 1950

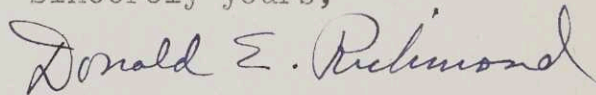
Professor Norbert Wiener  
Department of Mathematics  
Massachusetts Institute of Technology  
Cambridge, Massachusetts

Dear Professor Wiener:

I wish to express to you on behalf of our group our most sincere appreciation of your talk last Tuesday. I have received many compliments for you. The faculty and students from Williams who attended were greatly stimulated. Everyone was pleased to learn that a popular treatment of Cybernetics will be published this fall.

It was a pleasure to see you and Mrs. Wiener. Mrs. Richmond enjoyed meeting you both. We found your visit with us delightful and stimulating.

Sincerely yours,



Donald E. Richmond

DER: jm



April 24, 1950

Mr. Thomas A. Dickinson  
Box 67, Station M  
Los Angeles 32, California

Dear Mr. Dickinson:

I am very glad to have your reprint, and appreciate very much your note. I don't think that my attitude is so much a distortion of human beings as an awareness of the scientific difficulties of studying phenomena with which in a certain sense the observer can show residence. This is a real technical difficulty that should not be under-rated. It is nothing to do with misanthropy or anything of the like.

Sincerely yours,

Norbert Wiener

NW:z



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ES SIMBOLO DE LOS  
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DE LA MAS ALTA CALIDAD

*Best best de Maxip, also! - When will she come to Mexico again?*

Lieber Herr Professor,  
Liebe Frau Professor,

Ich möchte Ihnen von Herzen Danken, dass Sie meinen Jungen Peter so freundlich und liebenswürdig eingeladen haben. Er hat mir sehr begeistert geschrieben, und fügte hinzu, dass er soviel gefuttert hat, dass er sich nacher schämte. - Als Sie noch hier waren, sprachen wir ja darüber dass Peter wahrscheinlich wegen schlechter Noten aus MIT auscheiden müsste. Inzwischen hat er ja geschafft, dass er noch weiter machen kann, worüber ich mich sehr gefreut habe. Er ist dem "fraternity" haus ausgezogen, aus zwei Gründen, wie er mir schrieb: Erstens weil er alleine billiger wohnt und zweitens weil er so mehr Zeit zum Arbeiten hat. - Von Borns hatte ich ne nette Nachricht aus Aegypten, wo Max Vorträge hält. - Wir waren neulich beim hiesigen "Time-Magacine" -man hier eingeladen, Mr. Robert Benjamin und trafen dort beide Reiners, oder wie hiessen Sie ( Phillip something...cultural Attaché---with whom you so kindly invited us once here at the Hotel Genève)-both were pleased to see us again and told us, they had good letters from you. - Die Photos die wir damals in Guernavaca aufgenommen haben, sind keine wirklich guten Bilder, aber da sie eine Erinnerung sind schicke ich sie doch mit. - The paper was too hard, so the contrasts are much too pronounced. -

You will pardon this somewhat mixed language letter. - All our best.

Sincerely yours  
*Paul Rosenberg.*

*Hope to hear from you one of these days. Kindest regards. Cédelle*

1,300

Tenemos constantemente en existencia más de diferentes dimensiones y clases de Aceros ATLAS

*[ans 12/19150]*

Y.M.C.A. Room 430  
40 Lawrence Street  
Lawrence, Mass.

April 25, '50.

Mr. Dr. Mr. Wiener:

"Electronic Brains = Electronic - Mathematical  
- Brains"

... If you... are born only today - well, I won't  
write to you - ALL on this matter, Mr. Herbert  
Wiener (Dr.?).

- How CAN you... state SUCH a matter as,  
in SOME period of time it will be, - "The END  
of this, world, country, etc., By SOME means  
of Electronic Brains?" And -

Therefore,  
we must NOT FEAR "socialism" - WE can  
no longer fear WORD 'socialism'!

Mr. Wiener, -

Do you... understand WELL - what... you...  
just said to the people of the U.S.A.?

SEE -

"If" the Electronic Brains REPLACES  
people everywhere OUT... in Private Enterprise,  
as, - Companies, corporations, etc.

THEN -

How... ANY, character, system, etc., can  
SAVE us in socialism - communism especially

... As THAT is NO different WHO may  
RUN(s), factory, trust, etc., - Company,  
corporation or "government" or as you...  
like to SAY 'socialism - communism'...  
STILL the SAME (?).

"

You ... stated that the "automatic machine" in ANY, company, corporation, trust, etc., as - Private Enterprise, will put out "assembly line" to, Florida, California, around Boston beaches, etc., for ... sweet Romance ...

WELL -

How About "socialism" - Do the socialist - communist "government" CAN make automatic machine WORK - DO better for the people of the U.S.A., etc., than ANY, - Private Enterprise of an individual under-based - individual business?

- WHERE and HOW, - THE socialist - communist "government"; CAN force to WORK "automatic machine" for - AN assembly line, etc., FREELY?

NO

SUCH places  
or way, etc., at ANYWHERE.

... WE ...

HAVE, -

socialism - communism in russia, - EQUAL, - only to bastard-ISM ever the Human Being - FACED - so tragic LIFE on EARTH at ANY time in the Past - as we have now,

And -

Stalin even DON'T bother to EQUALIZE good living for ALL in russia and-occupied - enslaved, countries, nations, etc. EXCEPT bastard stalin in kremlin

— NO,  
God, - Christ of a Man,  
Religious,  
Truman,  
ATLEE,  
Norman Thomas,  
F. A. Roosevelt,  
DAILY WORKER,  
Bimbalax (- in Brooklyn, N.Y.),  
ETC. —  
ONLY

Stalin everywhere.

... ONE ...

— MORE —

! THING !

ARE

?

you... DIFFER on "socialism  
- communism" in Russia, or - ATLEE'S in  
London, England, or - Norman Thomas  
in U.S.A., etc.

---

EITHER one NO good

---

— Stalin OUT to KILL all - as long  
NO Stalin Private State Capitalism -  
Stalin's Private Communism in Kremlin;  
And as —

Mr. Atlee, Mr. Thomas, daily worker  
Bimbabax, etc., everywhere are ONLY the  
monkeys of time being - WHO'S -  
Oppression of - An Individual except  
Stalin.

