245

CORRESPONDENCE April 1-11, 1958

[ca April, 1958]

HEADQUARTERS
OKLAHOMA CITY AIR MATERIEL AREA
UNITED STATES AIR FORCE
TINKER AIR FORCE BASE, OKLAHOMA

In Reply Refer To:
OCCIA

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

Dear Sir:

Your letter of 10 March has been received with extreme pleasure. I am inclosing a thermofaxed copy of it to facilitate the following discussion.

The letter of 4 March which I sent you (and a copy of which is inclosed) was rather widely disseminated throughout the country to likely research activities. Your reply is the only one I have received so far, in which, solid indications are given for the ultimate solution of the problem.

Referring to the paragraph numbered (3) on the first page of the inclosed form letter, the object of this routine is to find the linear transfer functions G_1 (S), G_2 (S) etcetera indicated on pages 2 and 3 of the inclosure to the form letter. Now the method of solution which I propose is outlined in the case I discussion on page 3 of the inclosure to the form letter. Reduced to the simple case of one forcing function and one response, this method amounts to stating that the linear transfer function, G (S), is equal to the quotient of the Laplace transform of the response function divided by the Laplace transform of whatever forcing function caused the response. For a multiple input system with many forcing functions and therefore many transfer functions to be derived, the problem is, as you indicated in paragraph (3) of your reply, solvable by purely algebraic means once the Laplace transforms of all the observations are determined. This algebra, however, gets pretty rough since the matrices involved have elements which in general are rational polynomials in S. Matrix evaluation programs presently available for digital computers to the best of my knowledge work only for matrices having real or complex numbers as elements. Now the Laplace transform method of determining transfer functions has the built in ability to discover time delays between inputs and outputs. Certainly in studying logistics and economic systems such time delays would be quite common. This would mean that the numerator determinant (see page 3 inclosure to the form letter) would contain $e^{-ks}[P(S)]$ type terms in the column which contained the Laplace transforms of the output (or response) function. This is the transcendental function of S to which I referred on page 1 of the form letter. Perhaps the determinant should be evaluated without expanding the transcendental terms into a converging power series - I really do not know.

Certainly the evaluation of a determinant such as I have indicated above, could be an extremely time consuming operation. Gaussian elimination, at least to me, appears to be practically impossible as a matrix inversion technique where the matrix elements are rational polynomials. Expansion of the determinant by the definition is at least theoretically possible, but from a practical point of view its use might severely limit the size of the problem which a computer could economically or feasibly handle. However, I am presently concerned more with overcoming theoretical math difficulties than machine computational difficulties. I feel that if necessary the computer can be built to solve the problem rather than the problem being curtailed to fit the computer. Perhaps some digital - analog half breed machine may be designed to handle this type of problem.

You may question the validity of using the Laplace transform to derive transfer functions. Frankly, I may be on very shaky ground - the only math books I have studied dealing with the method indicate that the input forms should be step functions or impulse functions. (Of course these discussions were meant only for applications to a single input system). I never could see exactly why this necessarily had to be the case - apparently it may be necessary that the Fourier Series of any input forms used contain a reasonably representative number of the frequencies likely to be encountered whenever the system actually operated. The general data reduction method I have proposed then would include the assumption that the observed inputs would contain a reasonable representation of the significant frequencies. Certainly this assumption would be sometimes more valid than at other times.

You suggested in your reply (paragraph (3)) that "such problems are best solved by a Fourier transformation ..."' I regreat to say that although I have a general understanding of the Laplace transformation, and I have a general understanding of Fourier Series, I nevertheless have a very dim and obscure understanding as to the use of the Fourier transformation to obtain transfer functions. Any references along this line would be greatly appreciated. In particular, I would be interested in knowing whether this approach offers any advantage over the Laplace method when derivatives of the observed input and response data are not zero for $t < 0$.

Inclosure 3 is a copy of a "cold water" reply to my form letter which I received from Convair, San Diego. I am including it for further clarification of the problem. I do not necessarily agree with the bleak outlook expressed by Mr. Ferber. The length of such a program might easily be offset by its usefulness.

Although I know of an IBM 650 program for solving ordinary linear differential equations by the Laplace transform method, and I feel that it may incorporate some useful routines for the program I

seek, I have not as yet obtained a detailed flow chart of the operations of this program. Preliminary investigation indicates that the method it uses for finding the inverse Laplace transforms is not 100% inclusive.

Concerning the curve fitting routine mentioned in paragraph (1) of my form letter, I would like to say that what was really desired was a method of fitting an equation to a curve so that <u>all</u> the terms were of the form ae^{bt} or a product of this type term and a sine or cosine term. For example, consider the equation:

$$F(t) = e^{-t} + 3e^{-5t} - 4e^{-7t} \cos 6t + 11$$

Such an equation as this I do not believe could be derived by simple logarithmic transformations as it could be if only one term (e.g. e^{-t}) appeared on the right hand side. For this reason, I shall be quite interested in your method of finding a Laplace transform of sequentially arranged input data to which no equation has been fitted, since such a procedure circumvents the need for curve fitting. Laplace transforms of polynomials in t to me appear quite undesirable if they can be avoided, since their form is not directly compatible with linear transfer functions.

Quite another approach to the problem of deriving linear transfer functions might be to assume that such transfer functions were of the form:

$$\frac{k_1 e^{-k_2 s} (k_3 s^2 + k_4 s + 1)}{s^{k_8} (k_5 s^3 + k_6 s^2 + k_7 s + 1)}$$

or simpler. Perhaps some straight forward method exists for determining the constants in the above expression given ample samples of input and output data. I, personally, know of no direct method to do this, but if one exists which involves complications no worse than matrix inversions where the matrix elements are real numbers, then there is much hope for a <u>rapid</u> computer solution since already there exist analog computers which solve large matrix inversion problems almost instantly (and of course digital computers do this with more accuracy but in a longer time).

I apologize for so much rambling, but I believe this business of automatically deriving differential equations deserves a great deal of attention.

A very real bottle neck in achieving useful simulation of complex dynamic systems lies in the fact that the systems analysts are likely to die before they get enough differential equations written describing the system they are analyzing. Especially is this true in weather and

economic systems. My present justification for doing research in this area is to facilitate simulation studies of logistics systems for the Air Force.

It is offensive to me as a scientist to use algebraic equations to describe dynamic systems, but this is all too often the practice where the system is so complex that the only available computer analysis tool is the statistical technique of multiple linear regression.

Assuming the ultimate successful completion of the subject program, it appears that a worthwhile goal for long range basic research efforts would be to work toward establishment of automatic computational methods capable of deriving (1) linear differential equations with variable coefficients; (2) non-linear differential equations; and (3) partial differential equations using observed input and output historical data concerning the systems. It is my intention to recommend such a project to the Air Force in the future.

After digesting all the useful information I can get from your office and other sources concerning the derivation of linear differential equations with constant coefficients, I shall estimate the practicability of developing a 705 digital computer program to do this. If it appears that a useful program can be written in a reasonably short time in the Fortran programming language, we shall attempt to do that here. If it appears that a useful program is possible but too complex to be locally programmed, then I shall submit a recommendation that the Air Force let a contract to have it programmed in some streamlined computer language such as Fortran. If the program appears to be possible but not feasible for solution by presently available computers, then I shall recommend that a research contract be let to design a special purpose computer to find rapidly linear transfer functions from cause and effect data.

Regardless of my success or failure with the problem of deriving linear transfer functions with constant coefficients, I intend to recommend the long range data reduction research project mentioned two paragraphs above.

There is much talk of controlling the weather to accomplish various things. It appears that we must first derive adequate differential equations to describe the weather before we can do much controlling. Even though we feel that such equations must of necessity be partial differential equations, we should be better off approximating them with ordinary linear differential equations than with statistically determined algebraic equations.

So in summary, I do not expect to find a means of obtaining differential equations which will <u>accurately</u> describe a dynamic system; rather, I hope to find a way of obtaining differential equations which

will give better approximations of a dynamic system's behavior than any methods used in the past.

I shall await with much anticipation your remarks concerning the research effort I have outlined herein.

Again I wish to express my appreciation for your interest in what I believe to be an extremely worthwhile research effort.

Sincerely,

Henry P. T. Corley

3 Incl
1. Your letter, 10 Mar 58
2. My form letter
3. Reply to my form letter

HENRY P. T. CORLEY
Captain, USAF
Chief, Research and Analysis Branch
Research and Plans Division
Assistant for Data Processing
Comptroller

[ans 4/11/58]

OCCLA

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Captain, USAF
Chief, Research and Analysis Branch
Research and Plans Division
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Comptroller

3 Incl
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MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE 39, MASS.

DEPARTMENT OF MATHEMATICS

March 10, 1958

Captain Henry P. T. Corley
Chief, Research and Analysis Branch
Oklahoma City Air Material Area
United States Air Force
Tinker Air Force Base, Oklahoma

Re: OCCLA

My dear Captain Corley:

This is to comment on your letter of of the 4th of March.

(1) Regarding the curve fitting routine to fit equations of the type ae^{bt} to observed data, this problem can be solved by plotting the logarithum of the function given in the equation against the time and passing the best straight line through to the given points. This is a routine problem of least squares and offers no difficulty.