WHAT'S

wrong with you... and the  
"Electronic-Mathematical-Brain"...

THE

Answer -

I AM (...).

- TELL me THIS -

How... socialism - communism CAN  
RUN-DO better - THAN, the, Catholic-ISM,  
Protestant-ISM, such as - etc., or, Democrats,  
Republicans, etc.?

WHAT'S wrong with you... (?)

- You... want to Run A... as  
THRU... SAME automatic machine ONTO  
all - as, THE, Lions, Tiger, Worms,  
Snakes, Crocodiles, Fishes, Monkeys,  
Doves, Peasants, etc., and SATISFY  
them ALL - you just CAN'T make  
this out on the SAME, system,  
Character, HOME, form, etc., without  
- INDIVIDUALITY, because you...  
are only MAN.

God Made It ALL - and Run All

✓

as - Individually without Any  
OPPRESSION among, THE, Individuals,  
Nations, Countries, etc.

Example, —

WHAT

THE... bastard stalin in russia,  
etc., ACCOMPLISHED for so MANY years  
EXCEPT crime among the people,  
Nations, Countries, etc.?

— WHO disavows God - ARE  
doomed at ANY time on EARTH -  
and THAT, it will follow, IS in the  
Right Judgment to PASS on EARTH  
and in HEAVEN, too.

THEN —

How CAN "socialist" government or  
ANY government DO this as - IN  
denying - A - Private ENTERPRISE  
of AN Individual to BASE-BUILD a  
Home of its OWN onto LIBERTY on  
EARTH? — Because you... do NOT  
want to ALLOW - HELP to DO this and  
that for themselves Individually NO  
matter WHO may be (?); and

THAT

DOES NOT MEAN "some" Individuals  
as, - company, co-ownership, Trust, etc., MUST  
BE, Stalin, Hitler, Mussolini, ATLEE, Thomas

VI

etc., to Bill, me, Steve, Norman, Monica,  
Ruth, Mootimer, etc., in the Private  
Enterprise, too.

... ? SO ? ...

INDIVIDUAL ! LIBERTY

" ! HOME

" ! HONESTY

" ! GOODWILL-WAGES

... [ ? ! ] ...

Marriage :

till you ... DIE —

THAT'S surely — A — Divorce only  
for the Human Beings on EARTH —  
AND —

as LONG as you ... or they DO NOT LIKE  
to SUFFER after DEATH — CHOOSE  
your own CHOICE on EARTH (!) —  
REMEMBER you ... ARE as the Human  
Beings — MEN and WOMEN in the IMAGE  
of God, — Christ, in Heaven — DON'T  
LIVE — the ... Beasts on Earth, and  
ANY who wants to be — FREE to DO  
SO





# Johnson & Johnson

NEW BRUNSWICK, N. J.

April 25, 1950

Dr. Norbert Wiener  
Massachusetts Institute of Technology  
Cambridge, Massachusetts

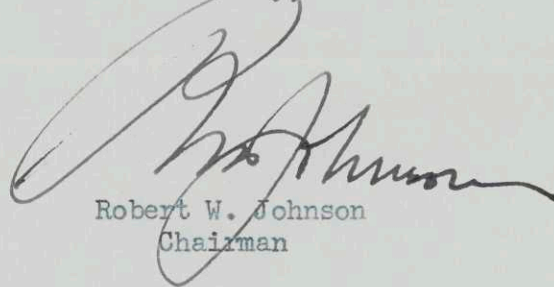
Dear Dr. Wiener:

In the Times of this morning, I read a statement which as presented is confusing. You are reported to have emphasized the social consequences of machinery developments that are "just around the corner".

Those of us close to industrial procedures are aware of the continued progress towards the mechanization of production. We must accept our responsibility for encouraging the proper social re-organizations growing out of further mechanization.

As quoted in the last sentence of the news story, you say "We can no longer fear the word 'socialism'." Would you be so kind as to tell me what you meant by this? I assume, like many newspaper reports, that this may not convey the true meaning of your remarks.

Sincerely,

A large, stylized handwritten signature in black ink, appearing to read 'R. W. Johnson', is written over the typed name and title.

Robert W. Johnson  
Chairman

THE UNIVERSITY OF CHICAGO  
CHICAGO 37 • ILLINOIS  
COMMITTEE ON MATHEMATICAL BIOLOGY  
5741 Drexel Avenue

April 25, 1950

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

Dear Wiener:

At the request of the American Journal of Sociology, I have written a review of Cybernetics, a carbon of which I enclose. Before sending in the review to the Journal, I would like to have your reaction as to whether I have, so to say, given a fair presentation of the case. If you feel that I have not given justice to some aspects of your book, please tell me so.

I am of the opinion that any responsible author is the best and the most severe judge of his own work. I wish I could quote you a sonet of Pushkin to that effect. Unfortunately I do not know of any translation, and it certainly would not do to translate it into English prose!

Since I am already rather late with the delivery of the review, I shall appreciate a reply by May 3rd. Please also return the enclosed carbon.

I plan to be in Boston May 31st - June 3rd at the Speech Communication Conference, and am looking forward to seeing you.

With best regards

Cordially,

N. Rashevsky

NR/aw

Cybernetics or Control and Communication in The Animal and The Machine.  
Norbert Wiener. 194 pp. New York: John Wiley & Sons, Inc. <sup>1948</sup> \$3.00.

The last two decades have witnessed the development of two rather different fields. One is mathematical biology; in particular, the mathematical biology of the central nervous system. By postulating relatively simple laws of interaction between neurons or groups of neurons, but assuming structural arrangements of various degrees of complexity, a mathematical theory of a number of quantitatively measurable psychophysiological and psychological phenomena, for example, reaction times, comparative judgments, discrimination of intensities, and learning has been developed.<sup>1</sup> In many instances a remarkable agreement was found between the theoretically derived expressions and observed data. By considering even more complex structures, specific neural mechanisms have been suggested which possess some of the important properties of Gestalt transposition,<sup>2,3,4</sup> and also throw light on some higher mental activities<sup>5,6</sup>.

The other field covers the engineering developments of such varied devices as computing machines,<sup>7</sup> automatic control mechanisms and all types of rapid communication equipment used in telegraphy and telephony. Some of the recent automatic control devices perform functions of a complexity which remind us of the human "mind." Yet, of course, both engineers and biologists are fully aware of the fact that a nerve fiber is not a wire, a neuron not an electronic tube and a synapse not a switch. We may ask, however, an important question: Is it not possible to develop

a general mathematical theory of such features as are common to the brain and the machine? In other words, is it not possible to develop a type of theory of isomorphism of function? If the answer to these questions is in the affirmative, then we are faced with a real progress in science, because the greater advances of science usually consist of establishing connections between apparently ~~different~~ <sup>disconnected</sup> phenomena.

It is, therefore, particularly significant that no less a scientist than Norbert Wiener has written a book which does give us that affirmative answer. The word "Cybernetics" is derived from the Greek  $\alpha\upsilon\text{-}\beta\epsilon\rho\upsilon\eta\sigma\eta\varsigma$  or steersman, and implies the study of steering or governing systems, regardless of whether a system is a part of the brain which controls a complex movement of the body or an electromechanical device which controls the flight of a plane.

A rather lengthy introduction (33 pages) gives a historical review of the author's interest in this field, and carries <sup>a</sup> personal, somewhat autobiographic, touch. The first chapter gives a non-technical presentation of the problem of reversibility and discusses the difference between deterministic and statistical approaches in physics and biology. The next three chapters deal consecutively with "Groups and Statistical Mechanics," "Time Series, Information and Communication" and "Feed-back and Oscillations." To a large extent they are mathematical, and a reader without mathematical training may find them rather difficult. The mathematical treatment is, however, accompanied by non-technical discussions which give the non-mathematical reader a general idea of the subject matter. The reader, ~~however~~, should not look in these chapters

for any discussions of design of telephone transmitters, mechanical regulators for different types of engines, etc. The author deals, as we have said above, with the problem of a general formal mathematical theory of the phenomena in question, a theory that is general enough to apply to any mechanism, whether biological or electromechanical. The author, however, illustrates the various possibilities by mentioning examples both from biology and engineering.

Chapter four deals with "Computing Machines and the Nervous System." It is less mathematical than the preceding chapters. Again, the reader does not find here any engineering design of computers. It is the general theory of computers and its neurobiological aspects that are discussed.

The last three chapters "Gestalt and Universals," "Cybernetics and Psychopathology" and "Information, Language and Society" do not use any mathematics, and will be enjoyed by any lay reader. The discussion on pages 172-173 of some analogies between disorders of computing machines and those of the brain are sprinkled with a charming touch of humor. The sociologist will be especially interested in the last chapter. The author's skepticism as to the validity of the assumption that a knowledge of laws of social phenomena will necessarily bring with it a possibility of controlling the destinies of society is heartily shared by the

reviewer, *though the latter does not share the author's implied skepticism as to the possibility of establishing general quantitative sociological laws.*

Some biological readers may feel disappointed because of the lack of specific theoretical developments applicable to definite cases and may consider this a serious shortcoming. This lack of specificity is, however,

due to the very nature of the book, which opens the field of a general theory to cover a large class of varied phenomena. The future will undoubtedly bring in more specific problems. And, as to shortcomings in general, it is usually a relatively easy task to find them, especially in a pioneering work. Anyone who likes may, without difficulty, enumerate the shortcomings, for example, of Newton's "Principia." In the opinion of the reviewer, the value of a book is to be judged primarily by the answers to the following two questions: "Does the book contain new ideas?" and "Does it suggest new lines of research?" In the case of "Cybernetics" the answer to both questions is an unqualified "yes."

One criticism the reviewer feels, however, compelled to make, and this is intended for the publisher: it is utterly inexcusable that such a book has no index!

N. Rashevsky  
The University of Chicago

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ROBERT L. STEWART  
INDUSTRIAL ECONOMIST  
1412 PARK CENTRAL BUILDING  
LOS ANGELES 14, CALIFORNIA  
ADAMS 3-2908

April 25, 1950

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

Dear Dr. Wiener:

AP carries your statement to the effect that "Electronic brains" will cause mass unemployment and hence we should welcome the welfare state and Socialism.

If you have been correctly quoted, permit me to say that you are probably totally misinformed regarding the American production process. In addition you have failed to study the basis of the American System which produces and uses automatic machinery but is never subservient to the machine.

Your concepts and prophesy may have some validity under certain European economic systems which have produced Socialism and Communism and which seem doomed to be the victims of these systems.

We have heard of four freedoms but do you think we should have a fifth - or freedom to instill socialistic doctrines into the minds of students at our leading educational institutions? I certainly would like to debate this subject with you.

Yours sincerely,

*Robert L. Stewart*

RLS:cmp

# The Swift Industrial Chemical Company

## Metal Treating Materials and Processes

Box 2189  
Hartford 1, Connecticut

Office: 296 Homestead Avenue  
Hartford 12, Connecticut

April 25, 1950

Dr. Norbert Wiener  
Mathematics Department  
Massachusetts Institute of Technology  
Cambridge 39, Mass.

Dear Dr. Wiener,

Thank you for accepting the invitation of The Hartford M.I.T. Club to be their speaker at their meeting May 3, Wednesday at Trinity College, Hartford, Conn..

The meeting time is to be 8:15 P.M. in the Trinity College Auditorium in the Chemistry Building. This is the building on the eastern side in the ell running east from the south end of the original building.

There is a parking area that is entered from Broad St., by a drive leading towards the field house. Going down Broad St., away from the city, the College will be readily noted on the right.

We have reserved a room for you at The Bond Hotel on Asylum St., and will check in for you that afternoon so you will be able to go to the desk and immediately obtain the key to the room (single with bath).

If you will let us know approximately when you expect to arrive, either I or one of our members will be pleased to meet you at the Hotel so that we could show you the way to the College building.

The Bond Hotel also would be an excellent place to eat.

The Development Fund Committee informs us that you are driving down with someone else from Tech and plan to drive back after the meeting. The Hotel room, however, is engaged for the night so in case your plans change and you require a room it will be available.

If there are any other arrangements you may wish, please let us know.

Again thanking you for accepting the invitation,

Very truly yours,

John A. Swift  
President, Hartford M.I.T. Club.

*John A. Swift*

April 25, 1950

Mr. William A. Brewer  
458 Catalina Street  
Los Angeles 5, California

Dear Mr. Brewer:

It seems to me clear that any study of ethics must involve questions of communicability and information, but that on the other hand the mere question of external communication is not enough to determine the ethics of the individual. The problems of patterns of behavior are one which involve all the difficulties of the Gestalt problem together with the even more difficult problem of motive. I think all these problems may be described in communicative terms, but not in any apriori way.