(2) The problem of finding the Laplace transformation of a given equation can be solved by a logarithumic change in base and then by means of a Fourier transformer routine. I am now writing this up for you.

(3) I would like more information as to just what you want. It seems to me that such problems are best solved by a Fourier transformation of the matrix in question and then by a purely algebra formulation. If you can be more specific I shall be glad to look into the matter.

(4) and (5) belong closely together with (2) and in the course of the next few weeks I shall write them up for you. I have no assistance for computation, nor am I willing to spend my time on it unless the Air Force can procure proper assistance for me in reducing this to a form satisfactory to you. This does not involve any compensation for myself, but it does involve the Air Force assuming any subsidiary expenses to which I would be forced to put myself in procuring assistance.

Sincerely yours,

NW:AD

Norbert Wiener

HEADQUARTERS
OKLAHOMA CITY AIR MATERIEL AREA
UNITED STATES AIR FORCE
TINKER AIR FORCE BASE, OKLAHOMA

In Reply Refer To:

OCCLA

Dear Sir:

Inclosed is a discussion of what I believe to be a much needed, but as yet undeveloped computer program.

This letter is being written to try to obtain useful information in the development of an IBM 705 digital computer program to handle Cases I and II of the inclosed problem. If your facility can furnish useful flow charts (for any computer) or "canned" 705 routines for any of the following procedures, details would be greatly appreciated:

(1) A curve fitting routine which preferably fits equations of the type ae^{bt} to observed data.

(2) A routine which finds the Laplace transformation of a given equation, or preferably a routine which finds the Laplace transformation of a given set of sequentially arranged input data to which no equation has been fitted.

(3) A routine which finds the determinant or the inverse of a matrix, the elements of which are the ratios of two polynomials in s, where s is the differential operator. This routine appears to be the real potential bottleneck in this program since transcendental functions of s, which frequently appear in Laplace transforms of various functions, would be extremely difficult to handle unless expanded into polynomial form. But any such expansion used would have to be one which converged rapidly for large values of s in order to maintain accuracy.

Incl 3

(4) A routine which finds the inverse Laplace transformation of any function of s.

(5) A routine which evaluates, for some given interval of the independent variable, time, any function of time which might have been found as an inverse Laplace transformation.

(6) Of course, a complete routine incorporating all of the foregoing into a single program.

In addition to the above, we would be extremely thankful if we could obtain theoretical approaches, hints, discussions and/or references to assist in handling (for computer programming purposes) any or all of Cases III through XII of the inclosed described problem. The non-linear Cases VII through XII are intended to include systems of ordinary linear differential equations with variable coefficients.

It appears that successful use of the inclosed described program could have the effect of very greatly speeding up many kinds of research in this country if it were made universally available.

The above described information is requested only if it can be obtained at no expense to the Air Force.

Very truly yours,

1 Incl
Discussion of General
Data Reduction Routine

HENRY P. T. CORLEY
Captain, USAF
Chief, Research and Analysis Branch
Assistant for Data Processing
Comptroller

DISCUSSION OF
GENERAL DATA REDUCTION ROUTINE

The following type of problem is encountered so frequently in almost all fields of research that it is considered worthy of special attention in order that automatic computer procedures be developed for the rapid solution of said problem.

Problem Statement

Given some dynamic system - physical, logistical, economic, biological or otherwise - with much historical data available concerning the inputs and outputs of the system, it is desired to find a system of differential equations which adequately describe the relationship between a particular output variable and each input variable.

It is assumed that the system can be represented in block diagram form as shown in Figure I (at least for the linear cases) where the input variables appear on the left (e.g. F_1 (t), F_2 (t), etc.), the transfer functions in differential operator form appear in the middle (e.g. G_1 (s) G_2 (s) etc.) and the output variable, x (t), appears on the right. The end objective of the problem is to determine the transfer functions (G_1 (s), G_2 (s), etc.) relating the input variables to the output variable. All variables would generally be expected to be functions of time.

Observations of input and output variables recorded simultaneously are indicated by having identical numbers for the second digits of the subscripts of the input variables and by the subscript of the output variable. Thus, the set of variables used for the third observation of a system would appear: F_{13} (t) for one input variable; F_{23} (t) for some other input variable; F_{33} (t) for a still different input variable etc. and x_3 (t) for the output variable. (See Page 3, Case I)

The following distinct cases of this problem are mentioned in order that each can be considered separately.

CASE I

The system is assumed to be capable of description by a system of ordinary linear differential equations with constant coefficients. All input variables, initial conditions, and the output variable are zero for $T < 0$. The number of observations equals the number of input variables.

CASE II

Same as Case I except that the number of observations is greater than the number of input variables.

CASE III

Same as Case I except that the number of observations is less than the number of input variables.

CASE IV

Same as Case I except that the initial conditions are not known and the values of the variables are not known for $t \angle 0$.

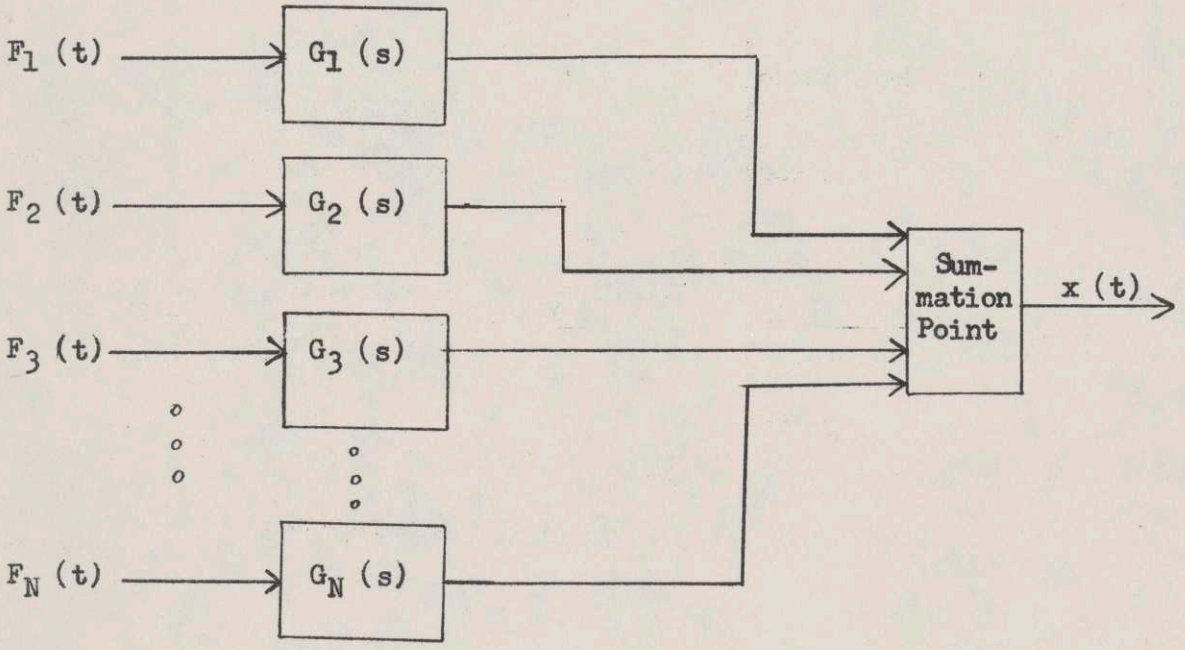
CASE V

Same as Case II except that initial conditions are unknown.

CASE VI

Same as Case III except that initial conditions are unknown.

Cases VII through XII are respectively the same as Cases I through VI except that one or more of the transfer functions is non-linear or one or more of the transfer functions is representative of an ordinary linear differential equation with variable coefficients, where such coefficients are functions of one or more of the input variables.



N is the number of input variables.
x (t) is the output variable

Figure I.

Approaches to Case Solutions

CASE I

For this case, the following equations can be written:

$$\begin{aligned}
&L\,F_{11}(t)\,G_1(s) + L\,F_{21}(t)\,G_2(s) + \ldots L\,F_{N1}(t)\,G_N(s) = L\,x_1(t)\\
&L\,F_{12}(t)\,G_1(s) + L\,F_{22}(t)\,G_2(s) + \ldots L\,F_{N2}(t)\,G_N(s) = L\,x_2(t)\\
&\qquad\qquad\vdots\\
&L\,F_{1N}(t)\,G_1(s) + L\,F_{2N}(t)\,G_2(s) + \ldots L\,F_{NN}(t)\,G_N(s) = L\,x_N(t)
\end{aligned}$$

The solution of this case for any particular transfer function can be theoretically found by suitable application of matrix algebra. For example:

$$G_2(s) = \frac{\begin{vmatrix} L\,F_{11}(t) & L\,x_1(t) & \ldots & L\,F_{N1}(t)\\ L\,F_{12}(t) & L\,x_2(t) & & L\,F_{N2}(t)\\ \vdots & \vdots & & \vdots\\ L\,F_{1N}(t) & L\,x_N(t) & & L\,F_{NN}(t)\end{vmatrix}}{\begin{vmatrix} L\,F_{11}(t) & L\,F_{21}(t) & \ldots & L\,F_{N1}(t)\\ L\,F_{12}(t) & L\,F_{22}(t) & \ldots & L\,F_{N2}(t)\\ \vdots & & & \\ L\,F_{1N}(t) & L\,F_{2N}(t) & \ldots & L\,F_{NN}(t)\end{vmatrix}}$$

The symbol, L, is used above to indicate the Laplace transformation of a function.

Theoretically this case can be programmed for automatic solution by a large scale digital computer.

CASE II

This case can be solved exactly as Case I. In addition, the solution can be repeated using different observations in order that transfer functions already found can be verified. If many slightly different values were found for the same transfer function, they might be "averaged" in order to find the most representative one. No rigorous mathematic justification for such a procedure is known to the author, however.

CASE III

Perhaps some statistical method may be devised for finding the most probable transfer functions for this case.

CASE IV

One way to attack this problem would be to proceed just as in Case I. If the time constants appearing in the transfer functions thus determined were short compared with the length of time of the particular observations used, then it might be concluded that these transfer functions were fairly reliable since the effect of the input variables for $t \angle 0$ could not be very considerable in the absence of large time constants in the transfer functions. Much more theoretical background information is needed before attacking this program.

CASE V

A combination of the approaches of Cases II and IV appears feasible here.

CASE VI

Again some statistical approach might be useful.

CASES VII through XII

Perhaps some converging trial and error procedure could be devised incorporating appropriate applications of statistical multiple correlation and Laplace transform routines. No general, proven, straightforward method is known to the author for any of the Cases, III through XII, as described above.

Uses

In general, all of the cases described above would be applicable to the same problem areas. However, some types of systems could be expected to be more non-linear than others. Certainly no actual systems would be perfectly linear.

Certain general uses immediately come to mind for applying a general purpose data reduction system.

In the study of economic and logistics systems, the basic underlying relationships might be quickly found. Such systems could then be studied more thoroughly by simulation using suitable digital or analog computers.

General equations underlying chemical reactions might be uncovered so that tailor-made chemical compounds might be designed mathematically with tremendous savings in time and expense.

A very promising application of the above problem solution would be to find differential equations peculiar to a certain locality with which the weather could be more accurately predicted, utilizing input data from surrounding reporting stations.

And finally (and inevitably), someone would certainly try to utilize this approach for "playing the stock market".

In reply refer to:
BF:AF:cc
6-1550

11 March 1958

Commander
Oklahoma City Air Materiel Area
Tinker Air Force Base
Oklahoma City, Oklahoma

Reference: OCCLA letter, 20 February 1958

Attention: Captain Henry P. T. Corley, USAF
Chief, Research and Analysis Branch
Assistant for Data Processing
Comptroller

Gentlemen:

I imagine the expectations for the programs desired will have to be severely curtailed. If for no other reason, extreme generality would undoubtedly result in a program too cumbersome and time-consuming to be of any practical use, not to mention the problem of accuracy obtainable where various approximations would have to be used.

Item (1). Numerical analysis books indicate methods for this type of problem, i.g. Searborough.

Item (2). I suspect the program will have to be restricted to polynomials. Beginning with input data will bring in the troublesome problems associated with curve fitting. I would suggest a least squares approach with some checks against ending up with ridiculous results.

Encl 3

To: Commander
Oklahoma City Air Materiel Area
Tinker Air Force Base
Oklahoma City, Oklahoma

6-1550
11 March 1958
Pg 2

Item (3), and Case I. If F_{ij} is a polynomial in t, L(F) will be a polynomial in (1/s). The evaluation of the resulting determinants will be rather lengthy unless the maximum polynomial degree and the order are reasonably low. I imagine you are writing other installations (a group in North American Aviation has had some experience with this particular problem).

Item (4). Very difficult for any generality. I can vaguely imagine some sort of interpretive routine which might associate entries in a table which pair off various functions and their transform, and hence leading indirectly to the proper subroutine when evaluations are required.

Item (5). Various special subroutines should be available through IBM.

Case II. In handling a system of linear equations, Ax = b, where the number of equations exceeds the number of unknowns (an over-determined system), a least squares solution for x is obtained from A'Ax = A'b, where A' is the transpose of the coefficient matrix A. This is safer than trying to split the equations into various sets, since, as approximations are involved, these various sets will probably not be equivalent.

Very truly yours,

C O N V A I R
A Division of General Dynamics Corporation
(San Diego)

B. Ferber, Supervisor
Digital Computing Laboratory
Mail Zone 6-167

cc: Eng.Files
Digital File
A.Farnell

April 1, 1958

The Editorial Board
Information and Control

Gentlemen:

The first issue of "Information and Control" appeared in September, 1957. The second issue is at the printer now. The tables of contents of these two issues are shown on the enclosed sheet. They are encouraging, both in quality and in range of subject matter, and owe much to members of the editorial board. Some papers have been received for the third and fourth issues, and since the appearance of the first issue has provided some publicity, several unsolicited manuscripts have been sent in. Sooner or later we will be able to rely primarily on such unsolicited manuscripts.

We need your further help at the moment, however. Our plans are to publish the third and fourth issues this calendar year, completing Volume 1. We still need papers to complete these issues. Since printing and distributing takes four months, and careful refereeing takes time, we need manuscripts soon. Areas in which we should publish and have not yet received papers include control engineering, man-machine systems, signalling in the nervous system. You can no doubt think of other topics which would be appropriate in looking over the tables of contents of the first two issues. Although the first two issues are largely theoretical, we would like to publish experimental papers too, especially in fields such as psychology, linguistics and neurophysiology. Miller's paper in the first issue is an excellent example of such a paper, with data and approach of interest to linguists, psychologists and communications engineers. Papers which present the results of "experiments" in programming computers to do problem-solving and learning would also be of considerable interest.

Another way in which you can help us is to suggest books for review in the journal, and if possible reviewers too. Since the journal is interdisciplinary, there is no need to publish the ordinary kind of review-summary, written by a specialist in the field of the book's author for other specialists. Our readers will find such reviews in their own specialized journals. However, books which bridge fields, or which arise from one field but have applications in or implications for others, are highly appropriate for critical review in "Information and Control." Such reviews should be of some length, and at least some of them should be written by reviewers whose point of view is not that of the author: For example, a neurophysiologist reviewing a book on automatic control and considering its implications in physiology, perhaps with a co-reviewer whose background is in control theory - or vice-versa.

It is a pleasure to announce that Dr. David Middleton, who has been helping us with refereeing, has joined the Editorial Board.

Please send us any comments you have on the first two issues, and many thanks for your past and future assistance.

Leon Brillouin
Colin Cherry
Peter Elias

Enclosure (1) Table of Contents, First and Second Issues

INFORMATION AND CONTROL

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INFORMATION AND CONTROL

TABLE OF CONTENTS - 1 No. 2

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

INDUSTRIAL LIAISON OFFICE

CAMBRIDGE 39, MASS.

April 1, 1958

Professor Norbert Wiener
Room 2-276

Dear Professor Wiener:

As I told you this morning Mr. John Campbell of the General Motors Technical Center has invited you to visit the Technical Center during your forthcoming trip to Wayne University on April 16 and 17. He was particularly interested in having you as General Motors' guest at lunch on the 17th. He noted that Dr. Lawrence Hafstad, Mr. J. J. Cronin, Mr. Charles Chayne and he would be delighted to meet you again and show you the Technical Center.

Mr. Campbell would be pleased to arrange for you to give a seminar if you found it would be convenient. However if this appeared to be too great a burden, he would be happy merely to entertain you at luncheon. General Motors would take care of your transportation between Wayne University and the Technical Center and make the three quarter's of an hour trip as pleasant as possible.

If you feel that the trip to General Motors' Technical Center would be too tiring for you, I am sure that they will understand. I think that they would appreciate a reply to their invitation, which you agreed to write when I visited you this morning. Whatever your decision may be in regard to this invitation will be fine.

Sincerely yours,

Winston R. Hindle Jr.

Winston R. Hindle, Jr.
Industrial Liaison Officer

Ext 2692

WRH:mmk

COPY

4/1/58 Dear Werner This is a story told by Philip Sporn of the A G and E

(Need not return) EHSchell

It was obvious

I would like to round off this talk, and to show you how simple after all finding the obvious is by telling a story. This is a racial story.

Normally I don't like to either tell or to listen to racial stories. They are generally either stupid or scurrilous or both.

But there are exceptions. And this is one of them. It's a Jewish story,-a Jewish story of the Old World.

A Talmudic scholar from Marmaresch (in Hungary) was on his way home from a visit to Budapest.

Opposite him in the railway carriage sat another Jew, dressed in quite modern fashion and smoking a cigar.

When the conductor came around to collect the tickets the scholar noticed that his neighbor opposite was also on his way to Marmaresch.

This seemed very odd to him.

"Who can it be, and why is he going to Marmaresch?" he wondered.

Since it would not be polite to ask outright he tried to figure it out for himself.

"Now let me see," he mused. "He is a modern Jew, well dressed, and he smokes a cigar. Whom could a man of this type be visiting in Marmaresch? Possibly he is on his way to our town doctor's wedding? But no, that can't be! That's 2 weeks off. Certainly this kind of man wouldn't twiddle his thumbs in our town for 2 weeks!