Behind the question of how people ought to behave lies at least in part the question of how they do behave, and as far as I know, they do behave in a large number of different and opposing ways and justify their behavior. I know this is not very satisfactory, but the point is that although cybernetic ideas are definitely relevant to ethics, we are very far from an ability to apply them in any closed form.

Sincerely yours,

Norbert Wiener

NW:z

April 25, 1950

Professor Don C. DeVault  
Department of Chemistry  
College of the Pacific  
Stockton 27, California

Dear Mr. DeVault:

This is merely an acknowledgement of your letter and paper. You have obviously gone into too much detail to insult your work by a casual reading. I shall therefore put it on my shelf until such time as I feel less pressure on me than at present; and when I have taken the time, I hope to write to you about it in some detail.

Sincerely yours,

Norbert Wiener

NW:z

April 25, 1950

Mr. Robert W. Johnson  
Johnson & Johnson  
New Brunswick, New Jersey

Dear Mr. Johnson:

Did you see the word "socialism" I, too saw the word "socialism" and I meant it. If through the machinery that is coming in Johnson and Johnson should cease to have more than five of its present staff of employees, and if that should happen for the various other industries of the flourishing city of New Brunswick, people would not eat, and people do not like that.

*discovery*  
If the average factory worker and office clerk can no longer find a position or quasi-repetitive task because the quasi repetitive tasks are being performed more cheaply and more efficiently by a machine, than their values as measured by their services in the open market will go down to zero. We cannot afford to be in the position of ~~developing~~ the lives of a large sector of our population. Unless we can find new values on some other basis, we are in for trouble, and this other basis will not come automatically. It will require planning of the first order, and cannot be left to the effort of the individual industries.

In most respects, I am not a bit impressed by the newspaper article. It was done clumsily by an inexperienced young man who misquoted me in many things. He did not misquote me in the reference to Socialism.

Very sincerely yours,

Norbert Wiener

NW:z

[ans. 4-25-50]

April 25, 1950

Professor J. R. Kline  
Department of Mathematics  
University of Pennsylvania  
Philadelphia, Pennsylvania

Dear Kline:

Margaret and I enjoyed our visit to you very much, and are delighted to find you in such relatively good condition. We are counting very much on a large part of the summer together.

Can you tell me what precisely I have committed myself to talk about at the Congress in Cambridge. I intend to get busy on the subject just as soon as possible.

Sincerely yours,

Norbert Wiener

NW:z

April 25, 1950

La Familia Luco  
1976 East 13th Street  
Brooklyn 29, New York

Querida familia Luco:

*Maria*  
Era un placer enorme para nosotros visitar a ustedes en New York y un placer igual ver a ustedes aquí en Boston. Estoy muy orgulloso que las relaciones entre los dos familias son tan estrechas. Mi esposa y yo esperamos con todo carazon que en el futuro tendremos la ocasion de visitar a ustedes en su casa en Chile. Es comico como la semejanza de mi *el* photographia y la *mo* photographia de su senor suegro ha originado tanto carino entre las familias. Para gentes como nosotros que ya empezamos estar viejos, es un grand placer connocer a una familia tan joven y llena de allegris como la sua.

Con todo carino de familia a familia, me firmo su  
seguro servidor y amigo.

Robert Warren

April 25, 1950

La Familia Luco  
1976 East 13th Street  
Brooklyn 29, New York

Querida familia Luco:

Era un placer enorme para nosotros visitar a ustedes en Nueva York y un placer águar ver a ustedes aquí en Boston. Estoy muy orgulloso que las relaciones entre los dos familias son tan estrechas. Mi esposa y yo esperamos con todo el carazon que en el futuro tendremos la ocasion de visitar a ustedes en su casa en Chile. Es comico como la semejanza de mi fotografia y la fotografia de su señor suegro ha originado tanto carino entre las familias. Para gente como nosotros que ya empezamos estar viejos, es un grand placer connocer a un familia tan joven y llena de allegris como la sua.

Con todo carino de familia a familia, me firmo, su  
Su seguro servidor y amico,

Norbert Wiener

NW:z

Yo quiero escribir a ustedes muy pronto, pero para mí es mas facile ver autieves. Espero en Connecticut en dos o tres semanas. Con todo carino,

*Norbert Wiener*



April 25, 1950

Mr. Stephen B. Miles, Jr.  
2536 Benvenue  
Berkeley 4, California

Dear Mr. Miles:

First I have been so repelled and inhibited by Korzybski's monkey shines that I have kept well away from general semantics. In the way that Korzybski used to sell his personal services to those whom he believed to be subject to a semantic block, he gave a good imitation of a quack doctor at a third rate medicine show. I know that one should realize that even a charlatan can stumble on good ideas, but I have never felt it worth while to wade through the sticky mud which is necessary for the exploration of this territory.

Second, I am very hopeful that the future of physics will see a period when we possess a better total synthesis than we do at the present time. However, I have very little expectation that such a synthesis will prove to be permanent. It would lead us at once to the studies of quantities of sign and order, and in these we may always expect that the synthesis we have already made will cease to be completely adequate. I think that any particular rip in the garment of physics can be mended, but that the tissue will give again somewhere else.

Third, the Leibniz monad and the Koehler Gestalt strike me as essentially different sorts of concepts. The Leibniz monad is separate from other beings not merely by its organization but by its very thingness. Leibniz, while he is in many ways the ancestor of our modern ideas of intellectual organization is still to much a man of the 17th century to realize them fully.

Many thanks for your appreciation of my book. There is going to be a sequel soon entitled THE HUMAN USE OF HUMAN BEINGS which will appear with Houghton-Mifflin.

Sincerely yours,

NW:z

Norbert Wiener, Jr.

THE WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY  
222 MAPLE AVENUE  
SHREWSBURY, MASS.

April 26, 1950

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

Dear Norbert:

I have learned from Mollie Brazier that she is planning to talk to your seminar at its next meeting, Wednesday, May 10th, but I shall be unable to make it if the meeting occurs on that date. This is the day of the annual meeting of the American Academy and I am scheduled to report the activities of the Permanent Science Fund.