"Why then is he on his way to Marmaresch? Perhaps he is courting a woman there? But who could it be?

"Now let me see. Moses Goldman's daughter Esther? Yes, definitely, it's she and nobody else...! But now that I think of it - that couldn't be! She's too old - he wouldn't have her under any circumstances! Maybe it's Hannah Wasservogel? Phooey! She's so ugly! Who then? Could it be Leah, our town banker's daughter?

M-no! What a match for such a nice man! But who then? There aren't any more marriageable girls in Marmaresch. That's settled then, he's not going courting.

"What then brings him?

"Wait, I've got it! It's about Moses Koker's bankruptcy case! But what connection can he have with that? Could it be that he is one of the creditors? Hardly! Just look at him sitting there so calmly, reading his newspaper and smiling to himself. Anybody can see that nothing worries him! No, he's not a creditor. But I'll bet he has something to do with the bankruptcy! Now what could it be?

"Wait a minute, I think i've got it. Moses Koker must have corresponded with a lawyer from Budapest about his bankruptcy. But not swindler Koker - certainly would not confide his business secrets to a stranger! So it stands to reason that the lawyer must be a member of the family.

"Now who could it be? Could it be his sister Sarah's son? No, that's impossible. She got married 26 years ago - I remember it very well because the wedding took place in the green synagogue. And this man here looks at least 35.

"A funny thing! Who could it be after all ...? Wait a minute! It's as clear as day! This is his nephew, his brother Hayyim's son, because Hayyim Koker got married 37 years and 2 months ago in the stone synagogue near the market place. Yes, that's who he is!

"In a nutshell -- he is lawyer Koker from Budapest! But a lawyer from Budapest surely must have the title 'Doctor.' So, he is Doctor Koker from Budapest, no?

"But wait a minute! A lawyer from Budapest who calls himself 'Doctor' won't call himself 'Koker'! Anybody knows that. It's certain he has changed his name into Hungarian. Now what kind of a name could he have made out of 'Koker'? ---- Kovacs! Yes, that's it - Kovacs. In short this is Doctor Kovacs from Budapest!"

Eager to start a conversation the scholar turned to his travelling companion and asked, "Doctor Kovacs, do you mind if I open the window?"

"Not at all," answered the other. "But tell me, how do you know I am Doctor Kovacs?"

"It was obvious" replied the scholar.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
SCHOOL OF INDUSTRIAL MANAGEMENT

EXECUTIVE DEVELOPMENT PROGRAMS
SLOAN FELLOWSHIPS

50 MEMORIAL DRIVE
CAMBRIDGE 39, MASSACHUSETTS

MEMORANDUM

April 1, 1958

TO: Professor Norbert Wiener
Room 2-276

FROM: Howard W. Johnson

SUBJECT: Seminar for Members of the Program for Senior Executives
Wednesday, April 2, Lunch in Faculty Club at 12:45, followed by Seminar in Room 52-180.

I appreciate very much your willingness to be a guest speaker in the Senior Executive Seminar Series tomorrow. This series has been a high point in the experience of these men at Tech and they, as well as I, are grateful for your participation.

Our purpose in these seminars, as you know, is to indicate the outline of technological change in each of several fields that will affect the job of management. The plan of the seminar is as follows. The chairmen for your session and a group of the members will have an opportunity to chat with you during luncheon at one of the round tables in the Main Dining Room of the Faculty Club at 12:45. After lunch the entire group will meet with you in the seminar room, Room 52-180. You will have roughly 20 minutes to comment on any phase of the work in your field that you care to. Your comments will then be followed by a discussion and question period.

I enclose a picture list of the members of the group. Messrs. Hopf and Hurni will be the informal chairmen for your session. Thank you again.

Howard W. Johnson
Director

HWJ:ecs
enclosure

MEMBERS OF THE PROGRAM FOR SENIOR EXECUTIVES, SPRING, 1958

SCHOOL OF INDUSTRIAL MANAGEMENT, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

WALTER L. ABEL
Assistant Director of Research
United Shoe Machinery Corporation
Beverly, Massachusetts

ELMER J. CARTER
Vice President
Semet-Solvay Division
Allied Chemical & Dye Corporation
New York, New York

FRED W. BANES
Associate Director
Chemicals Research Division
Esso Research and Engineering Company
Linden, New Jersey

WILLIAM A. DIMAN
Assistant Controller
John Hancock Mutual Life Insurance Company
Boston, Massachusetts

JOSEPH R. BARSALOU
Assistant to Manager of Refining
Humble Oil & Refining Company
Houston, Texas

WILLIAM F. GERKEN
Manager of Customer Engineering
Data Processing Division
International Business Machines Corporation
White Plains, New York

FRED W. BATTEN
Vice President
Columbia Gas System Service Corporation
New York, New York

FRED L. HOPF
General Manager
Dynamatic Division
Eaton Manufacturing Company
Kenosha, Wisconsin

PAUL L. BRUHN
Division Manager
Berger Division
Republic Steel Corporation
Canton, Ohio

MELVIN L. HURNI
Manager - Operations Research and Synthesis Consulting Service
General Electric Company
New York, New York

EARL M. KIPP
Special Consultant to Vice President
Exploration and Production
Standard Oil Company of California
San Francisco, California

ALFRED R. TIBOR
Assistant General Manager
Mobil Oil Francaise
Paris, France

DONALD I. KLOTZ
Manager, Titanium Pigments Division
The New Jersey Zinc Company
Gloucester City, New Jersey

CHARLES D. TROMBOLD
Director of Quality Control
Campbell Soup Company
Camden, New Jersey

THOMAS S. O'BRIEN
Director, Business Affairs
NBC Owned Stations & NBC Spot Sales
National Broadcasting Company
New York, New York

RAYMOND A. TURNBULL
Assistant Controller
Lennox Industries Inc.
Columbus, Ohio

JOHN C. SPAHR
Engineering Manager, Large Turbines
Westinghouse Electric Corporation
Philadelphia, Pennsylvania

JOSEPH T. WEST
Plant Manager
Western Electric Company, Inc.
Oklahoma City, Oklahoma

CLEM STEIN, JR.
Assistant to Merchandising Vice President
Sears, Roebuck and Company
Chicago, Illinois

FREDRICK W. WRIGHT, JR.
General Superintendent - Mining
Orinoco Mining Company
(United States Steel Corporation)
Puerto Ordaz, Venezuela

AUTOMATISME INDUSTRIEL
ET
GESTION AUTOMATISÉE

REVUE MENSUELLE DE L'ÉDIFICATION DE L'AUTOMATISME EN EUROPE

DIRECTEUR-FONDATEUR : MAURICE LACHIN
Fondateur en 1955 de la première en date des revues d'automatisme en Europe
Président du Congrès Lyonnais de l'Automatique
Président de la Commission Gestion et Automatisme du C. N. O. F.
Président des Stages d'Automatisme Industriel
de Gestion Automatisée et de Recherche Opérationnelle
7, RUE CHASSELOUP-LAUBAT · PARIS XV^e^

V. RÉFÉRENCE	V. LETTRE DU	N. RÉFÉRENCE	PARIS, LE
		MLgm, 0 099 aZ	2nd april, 1958

Mr Norbert WIENER
Professor at the MIT
Massachussets Institute of Technology

CAMBRIDGE, 39 (Massachussets).

Object: CYBERNETIQUE
A new French Quartely devoted to industrial, business and human applications of Cybernetics.

CYBERNETICS: Rights of the French Translation of your book.

Dear Mr WIENER:

since a long time, I a read your book-in fact since I949; and since then it has been for me a very valuable guidance as well in my work as an eletronic ingeener as wall as in my job as editor of the first European Journal of automation that I a did issue as far back as november I955. (monthly).

Now, I have decided to publish a new Journal, not a monthly one, but a quartely devoted to Cybernetics. Of course, the subject is much wider than automation which at best can be considered as a part of Cybernetics.

Number one of this new Journal will be published in september I958.

[aus 4/11/58]

Of course,you could be of great help to me.Untill now,very little has been published in France-and even in Europe-about Cybernetics.As well,very little has been published about mathematical logic(I am now translating in French the George Beel's book"Mathematical analysis of logic).Very little has been written on communication and control,in the machine,and still less on control and communication in the human beings. The lead you gave as far as 1940 is just known by a few people, more in the psychological,anthropological,sociological circles than in the field of communication ingineering. I am now writing a book where I am giving an historical account of the birth of Cybernetics.

Of course,I shall try to establish the contact with the people your are quoting in your book an especially with Dr Rosenblueth,of the Institute de Cardiologia de México.

In your book,you are quoting different speeches that you have delivered on Cybernetics at the Macy Foundation and at the New York Academy of Sciences.May I ask you if these speeches are now avalaible?Perhaps,you could be kind enough to send me a copy of these speeches,with authority to translate and to publish them?

As well,I am trying to find out of HERMANN if the rights for a French translation of your book are still free?If they are and if I get the honour and the pleasure to translate it and to publish it,I hope you will accept to make a new foreword for the French edition of Cybernetics.

I hope,Dear Mr Wiener,that you still like your child(your book Cybernetics) and that you will help me to give to Cybernetics,the place it is due to take not only in America,but all over the world.

Awaiting your reply
I am ,Dear Mr Wiener,faithfully Yours

Maurice LACHIN
Editor.

ASSOCIATION INTERNATIONALE
DE
CYBERNETIQUE
A. S. B. L.

Secrétariat permanent - Secretaryship
13. RUE BASSE MARCELLE
NAMUR (BELGIQUE)
TEL. 279.81 - 279.82

NAMUR, LE Avril 1958.

N° 58/2 RD/AL.

Cher Monsieur,

J'ai bien reçu le texte de l'article que vous avez eu l'amabilité de rédiger pour le numéro initial de la revue " Cybernetica " éditée par l'Association Internationale de Cybernétique.

Le sommaire de ce numéro, qui sortira de presse vers le I5 mai, est le suivant:

- Editorial par M. Georges R. BOULANGER, Président de l'Association Internationale de Cybernétique.
- " My connection with cybernetics - Its origins and its future ", par M. Norbert WIENER, Professor of mathematics at the Massachusetts Institute of Technology (Cambridge -U.S.A.).
- " Le symposium de Zürich et les concepts de base de la cybernétique ", par M. Louis COUFFIGNAL, Inspecteur Général de l'Instruction Publique de France, Directeur du laboratoire de calcul mécanique de l'Institut Blaise Pascal (Paris).
- " Education for data processing -The real challenge to management ", par M. John DIEBOLD, President, John Diebold and Associates, Inc. (New York).
- " Réflexions pour un nouveau schéma de l'homme ", par M. Aurel DAVID, Chargé de recherches au Centre National de la Recherche Scientifique (Paris).
- " Si peau d'âne m'était conté ", par M. Pierre AUGER, Directeur du département des sciences exactes et naturelles de l'U.N.E.S.C.O.

.../..

Monsieur Norbert WIENER
Massachusetts Institute of Technology
CAMBRIDGE.

.../..

Je vous prie de trouver, en annexe, l'épreuve d'impression; vous m'obligeriez en voulant bien me faire connaître vos remarques éventuelles aussitôt que possible. Afin de vous éviter toute correspondance superflue, je considérerai votre accord comme acquis au cas où vous n'auriez formulé aucune remarque avant le 25 avril.

Je me suis permis de ne pas faire reproduire la première phrase de votre article considérant que l'édition de notre revue et l'organisation du 2e Congrès International de Cybernétique constituent deux activités distinctes de l'Association. Les annexes qui vous sont adressées ne constituant qu'une épreuve, nous pouvons, si vous en formulez le souhait, reproduire la phrase négligée.

Je ne manquerai pas de vous adresser un exemplaire du Ier numéro de notre revue ainsi que 25 tirés à part de votre article.

Veuillez croire, cher Monsieur, en l'assurance de mes sentiments les meilleurs.

L'Administrateur-délégué,

J. LEMAIRE.

4/16 Jerked and explained absent meeting in Bell.
4/19 called & tld them he will attend

DOUGLAS LAWSON
Keeper of the Band
JAMES KEDDIE, JR.
Cheetah
HERBERT T. HAND, JR.
Herpeton
Philip R. Mather
Poker

The SPECKLED BAND of BOSTON

"It's a nice household"

Office of the Poker
16 Arlington Street
Boston 16, Mass.

April 2, 1958

To the Members of the Speckled Band:

Greetings from the Poker!

The time to pay your annual dues is here. A check for $7.00, payable to "The Speckled Band of Boston" and mailed promptly in the enclosed envelope will be greatly appreciated.

As you have been advised by the Keeper the gathering this year will be on May 2nd at the Harvard Club of Boston. To rekindle in your minds and hearts the love of the Master I am enclosing, belatedly (my fault, not his) the Cheetah's report on last year's dinner.

The Cheetah speaks of the Presentation to our beloved Dr. Roland Hammond of Providence. This consisted of a lapel pin imaginatively designed by our Herpeton, Herbie Hand, and cunningly fashioned by a silversmith. It was a tiny Baton with a Viper twined around it, and the Citation read as follows:-

"Roland Hammond, Doctor of Medicine;
Dancing Master of our Sister Society,
the Dancing Men of Providence:
Member of our own Speckled Band of Boston:
Venerated leader, Eminent Sherlockian,
beloved friend;
Because you have done so much to strengthen the ties between our two Societies, we your fellow members in the Speckled Band have created a new office which symbolizes this close and friendly relationship, and we hereby unanimously elect you to this office, and present you herewith your badge of office.

Hail, Band Master of the Speckled Band!"

As Dr. Hammond was too ill to be present, the award was handed to Roger Clapp and Chesley Worthington for transmission to him. Dr. Hammond was greatly touched and wrote a beautiful

The Speckled Band:-

note of appreciation to our Keeper asking that his thanks be transmitted to all members of the Speckled Band. On June 12th, 1957, as you all know, Dr. Hammond died. We are happy that the Award was made in time.

The cost of the lapel pin, $33.00, was underwritten by a few members of the Band. If any of you would like to participate you may add $1.00 to the amount of your check for dues.

May I now reinforce the urging of the Keeper that papers be written and submitted to him from which selections will be made, by a Committee, for reading during our Sherlockian evening. And may I also remind you that a prize will be given for the best paper, whether pastiche, verse or treatise. You are also invited to submit a Bandquiz if you so desire.

Finally, a note of sadness. To those of you who have not heard, this carries the word of the sudden and unexpected death of our fellow-member, Rudolph Elie, Music Critic and Columnist for the Boston Herald. He died in Los Angeles on March 11th, and at his funeral March 15th at Trinity Church, Boston, six members of the Band were present to pay our last respects to a valued and well-loved fellow member whose presence and contributions to our activities can never be replaced.

So sayeth your Poker.

Philip R. Mathus

[ans 4/29/58]

MEETING OF THE SPECKLED BAND
HELD
FRIDAY, 26 APRIL, 1957
AT
SIGNET SOCIETY
CAMBRIDGE, MASS.

PRESENT AT MEETING

NORMAN BALLOU
BEN BENSON
GEORGE F. BURROWS
ROGER T. CLAPP
DR. B. W. COBBS
RUSSELL S. CODMAN, JR.
DR. JOHN CONSTABLE
W. G. CONSTABLE
DR. JAMES M. DUNNING
ARTHUR D. FAY
GEORGE K. GARDNER
FRANCIS GOODALE
THOMAS F. GRADY, JR.
HERBERT T. HAND, JR.
CHRISTIAN A. HERTER, JR.
JAMES N. B. HILL
DUNBAR HOLMES
HECTOR M. HOLMES
WILLIAM R. HULBURT
JAMES KEDDIE, JR.
DOUGLAS LAWSON
PHILLIP R. MATHER
SPENCER B. MONTGOMERY
ROBERT MUNCE
HARRY OBER
CLARENCE C. REED
REV. OTIS R. RICE
RICHARD S. SCHWARTZ
ROBERT S. STEINERT
CRAIG STARK
CURTIS W. SYMONDS
RALPH F. SYMONDS
RICHARD WAIT
PAUL B. WATSON, JR.
NORBERT WIENER
W. CHESLEY WORTHINGTON

-oOo-

Once again our Spring Dinner-Meeting was held at The Signet Society in Cambridge; and once again we had a wonderful time. There must be something about 'the other side of the river' that gives us a new lease on life! For this meeting, our fifteenth in seventeen years, thirty-six members and guests of THE SPECKLED BAND sat down to beefsteak and kidney pie. The Tantalus was on the table as was the Sherlock Holmes Memorial Bowl. The Shag was in the Slipper and the Cheroots were in the Coal Box.

The guests of the evening included the Reverened Mr. Otis R. Rice, Chaplain of THE BAKER STREET IRREGULARS, from New York; and President Robert Munce of Suffolk University, in Boston. From THE DANCING MEN OF PROVIDENCE came Mr. Roger T. Clapp and Mr. W. Chesley Worthington.

The first toast of the evening was proposed by The Keeper of THE BAND, Mr. Douglas Lawson - To Sherlock Holmes and Dr. Watson. Toasts were proposed and drunk throughout the dinner: To The Founder of THE SPECKLED BAND (James Keddie, Jr.); Helen Stoner was offered up by Mr. Herbert Hand; while Mr. Arthur Fay proposed the toast to The Woman. Professor Norbert Wiener was back from his world travels and with us again at Stoke Moran. So the toast that always causes comment, was once again intrusted to Professor Wiener: To Dr. Grimesby Roylott! Other toasts were proposed and drunk to: The Guests of THE BAND (Mr. Russell Codman); The Detectives of Scotland Yard (Dr. John Constable) - and Mr. Roger Clapp of Providence and THE DANCING MEN (we are proud that he is a BAND member, as well!) proposed a rousing toast to THE BAND.

A hush fell upon the gathering as the Reverened Mr. Otis Rice paid a beautiful tribute to the founder of THE BAKER STREET IRREGULARS, Christopher Morley, who

passed away in March. Mr. Richard Wait spoke warmly of our good member, Stuart C. Rand, who died last year. Mr. Wait had known him a long time as a fellow attorney, BAND member and officer in the BAND'S Executive Committee.