Does the seminar have to be on the 10th inasmuch as the notices have not yet been sent out? What about Thursday, the 11th? I find that I am tied up on Tuesday, the 9th, Wednesday, the 10th, and Wednesday, the 17th, at the present time. Perhaps it will be impossible for us to work a date ~~for~~ *one* since if the seminars must be on Wednesday, my next free Wednesday would be the 24th.

With all best wishes,

As ever,

*Hudson*

Hudson Hoagland

HH:B

April 26, 1950  
Chicago, Ill.

Dr. Wiener,

Hope with vehemence that  
cybernetics shows the complete defeat of  
the vitalists.

Information could be defined in the  
following manner: AN ENTITY WHICH WHEN  
GIVEN A SPACE-TIME TRANSFORMATION ACTS  
IN SOME OPERATIONAL CAPACITY UPON  
THE ENVIRONMENTAL STRUCTURE OF THE  
SUBSEQUENT SPACE-TIME LOCALE. This would  
include verbal inscriptions, action by-extract, etc.  
This would be in accordance with 3.03-P.15 in re movement.

Sincerely,  
Robert S. Searcy.

94 Medway St.  
Providence, R. I.  
April 26, 1950

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

Dear Sir:

In the Providence Evening Bulletin of April 24, an article credited to you stated that the closing of certain mills in Manchester, New Hampshire was attributable to the substitution of automatic machines for labor.

To one long interested in the industrial capacity of the New England States and cost of manufacturing textile goods, this reason for the closing of textile mills is one not previously encountered.

It would be greatly appreciated if you would forward me more information with respect to the determination of the facts noted above.

Very truly yours,

/ef

*Myron G. Swanson*  
MYRON G. SWANSON

AIR\*MAIL  
SPECIAL  
DELIVERY

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

CAMBRIDGE 39, MASS.

DEPARTMENT OF MATHEMATICS

April 26, 1950

Mr. Herbert Feibert, Editor  
Commercial and Financial Chronicle  
25 Park Place  
New York 8, New York

Dear Sir:

As I have recently been misrepresented in one of the newspapers by an inexperienced reporter, I write the following statements to give my opinion on the future of automatic machinery. More material is to appear in a book of mine entitled THE HUMAN USE OF HUMAN BEINGS printed early this fall by Houghton-Mifflin. First, the technique of automatic machinery to replace human judgment in the factory which originally started with isolated pieces of apparatus and with a series of unrelated inventions has become organized and systematized with the use of the electronic computer as the decision center of the apparatus.

Second, this apparatus with proper sense organs and effectors is capable of running assembly lines and a whole factory.

Third, the cost of such an apparatus is high at present, but is very rapidly becoming less as research models are beginning to take standard form, and to be subject to mass production.

Fourth, the apparatus is quite capable of performing acts of accounting, cost accounting and statistical testing as it proceeds with its work of manufacture, and is therefore as much of a threat to the white collar worker as to overall labor.

Fifth, the work is transforming the task of the industrial engineer to that of the man who puts on the machine the original instruction or taping. This is a highly skilled task, and must be well done, although probably one or two people can do it for a whole industry. Besides this man, and his small staff the only other people around a factory will be the maintenance and trouble-chasing crew. The work of the latter will be greatly facilitated by known methods by which troubles may be made to show themselves before they have actually interfered seriously with the operation of the machine.

Mr. Herbert Feibert--2

Sixth, the machine will have its most immediate use in the factory. It will have much less effect on small scale industries like auto-repair and on agriculture, but there is absolutely no reason why the use of these machines may not spread considerably in the future and ultimately come down to an agricultural level. This is a difficult development job, rather than one of the introduction of any new principle.

Seventh, if the apparatus comes in gradually, it may be possible with the aid of a good deal of thinking to offset the social disorganization and the unemployment caused by a radical reorganization of human valuation in society. If it comes in suddenly, its impact may be catastrophic, and revolutionary.

*Scale*

Eighth, in the presence of war with Russia, we shall have to face simultaneously a maximum demand for Army personnel for the purpose of occupation, and a maximum demand for productive output. These will immediately bring the automatic factory into importance as one of the first needs for fighting a war. The personnel to develop the automatic factory already exists among those trained in electronic engineering in the last war, and among those developed by that generation. It is a conservative prediction to say that the large automatization of industry will then take place in from two to five years. Social reforms are almost never made in war time. We shall thus find ourselves confronted by the know-how of the automatic machine and a large backlog of already constructed automatic machines. Our returning soldiers will face a permanent situation of technological unemployment. This is the stuff of which revolutions are made.

I request that if you mention my name in connection with this material, you print this statement above exactly as it stands, making it clear that further comments on it are your own responsibility.

Very sincerely yours,

Norbert Wiener

NW:z

April 26, 1950

Miss Freda Kirchwey  
The National Associates  
20 Versey Street  
New York 7, New York

Dear Miss Kirchwey:

I am enclosing a copy of my address to the The  
Conference on the Atomic Era. I hope it will  
serve your purposes.

Sincerely yours,

Norbert Wiener

NW:z

April 26, 1950

Mr. C. F. Pattenison  
National Research Council  
Ottawa, Canada

Dear Mr. Pattenison:

I wish to acknowledge receipt of your very generous check, and also to express my appreciation of the hospitality and all the courtesy which you showed my wife and myself.

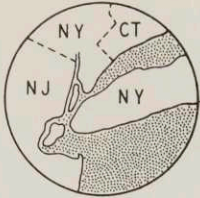
I hope that this will not be the last time we meet.

Sincerely yours,

Herbert Wiener

NW:z





# METROPOLITAN STATISTICAL SOCIETY

NEW YORK AREA CHAPTER • AMERICAN STATISTICAL ASSOCIATION

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April 27, 1950

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Massachusetts Institute of Technology  
Cambridge 39, Mass.

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Irving D. Lorge  
Nathan Morrison

Dear Professor Wiener

Attached is our check for \$39.40 to defray your expenses as listed in your letter of April 20th.

Also, I wish to thank you for your excellent answer to my query on the use of cycle analysis as a basis for prediction. I am now thoroughly convinced of the futility of that approach to the future.

With best personal regards.