The Cheetah was called on for his report which included messages of regret and good will from Irregulars all over the map who could not meet with us this year; and Dr. Dunning conducted us in The Musgrave Ritual.

Suddenly outside in the Square bells began to peal (the Cheetah noted the time as 8:30 p.m.) and there was a silence upon the gathering. Of course this unexpected interruption could indicate nothing but the Return of Mr. Sherlock Holmes!

A new 'office' was created to assist the Cheetah this year and the 'chair' is filled by Mr. Phillip Mather, better known as The Poker. So it was that the Poker now explained the Ritual of The Tantalus - the locked jars of Cognac which had tantalized us throughout the dinner were now unlocked and the jars passed around and glasses were filled.

The Bandquiz Awards were next on the agenda, after the Ceremony of The Bowl. Once again Dr. James Dunning received the Sherlock Holmes Memorial Bowl to be kept by him for the ensueing year; and 'to have and to hold', the first replica bowl. The second replica bowl was awarded to Dr. John Constable.

Mr. George F. Burrows proposed a toast to the late James Montgomery - and a quartet composed of Mr. Robert Steinert, Mr. Harry Ober, Mr. Spencer Montgomery and Mr. Richard Schwartz conducted a singing of "Believe Me, If All Those Endearing Young Charms." To conclude this musical interlude the BAND'S own Holmes and Watson - Mr. Hector Holmes and Mr. Paul Watson - led us in The Baker Street Anthem.

Dinner over and a brief intermission from affairs Sherlockian behind us, we gathered now for an evening in the library. Glasses were charged and pipes were lit, (one chap actually used the shag from the Slipper!), and all comfortably settled we were ready for the main events.

For the benefit of new members and guests - and so that the 'old fellows' might refresh their memories - Mr. Herbert Hand read his paper "Letter from Porlock" from THE BAND'S own - one and only - publication "The Second Cab" (1947).

Professor Norbert Wiener expounded a theory that Raffles was the illegitimate son of Sherlock Holmes and Irene Adler; and that Bunny was probably the illegitimate son of Dr. Watson and maybe Mrs. Hudson.

THE BAND'S Poet Laureate, Mr. Phillip Mather, proved this year, if any proof was needed, that he deserved the title given him last year. An award was made to The Dancing Master of THE DANCING MEN OF PROVIDENCE, still recuperating from last year's operation, and unable to meet with us this year. The award was a Band pin; and the title with it : Bandmaster of THE SPECKLED BAND OF BOSTON. Our Poet Laureate made the presentation in verse.

Dr. John Constable and Keeper, Douglas Lawson, continued their controversy over the name and nature of the viper in 'our' story; and the Doctor had a couple of specimins with him to prove his point. Happily the exhibits were pickled!

The Cheetah was honored with a poem from the Poet Laureate; - te was suggested that Dr. John Constable backed up by Mr. Herbert Hand should get on the $64,000 Question as a means to refilling our coffers; - and Mr. Richard Schwartz defended the question which he had contributed to the Bandquiz, and which had caused some furor among the Quiz Committee.

Our newest member, Mr. Ben Benson, a writer of Detective Fiction about the Massachusetts State Police, spoke briefly on the art of writing in this genre. And Mr. Christian Herter spoke to us about his early interest in The Master before the days of THE SPECKLED BAND OF BOSTON.

A round of applause went up for our absent member, Mr. Rudolph Elie, who had just received the Press Club's Amasa Howe Award for his coverage of The Boston Symphony Orchestra's recent trip Abroad.

No further business at hand, the Russell's Viper or Tic Polonga or what you will, was recoiled for another year.

Respectfully submitted,

James Keddie Jr.

CHEETAH

23 May, 1957

CHARTER MEMBERS
OF
THE SPECKLED BAND

EDGAR W. SMITH P. M. STONE
JAMES KEDDIE, JR.

HONORARY MEMBERS

C. R. ANDREW
NATHAN BENGIS
RAYMOND T. BOND
ANTHONY BOUCHER
JAY FINLEY CHRIST
E. T. GUYMON, JR.
BRETT HALLIDAY
HOWARD HAYCRAFT
A. D. HENRIKSEN
CHARLES HONCE
ANTHONY D. HOWLETT
RUSSELL McLAUCHLIN
PAUL V. MELAS
DUDLEY M. NEWITT
STUART PALMER
ELLERY QUEEN
DAVID RANDALL
ALLEN ROBERTSON
JAMES SANDOE
H. M. SMITH
VINCENT STARRETT
REX STOUT
ARTHUR WONTNER
DR. YOU CHAN YANG

THE 1957 SPECKLED BAND ADDRESS LIST

BEN BENSON,	19 Craftsland Road, Chestnut Hill 67, Mass.
GEORGE F. BURROWS,	2 Holyoke Street, Cambridge, Mass.
E. T. BUXTON,	Interference Testing & Research Laboratory, Inc., 150 Causway Street, Boston, Mass.
ROGER T. CLAPP,	260 West Exchange Street, Providence, R.I.
RUSSELL S. CODMAN, JR.	50 Congress Street, Boston, Mass.
DR. JOHN CONSTABLE,	23 Craigie Street, Cambridge, Mass.
CYRUS W. DURGIN,	c/o The Boston Globe, Boston, Mass.
DR. JAMES M. DUNNING,	23 Buckingham Street, Cambridge 38, Mass.
RUDOLPH ELIE,	c/o The Boston Herald, Boston, Mass.
ARTHUR D. FAY,	The Fessenden School, West Newton 65, Mass.
F. MURRAY FORBES, JR.	21 Beaver Place, Boston, Mass.
THOMAS F. GRADY, JR.	26 Roundy Street, Beverly, Mass.
DR. ROLAND HAMMOND,	41 Boylston Avenue, Providence 6, R.I.
HERBERT T. HAND, JR.	140 Mt. Vernon Street, Boston, Mass.
HECTOR M. HOLMES,	84 State Street, BOSTON, 9, MASS.
WILLIAM A. JACKSON,	Houghton Library, Harvard University, Cambridge, Mass.
JAMES KEDDIE, JR.	28 Laurel Avenue, Wellesley Hills 81, Mass. (We 5-1038-W)
DOUGLAS LAWSON,	177 State Street, Boston 9, Mass.
PHILIP R. MATHER,	16 Arlington Street, Boston, Mass.
DR. SAMUEL R. MEAKER,	475 Commonwealth Avenue, Boston, Mass.
SPENCER B. MONTGOMERY,	30 Federal Street, Boston 10, Mass.
HARRY OBER,	24 Griggs Terrace, Brookline 46, Mass.
MORTON P. PRINCE,	57 Chestnut Street, Boston, Mass.
CLARENCE C. REED,	c/o Keith, Reed & Wheatley, 231 Main St., Brockton, Mass.
RICHARD S. SCHWARTZ,	Hotel Duncan, Chapel Street, New Haven, Conn.
ROBERT S. STEINERT,	Room 316, United Bldg., 43 Leon St., Boston, 15, Mass.
RALPH F. SYMONDS,	Greystone Beach, Marblehead, Mass.
RICHARD WAIT,	30 State Street, Boston 9, Mass.
PAUL B. WATSON, JR.	50 State Street, Boston 9, Mass.
NORBERT WIENER,	53 Cedar Road, Belmont 78, Mass.

Alfred Metzner Verlag

FRANKFURT AM MAIN · HEBELSTRASSE 17 · FERNRUF 554057/58

2.4.1958
m/na

Herrn
Professor Norbert Wiener

Massachusetts Institute of Technology
Department of Mathematics

Cambridge 39, Mass. /USA

Sehr geehrter Herr Professor!

Wir haben mit dem Ullstein - Verlag eine Vereinbarung getroffen, dass in dessen sehr populär gewordener Taschenbuchserie eine Sonderausgabe Ihres in meinem Verlag erschienenen Werkes "Mensch und Menschmaschine" erscheint. Die Taschenausgabe ist jetzt fertig geworden, und es ist mir eine Freude, Ihnen gleichzeitig mit der gewöhnlichen Post zwei Exemplare übersenden zu können.

Mit verbindlichsten Empfehlungen

ALFRED METZNER VERLAG

(Dr.Wolfgang Metzner)

April 2, 1958

Professor K. O. Friedrichs
New York University
Institute of Mathematical Sciences
25 Waverly Place,
New York 3, New York

Dear Professor Friedrichs:

I shall be glad to be at the conference on May 29, 30 and 31. I have a lot of new material on random functions and orthogonal developments, and I am now applying it to the statistical mechanics of systems of repelling particles with long distance forces. The method looks very promising, and probably some of the ideas will be applicable to quantum theory too.

Sincerely yours,

Norbert Wiener

NW:AD

[ans 4/8/58]

April 2, 1958

Mr. Morton M. Hunt
75 Central Park West
New York 23, New York

Dear Mr. Hunt:

In reply to your letter of March 28th, I am afraid that neither the novel nor any other comments on my colleagues are available. If I make any indiscretions in this direction I prefer to make them myself on my own responsibility without outside prodding. I think you will be able to understand the situation.

Sincerely yours,

Norbert Wiener

NW:AD

April 2, 1958

Mr. Abraham Lederman
Teachers Union of the City of New York
206 West 15th Street
New York 11, New York

Dear Mr. Lederman:

In reply to your letter of March 27th, I regret to say that I find myself unable to accept more engagements for this year than those to which I am already committed.

Sincerely yours,

Norbert Wiener

NW:AD

April 2, 1958

Mr. Donald A. Peteet
External Affiliations Commissioner
Wayne State University
Detroit 2, Michigan

Dear Mr. Peteet:

If you can coordinate the meeting on the evening of April 16 with my other obligations at Wayne I shall try to be available. However, I do this under protest. Inasmuch as I find that the obligations I have already accepted are quite heavy, the undertaking of further talks is a considerable risk to my strength and health.

As it appears that the acceptance of an invitation from an outside source is likely to involve secondary obligations which are arduous to accept and damaging to my health if accepted, I find myself forced from now on to avoid all such obligations at the source.

Sincerely yours,

Norbert Wiener

NW:AD

April 2, 1958

Mr. S. Stephenson Smith
Supervising Editor
Funk & Wagnalls Company
153 East 24th Street
New York 10, New York

Dear Mr. Smith:

In reply to your letter of March 27th, I cannot immediately tell you when I shall next be in New York, but it will probably be sometime in May. I shall let you know when my plans are definite, and shall try to meet you.

Sincerely yours,

Norbert Wiener

NW:AD

GM TECHNICAL CENTER

RESEARCH STAFF
GENERAL MOTORS CORPORATION

BOX 188, NORTH END STATION
DETROIT 2, MICHIGAN

April 3, 1958

Professor Norbert Weiner
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

Dear Professor Weiner:

Confirming your recent conversation with Mr. Hindle, we would like very much to extend to you our invitation to visit the General Motors Technical Center while you are in Detroit on April 17. There are several of us here including Charlie Chayne, now vice president for Engineering Staff and Art Underwood, manager of the Research Staff, and myself who knew you in our undergraduate days at Tech and we would be pleased to have you out for lunch if you feel that you can spare the time. I would hope that Mr. Cronin, vice president for Manufacturing Staff and Dr. Hafstad, vice president in charge of Research Staff, could join us.

Inasmuch as we are located some distance from the city - about half an hour's drive - we would of course arrange to pick you up and bring you out and return you to the city at whatever time you needed to be back.

As I explained to Mr. Hindle, above all we do not want you to overtax yourself if you have a heavy schedule at Wayne. At the same time, we want to let you know that if you can spare the time we would be more than pleased to have you come out and see us even if it is only for a very brief visit.

With kindest regards,

Yours very truly,

J. M. Campbell

J. M. Campbell, '25
Scientific Director

JMC:ma
CC: Mr. Winston R. Hindle, Jr.

[ans 4/16/58]

Mrs. Wrenn

April 3rd

Mrs Wrenn called today. Wants Prof. to give us Laws lecture on Friday May 2nd if that is best date for him on any subject but suggested "Investigating Thinking Processes". dinner 6:30. Prof. tentatively agreed. We must write letter Monday

JOHN WILEY & SONS, INC.

ESTABLISHED 1807

PUBLISHERS OF BOOKS

440 FOURTH AVENUE

NEW YORK 16, N.Y.

MURRAY HILL 9-7630

April 3, 1958

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

Dear Professor Wiener:

I am discussing with Dr. Manfred Kochen of the International Business Machines Research Center the possible publication of a book which might tentatively be called MATHEMATICAL THEORY OF ORGANIZED SYSTEMS.

I know you have an interest in this topic which clearly cuts across a number of disciplines. Wiley is keenly interested in this general area and in the tentative plan Kochen has in particular. I am taking the liberty of enclosing herewith a brief prospectus of what Kochen proposes to do.

He hopes to address a variety of readers including some people in mathematics, engineering, social science,and others concerned with organization in business, political institutions, and the military. Probably the book would not exceed 250 pages. I know of no book quite like this.

Do you feel this is likely to be a book of considerable promise or of only very modest promise? Any other reactions you might have with respect to his emphasis and topical coverage would be most welcome.

Sincerely yours,

Kendall G. Getman
Editor

KGG:sbb
Enc.

[ans 4/11/58]

STATEMENT OF OBJECTIVES

The proposed book's chief objective is to present, in systematic fashion, the essential concepts of leading contemporary thought on the following general problem: how can an assembly of units (subassemblies) which have primitive and inconsistent behavior perform planned tasks of great complexity very consistently, solely by virtue of its internal organization, and without being a priori designed for each task in minute detail. For example, digital computers have been built with simple relays of imperfect reliabilities and finite lifetimes; they have been programmed with meticulous care to perform a variety of complicated computations. Recent results indicate that they could perhaps "learn" such behavior given only a few vague instructions. [1]

It is intended to focus the treatment on the central concept of an "assembly organized into subassemblies."[2] The exposition should begin with the main algorithm for determining the organization of a specified "system" into "components."[3] Then, the properties of "components" (syn: subrobots or subassemblie: will be examined in detail, and the relation to Turing machines, sequence transducers, finite automata, etc., will be discussed. Thereafter, the relationships between the subassemblies, the behavior of the total assembly, and its organization will be described. Some interesting results -- mainly existence theorems on what kinds of system behavior are possible, limit theorems on asymptotic behavior, etc. -- will be proved. [4] The point of view taken here makes it possible to integrate the existing published literature and current research trends into a unified, logical presentation of this subject.

The material is addressed to a great variety of intellectually oriented readers, those to whom these ideas are of professional interest as well as to others. It is of definite interest to social scientists groping for conceptual tools; [5] to mathematicians who are receptive to new sources of creative mathematical research and appoications; also, to people concerned with organization in business, the military, political institutions, etc. Psychologists and economists will recognize many ideas as ones they have been using under different names for some time; it is expected that they will find good use for the systematic, mathematical development of these together with some new and advanced methods of mathematical analysis. While the practicing engineer working on computer and "system" design may not find many immediately and directly applicable facts, he also may discover ways of using familiar methods more systematically and efficiently, and perhaps he may also learn or be inspired to create some new design principles and ideas.

Concerning the technical level at which the presentation is planned, the proposed book should not be regarded as a treatise in mathematics. Though designed to attract future mathematicians to work in this area as well as to make substantial contributions by introducing existing advanced mathematics wherever it is helpful, the chief emphasis is always on the ideas and their relation to the empirical facts they are designed to summarize, codify and process. [6] Wherever possible, relevant empirical or experimental data will be cited, and in some cases new experiments will be suggested. The value of mathematical thinking in making explicit the assumptions and logical structure of results on organized assemblies will be stressed second. Third in importance will be the presentation of results of sufficient depth to demonstrate that advanced mathematics may be validly and fruitfully applied in this subject.

If the book is to be used as a textbook, for example in a special mathematics seminar or in an engineering or social science curriculum, it is intended for a college senior or first year graduate student. The essential concepts can be understood by readers without specialized mathematical training, but with some appreciation for mathematical thinking (if-then statements). For the more technical portions, a working knowledge or elementary modern algebra, probability theory, difference equations, and combinatories would be helpful.

The need for such a book is evidenced by the large number of people engaged in research on what are turning out to be basically similar problems.[8] The bewildering quantity and variety of contributions to the field has resulted in what appears to be a lack of focus, or confusion. While a few books have dealt with some of the special aspects of the general topic, none except Wiener's book has as yet treated the problems with the overall unity of the subject in mind. A book which adequately meets the objectives outlined above should fill a definite gap in the existing literature. It would meet the requirements of a large and growing audience with an interest in the study of robots and automata.[9]

FOOTNOTES AND SUPPLEMENTARY COMMENTS IN SUPPORT OF

STATEMENT OF OBJECTIVES

1. Some of the more concrete versions of the above general problem were studied by von Neumann (e.g. "Probabilistic Logics and the Synthesis of Reliable Organisms from Unreliable Components", Automata Studies, Princeton Univ. Press Princeton, 1956), Shannon (e.g. "Reliable Circuits Using Less Reliable Relays" Jn'l. Franklin Inst. 262 Sept. 1956 pp 191-208 (E.F. Moore, co-author)), and several others. The ideas of the above two authors as well as those of Wiener, Murray, and Zadeh, expressed throughout all their writings, have had a great influence upon the present conception of, and approach to this problem. In large measure, this may be regarded as a natural extension of the foundations they have laid.

The more recent results to which reference is made include significant contributions by R. Friedberg ("A Learning Machine: Part I" IBM Jn'l. of Res. and Dev., 2, No. 1, Jan. 1958 p. 2), by Newell andSimon, McCulloch, Ashby, A. Rapoport, E. F. Moore, W. K. Taylor, F. Rosenblatt, R. Solomonoff and a host of others whose latest results are in the process of being published.