Sincerely yours

Waite S. Brush  
President

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Julian P. Becker

Attach  
WSB:get

Copies to: Mr. Irving Lorge  
Mr. Nathan Morrison

70 ans

17 Bigelow St.  
Cambridge, Mass  
27 April 1950

Dear Prof. Wiener:

May I express my heartfelt appreciation for the very clear-cut and commendable presentation you gave last night at the Graduate House get-together on the nature of high speed computing machines and their many versatile applications to industry. You invited me to submit my comments on your talk so I have made a few which occurred to me after the talk, and I hope you will consider them only as my humble opinion.

The fact that some of your statements aroused a great deal of interest and comment from the audience is a real indication that your audience was quite attentive and that you promoted serious thinking on their part.

I am sure that, though everything you said last evening is quite possible, it is a debatable question whether the social problems which you speak of will arise for many years to come. I have reference to the displacement of skilled or semi-skilled labor by computing and programming machines.

As you know, planes are being scheduled to come in at proper time sequences by means of high speed computers receiving radar information; but there still is a pilot in the cockpit, and there will be for many years to come.

Similarly, in industry machines will become more automatic and be controlled by computing devices doing certain repetitive operations more quickly and efficiently than human beings, but the man will still be there to supervise the overall operation. This is necessary for one thing to avoid loss of time and scrapping of work started because of one operation going out of step from any one of a number of causes not necessarily attributed to a faulty computer.

Another thing, a completely automatic factory may be far more costly than one which has a certain number of skilled operators present. That is, a thinking type of machine may be found to be far more costly in depreciation and maintenance costs than a human being, something that will need to be carefully evaluated before drawing conclusions on the widespread displacement of human labor in factories, skilled or unskilled.

An example wherein a computing device would not be the ready solution to intricate problems arising is at the Watthour meter plant of the General Electric Company of Lynn, Mass. Here hundreds of small parts must be fitted together, including tiny springs, screws and washers, gears and shafts of various sizes, a great many delicate handling operations. Even if the programming of such operations were completely solved, there would still be the material handling and meter adjusting problems. The latter would be far more

difficult to solve than the computing problems, and until those operations are made automatic, even semi-skilled workers must be retained on the payroll.

I hope you will understand that I do not mean to under value the feasibility of the application of computing machines to factory operations but rather to bring out other problems that would need to be considered in making a factory completely automatic.

Very respectfully yours,

*Edwin Gabriel*

Edwin Gabriel

4-27-50

Oakland Calif

Mr N Wiener

Our earliest-antecedent just went ahead and lived without all this uproar - The mother-bear in Yosemite still does - you people would have us believe that man has not been on earth long enough to know how to live or that he is so dumb-dumb that he needs people like you to tell him.

When I brought this equivocal-reasoning to the attention of Professor A M Low of London he wrote "It seems that you are quite right with your charge that casuistry pervades the world."

For over 60 years I have heard educators boasting of our advancement and priceless-heritages. Why? Simply because the boast is to cover-up weakness and they were too-stupid to realize it.

If you have a nostrum to prescribe or a malady to warn us against do as does the medic with typhoid, show that the origin of our economic-problem supports you! You dare not try! over

I dare say that due to casuistry that afflicted some Good Others, nothing could induce you to consider the origin of our problems and take the people into your confidence, (as they refused to do.)

I wonder if it occurs to you that it always is the educated labor - which that lead so easily to tragedy - to economic-fear like that you needle here, to domestic-strife, civil and foreign war and then to suicide in despair! Always those most-educated like you - Never those with sense enough to labor to live as man had to, in the beginning. Man began on the land - Now you scream in agony at the possibility that he may go back to it! I was reared on a farm and it was not at all like being "baled in oil". We had to leave it when the parasitic-city rigged its markets against it forcing us to accept servitude that did not come with the economy that came with man! Less talk and a lot more labor would not hurt! B Herrod

# THE FEDERATED PRESS

~~133 WEST 44th STREET~~ • ~~NEW YORK 18, N. Y.~~  
401 BROADWAY • NEW YORK 13, N. Y.

April 27, 1950

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

Dear Dr. Wiener,

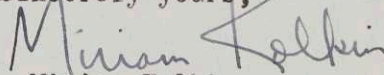
The Associated Press carried a brief dispatch April 24 quoting you as saying the U.S. faces mass unemployment and a "catastrophic second industrial revolution brought about by the use of the automatic machine."

Your statement is naturally of great interest to the Federated Press, which is a cooperative news agency that serves several hundred labor papers. There is a growing uneasiness among workers who see in electronics developments only a threat to their jobs and are unaware of how such advances can be used to transform society for their benefit. Perhaps you noticed an editorial in the CIO News' April 24 issue which warned of technological unemployment resulting from industry's adoption of what it called "automation."

We believe the problem requires much more discussion than it has been receiving and were therefore pleased to see the AP story on your views, briefly as they were reported. It has occurred to me that you might like to use the Federated Press service as a direct means of bringing your views on this issue to organized labor. Unfortunately, we have no correspondent in Boston so I am unable to request an interview. However, if you would care to send us any papers you may have written on the subject in the past or would like to write for us an article that would enlighten working people on how their interests are involved, we would be most pleased to hear from you.

You are aware, I am sure, even more than we are, of the extent to which American workers identify atomic energy exclusively with the bomb and are uninformed about its potentialities for aiding humanity. It would be a further tragedy if this mistaken impression were to be allowed to extend to other scientific developments. American workers have only the vaguest notions of the achievements in electronics, but what they do know is wrapped in fear. We would like to do whatever we can to supplant that fear with understanding.

Sincerely yours,

  
Miriam Kolkin  
News Editor

INCORPORATED 1919 IN ILLINOIS

136 Lovett Avenue  
Little Silver, New Jersey  
28 April 1950

Dr. Norbert Wiener  
Massachusetts Institute of Technology  
Cambridge 39, Massachusetts

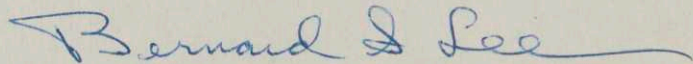
Dear Professor Wiener:

Upon the advice of Dr. G. A. Miller and others, I have revised my notes on the artificially induced stutter into letter form, briefer and less ebullient. When one discovers a new beast, half man and half electronic system, and recognizes the possibility of still other hybrids of this sort, it is difficult to act calmly. Please pardon me then for time you may have spent on my first essay.

I wish to point out that the effect I have reference to cannot be noted, except to a feeble degree, when the feedback comes over a loudspeaker. The earphones provide a closed circuit for delivering almost any desired amount of feedback to the subject's ears and open the circuit of what must be the major portion of our normal speech governing system.

Two subjects tested thus far have shown less speech disturbance than most, and both of these had training in choral singing. I am anxious to outline an investigating program and would appreciate the opportunity of discussing this with you.

Yours very truly,



BERNARD S. LEE

BSL:jvl

# CONTROL ENGINEERING COMPANY

*Designing and Fabricating Engineers*

April 28, 1950

7631 JOS. CAMPAU AVE.  
DETROIT 11, MICHIGAN  
Telephone TRinity 3-0484

Dr. Norbert Wiener  
Professor of Mathematics  
The Massachusetts Institute of Technology  
Cambridge, Massachusetts

Dear Dr. Wiener:

The writer and associates have followed many published reports of your work with a great deal of interest, particularly with respect to the study of Cybernetics and Mechanico-electrical systems designed to replace human control.

Our entire corporate efforts have for some time been engaged in designing, building and selling the type of equipment which is loosely referred to in the Detroit area as "automation". In some measure we are beginning to feel that we have commenced to receive recognition in industry through the results obtained from equipment designed, built and installed by our Company.

We do not, of course, any more than skirt the fringes of the field which engages your attention. However, the practical applications of mechanico-electrical equipment are the means by which we exist and we are most appreciative of the effect your studies have had upon industrial planning and thinking for the future.

From time to time we have noted published statements and opinions which are attributed to you, and we are writing with reference to an article in which you are quoted and which appeared in the Detroit News under date of April 24th.

We quote as follows:

"Machinery controlled by electronic brains could within a decade completely wipe out the (factory) assembly line".

We are at the present time collaborating with our parent concern, the Jervis B. Webb Co., conveyor manufacturers, who are developing and installing a system for the production of automobile bodies for the Chrysler Corp. This system will to some extent fit into the implications of your above statement. We will be very happy to send you a more detailed report describing this equipment if you feel it would be of interest. We have installed many other systems of similar type.

A further paragraph reads, "Where an assembly line contained a hundred workers, with the automaton this same line would resemble the emptiness of a huge power plant with only a skeleton maintenance crew to service the machine".

Now, Mr. Wiener, we want you to dwell with us on the words "skeleton maintenance crew" because, perhaps inadvertently, you have referred to the horrible grinning skeleton which sometimes stands over the corpse of a defunct automaton.



The automaton, conceived with loving care and successfully put into motion, has been ruthlessly cut down in it's prime. This killing has been accomplished, not by management which dared to take a chance, not by labor which feared it, but by a plant maintenance department which simply could not or would not face the obligation of having to care for it.

We know that you have labored hard to germinate the ideas and principles which induce many to try to initiate various phases of the controlled systems you advocate. We also know that your published statements command the attention of forward thinking industrial groups everywhere.

It occurs to us that greater emphasis on your part concerning the necessity for better maintenance would have a most favorable effect upon the industrialists in bringing the importance of this phase to their attention.

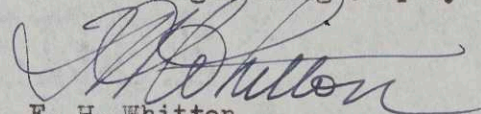
It is deplorable to be obliged to entrust a carefully thought out mechanism, involving complicated mechanico-electrical features to the indifferent attentions of a man whose entire technical and educational background hinges on the off chance that someone once put a grease gun or a wrench in his hand and told him to go to work.

Unfortunately the quality of supervision and the proper execution of work in the maintenance department has not kept pace with that of other engineering and technical sections. Unless this situation improves rapidly the efforts of our group to create better automatic equipment may be badly crippled.

We trust that your thinking along these lines concurs with ours and that you will see your way clear to initiate attention to this problem, at least briefly, whenever the opportunity arises.

Yours very truly,

Control Engineering Company



F. H. Whitton  
Vice-President

557 Kosciusko St.  
Brooklyn 21, N.Y.  
April 29th 1950

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

My dear Dr. Wiener:

This nation's economy may be divided into two phases that of a youthful one and subsequently a mature one. Our youthful economy began at the inception of the nation and as the decades rolled by, the Europeans and the Africans and the Mongols converged on this continent and with the capital by the European investment spirited people built up our economy from that of a youthful one into a mature one. As soon as the strict immigration laws were enacted, America gave the signal to the world that its economy was maturing and that it depends upon the export of goods hereafter. The World War I was the manifestation of this trend and followed by a conversion of this nation from a debtor to a creditor.

The European continent was a deficient one from time immemorial, the fact the Vikings and Columbus pushed westward manifests this deficiency. The scarcity of products or the scarcity economy spawned many queer movements in Europe and chiefly among which are socialism and communism and notoriously fascism and nazism. All of which left a bad odour for us Americans for it savors of government to get nosy into the private affairs of man and meddle with the problems. In our mature economy apparently there is none to indicate the course to pursue from here. For lack of such a course, we grab at socialism or the extremes of our population at communism. These are unmindful that socialism and communism are the brain children of a deficient continent where they made it possible to share poverty by all. Our mature and abundant economy requires a different viewpoint, especially such that wealth is to be shared by all. It fell to my task to pioneer in social thinking and I am gratified to inform the world that the result of my reflection is a thesis, Capitalism Overhauled. This course is the non-revolutionary and the non-antagonistic to wealth and its institutions. Capitalism Overhauled theorizes thus:

The Anglo-Saxon race is known as reluctant to bring to the attention of others their personal affairs, much less to government for any sort of solution. I believe it was Marx who collaborated with Engels, the Englishman and brought forth a momentous idea that organized government or the state is to contend with these affairs and apply an adequate solution as they arise from the then beginnings of industrialization. A German refugee in the capital of Anglo-Saxons brought forth a theory of the Hegelian philosophy dedicated to the proposition: The state is the master and the subject or citizen is the servant. We notice how the socialists had hard sledding to gain the public attention. To this day, the party is known as the Labor Party and <sup>not</sup> Socialist Party. The fact is that the Labor Party was weakened in the recent election may be attributed to the genuine psychology of the Britishers who are reluctant to give more power to government to mess with public affairs. An Asiatic, Lenin labored on the above proposition thus: Russia and the Orient are known for centuries of absolutism or its synonym, tyranny. He exulted over the fact of being capable to shove into the throat of the masses - "the workers' paradise".

In the United States we have not the hyphenated political economy. We Americans master the art of politics and teach the science of civics with a department for "economics". The idea prevails in the minds of the people that the state is not to meddle in the referred-to affairs. The great Gompers laid the foundation for the labor movement and dedicated to the proposition: The citizen is the master and the state is the servant. The Republicans sense this and formulated a slogan, the menace of statism. The liberals of the land flirt in the vacuum between industry and labor with a greater slice for the latter.

I say "flirt" advisedly for the liberals no new word or formula in economics. We see how the Soviets bungled in their economy and how they are compelled to explain their fiasco by lies and lies again. They have conceived a cold war against a free world to divert and deflect their blunders from a true appraisal. It is remarkable they began with the slogan: Workers of the world unite you have nothing to lose but your chains. Now they hold about 15 million workers in chains or slave labor. The slogan now is: Russia first in every invention of this or that. They are unconscious of what the right hand is doing while using the left. Yes, snooping and spying goes on with all intensity, to find out what is the neighbor doing or planning. These are the premises which brought Capitalism Overhauled and the postulate of dissociation of the concept of government from the nation's economy. By this world-wide dissociation, the economies of the globe become ever closer and no reason for the acute nationalism and the breeding center of war.

The history of human culture is marked with these eventful separations. At the outset it was religion. Man in his primitive mind searched into the meaning of the creation for many phenomena were befogged to him. He conceived the idea that there should be a lone creator, a God and this creator anticipates that his creature, man is to give Him adulation and accordingly various dogmas came about and sacred to the adherents. In the ever searching mind of man, there arose a desire to study the nature of substance and matter. This knowledge accumulation resulted in the outgrowth of the sciences that came into conflict with the sacred dogmas. The solution arrived at, was to the effect that science had nothing to do with religion. Science was to continue in the study of nature and the religion to the metaphysical. Religion thus was dissociated from science. In the ever larger development of the state power, it came into conflict with the established church and thus another separation took place from that of the state and the church. Academic studies were originally under the aegis of the state and since this was fettering to the free research. A happy medium was struck and that is by the chartering specific corporations to have sole charge over the advanced studies. In a similar fashion, Capitalism Overhauled postulates the erection of specific corporations for the whole economic endeavor. It creates a pool of all the economic forces to diffuse the abundant wealth in a manner that all may have the access.

I am gratified to learn of your prediction that robots are to run factories. As soon as the directives of this blueprint, Capitalism Overhauled, are effectuated, the unemployment bugman is to scare no one. For in that age, man is to fly bird-like in the air and even have his meals ~~are~~ with him, so that he must not come for nourishment down as the birds do. Your Institute with the technological inventions and capitalism overhauled organizing our economy through the principle of coordination and the maximum efficiency are an ideal pair. Let us be realistic and appraise the nature of man, he has ambition and does not want to stay at his occupation for all the living years, he has the initiative as evidence of which we have all progress to mark, he has incentive and labors towards an advancement of his interests. In a socialistic state, once a wage earner, always a wage earner. Under Capitalism Overhauled, the opportunity is offered to end up as an enterpriser.

In view of the fact that you are an eminent mathematician, I take it that you are conversant with the rudimentaries of economics as the enclosed clipping indicates. I suggest in the interests of a blissful mankind, that you request the study of my blueprint, the Ms. As soon as you find it merits the attention of your colleagues, the economists of the Institute, please let them <sup>have</sup> peek at it and subsequently let me know what their status is and what is yours?

Very sincerely yours,  
Max Pasternak

April 29, 1950

Miss Miriam Kolkin  
The Federated Press  
401 Braodway  
New York 13, New York

Dear Miss Kolkin:

My new book entitled THE HUMAN USE OF HUMAN BEINGS which is to appear late in the summer under the imprint of Houghton-Mifflin is largely devoted to question related to those that interest you. I think that any publicity that I receive should be integrated with the book, and the plans for its diffusion. I am quite certain that if you want to address an inquiry directly to Houghton-Mifflin, they would be interested in sending you either cut-proof copy of the book, or at least material concerning it. My suggestion to you is that you do so, and that any any publicity having to do with me, the book, or my ideas be so fitmed as to come out late in August or early in September, that is just before or just after the publication of the book. In this way I shall benefit by publicity which may help the sale of the book, and you will benefit by bringing out your article at a time when it will attract a maximum amount of attention.

I am interested in whatever suggestions you can offer.

Sincerely yours,

Norbert Wiener

NW:z

2536 Benvenue, Berkeley 4  
California  
April 30, 1950

Prof. Norbert Wiener  
Department of Mathematics  
Massachusetts Institute of Technology  
Cambridge 36, Massachusetts

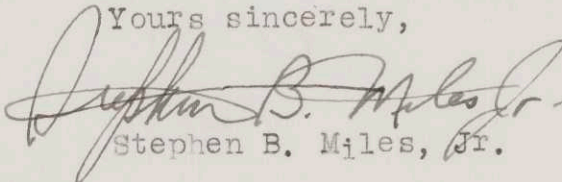
Dear Professor Wiener:

Many thanks for coming through so vigorously in your letter of April 29. I felt sure I could rely on you, at least, to have positive ideas and to express them forcefully -- to stand out against our endemic condition of wishy-washyness.

With respect to what you said, I'll have to turn it over carefully in my mind. For one thing, I'm still plowing through SCIENCE AND SANITY (a little wearily, I'll admit) You will hear from me again in a few months.

I'm eagerly looking forward to reading THE HUMAN USE OF HUMAN BEINGS. I've asked Houghton-Mifflin to send me a copy as soon as it comes off the press.

Yours sincerely,



Stephen B. Miles, Jr.

April 30, 1950

Dr. Nicholas Rashevsky  
Committee on Mathematical Biology  
5741 Drexel Avenue  
Chicago 37, Illinois

Dear Dr. Rashevsky:

I am grateful, though naturally in no way surprised at the fairness of your review, and I would like to suggest no modifications of it. A great deal of what I have written in my book consists in controversial material where diverging opinions are of value and it is precisely in that it is written from your personal standpoint that the importance of your review consists.

Sincerely yours,

Norbert Wiener

NW:z