2. This concept has appeared in the public literature (e. g. Kochen, "Organized Systems with Discrete Information Theory" General Systems, A. Rapoport, ed. Ann Arbor 1958; also "Group Behavior of Robots", Computers and Automation, April 1957,and "An Information-Theoretic Model of Organizations" Trans. IRE PGIT-4, Sept. 1954, p. 67). It extends the work of F. J. Murray ("Mechanisms and Robots", Jn'l. Ass'n. Comput. Mach., April 1955), and serves to lay the foundations for a mathematical theory of organization: how to construct robots from properly chosen subrobots.

3. This algorithm concerns the possibility of lumping various parts of an assembly into boxes: a box is said to be a component if it exudes exactly one bit of information to the other boxes. The algorithm, which can be translated into a computer program, permits one to determine whether a proposed way of "boxing" the system is actually an "organization into components."

4. Typical of the more elementary results is the fact that any system built with a finite number of deterministic, finite-state components will eventually have cyclical behavior. Another example of a simple result is the theorem that any mechanism with 2^N states can be realized with N "memoryless" components, each connected to every other.

5. It has served to clarify some of the notions of "Action Theory" in sociolo (ref. M. Kochen and M. T. Levy, Jr., "The Logical Nature of An Action Scheme", Behavioral Science, 1, No. 4, Oct. 1956, p. 265); it is also closely related to current research in political science by K. W. Deutsch and I. de Sola Pool.

6. It is planned to write the book so that it can be profitably used by the serious student of this subject, but it should also serve the harried, casual reader to get the gist of the main ideas with a minimum of effort. In view of the large number of books competing for the modern reader's attention, it is essential that he be able to extract the essential contributions of a new book by scanning before he embarks on concentrated study. It is understood, of course, that the feature of the book which would facilitate rapid scanning is intended only as a first stage to help the reader decide whether or not to delve more deeply into the details.

7. In particular some methods of group theory, matrix algebra, graph theory, Markov chains, limit theorems in probability theory, systems of difference equations in various modular algebras, and computer programming in terms of flow diagrams will be used. While in some instances the mathematical development is not yet complete and mature, there is still a certain merit for its presentation; while mathematical rigor and perfection is aimed for in many cases, it is not essential everywhere throughout a work which is properly viewed as an introduction and progress report, designed chiefly to report and further stimulate creative research on some exciting ideas.

8. During the past two decades, engineers have been using the ideas discussed here in the logical design of computers; their methods constituted an art rather than a science of computer design. The fact that only the most elementary kind of mathematics entered into their analyses of essentially quantitative problems suggests the possibility of developing the appropriate mathematics on a more general and advanced level.

Also during the last two decades, theoreticians in a variety of other sciences have been groping for essentially similar concepts. For example, the idea of "directive correlation" as used by Sommerhoff (Analytical Biology, Oxford U. Press, London, 1950) is strikingly similar to models which psychologists and sociologists have used to describe human and social behavior, respectively (e.g. see Osgood, Method and Theory in Experimental Psychology, H. Simon, Models for Man, John Wiley and Sons, N. Y. 1957, N. Rashevsky, Mathematical Biology of Social Behavior, U. Chicago Press, Chicago, 1951, T. Parsons, Towards a General Theory of Action, Harvard U. Press, Cambridge, 1951).

Thus, from the simultaneous fruition of concepts in various sciences may be discerned the emergence of a body of common concepts and tools. The vigorous exploration of this common core was given its prime impetus by Wiener. The success with which statistical mechanics has been applied to the analysis of thermodynamics has also been a great source of inspiration. This collection of ideas has since become known under various names as system theory, control engineering, cybernetics, organization theory, etc.

9. Some additional reasons for believing the proposed book likely to have a large market are:

1. The tendency of computing systems, semi-automatic production lines, businesses, and even social-political institutions to grow in complexity makes it increasingly important that they be properly organized. It is hardly possible to find individuals of sufficient capacity to meet the requirements for leading such complex institutions. Yet, a properly organized team of men and/or machines can handle such problems even when they demand capacities beyond those of the individuals.

2. The book should provide some focus and orientation for the multitude of facts and ideas arising from the accelerated research tempo of our times.

3. The growing competition from scientists in other countries, evidenced by the recently increased number of publications in this field by Soviet, Romanian, German and French researchers, is likely to spur public interest here.

4. Over one half of the work to be reported has already been done and well received. It needs merely to be assimilated, integrated into the text, and in some cases reinterpreted. Some, but not all of the problems which will be encountered during the writing will be solved, limited only by time, the author's capacity, and facilities. The latter are readily available, so that the chances of meeting the above objectives are good.

Tentative List of Topics

I. Introduction

A. A typical experiment to set the tone for what follows; perhaps Daniel's experiment on how two rats cooperate to perform a task impossible for either one alone, or the description of social behavior in ants (Schneirla) or bees (von Frisch).

B. Verbal preview of basic ideas, and statement of problems.#

C. Relation to other models, contemporary and historical.

D. Brief survey of relevant facts. #**

E. Discussion on significance, purpose and scope of book. (Much of material in the present statement of objectives and footnotes)

II. Organization of an Assembly into Subassemblies.

A. On Mechanisms and Robots.##*

B. The main algorithm for determining the organization of a mechanism into parts.##*

C. Illustrate example.

D. Algorithm for determining organization ## of a robot into subrobots

E. Illustrate example*

F. Relevance of algorithms to empirical data and applications*

G. Critical survey of other models as compared to this one.

H. Precise formulation of basic problems.

III. Subrobots

A. Critical up-to-date review of Turing machine theory;** emphasis on constructability, reliability of Turing machines, value of concept as a model, rather than study of formal logical properties; relation of Turing machines to subrobots.

B. Relation of sequence transducers and finite automata to subrobots; relation to physical switching circuits using relays, vacuum tubes, cryotrons, transistors. **

C. Subrobots;*brief discussions of subtopics:

1. Towards a general theory of information storage
2. On control functions in subrobots
3. Arithmetic and logical operations performed by subrobots
4. The Receptors and Effectors of Subrobots.

D. Behavior functions of robots, subrobots and mechanisms.## There are 8 cases to be considered, summarized below.

	Deterministic	Probabilistic
Quantized Time, Binary Variables	1	2
Quantized Time, Real Variables	3	4
Continuous Time, Binary Variables	5	6
Continuous Time, Real Variables	7	8

E. Classification of behavior functions#*

1. Self-oriented
2. Group-oriented
3. Irrational, inconsistent (unreliable), primitive (trivial, simple)

F. Relevance for description of data and relation to other work. *

1. Subassemblies in digital computers; reference to work of Phister, Murray, IBM, etc.

2. Neural Pools in Nervous Activity; reference to work of McCulloch, Pitts, Eccles, Sherrington, etc.

3. Cyto-architecture and cell subassemblies in living systems. (e.g. Sommerhoff)

4. Building blocks of microeconomic systems-theory of teams (Marschak, Radner, Hurwicz, Helmer)

5. Subassemblies in physical ensembles; sorting and physical observation. (Watanabe, Peterson, etc.)

IV Structure

A. Network topology -

1. Indices of structure and clustering *

2. Classification of networks *

3. Relation to published work (Harary, Uhlenbeck, Polya, Luce, Bavelas, Lewin)ie, Graph Theory and Combinatorial Topology

B. On the nature of the channels in the network **#

1. Transmission of information; the statistical nature of information; the role of information in control, logic, coordination, growth; the information in experiments and observation; selective, metrical, and semantic information.

2. Coding of information as insurance against the effects of noise; the statistical nature of noise; group codes and iterative codes; natural languages and translation.

3. Generation and Transformation of information

4. Transmission of goods and services over channels of network.

5. Physical aspects of channels; conservation of energy and mass in the transmission of information and matter; uncertainty relations.

C. Synthesis: ##** determination of a good network, given the components (subassemblies) and the specified system (assembly) behavior.

1. Some special cases, and examples.

2. The reliability problem for mechanisms; how to design a reliable network (with no inputs or outputs) of less reliable relays, majority or Sheffer organs; extension to other components.

3. The reliability problem for robots.

4. The assignment problem for mechanisms and robots; given the desired system behavior, the components' behavior, and the network topology, how should components be assigned to nodes in the network graph.

D. Relevance to data**

1. Application of results to cryogenic computer design.

2. Relation to the study of acquaintance and contact network (a monograph on this subject, co-authored with J. de Sola Pool, is in preparation).

3. Relation to the study of rumor spread, contagion and information diffusion. (work of Rapoport, Reich, Dodd, etc.)

V. Central Problems of Analysis

A. Relation between behavior of system, components and structure. ##*

1. Finite-state systems: asymptotically periodic behavior for both deterministic and probabilistic components; logical bounds on problem-solving capacity.

2. For a fixed structure, how do the components' behavior functions affect system behavior; some special cases and general results.

3. For fixed behavior functions of components, how does the structure affect system behavior?

B. General characteristics of system behavior#*

1. Repetition of problem VA, given only the type of components (e.g. all self-oriented, etc.); rational behavior, strategies, imputations, etc. - Relation to Game and Decision Theory.

2. Equilibrium points and stability; coalitions etc. - relation to games and decisions.

3. Measures of efficiency and order.

4. Flexibility and capacity; range and complexity of tasks that the system can perform.

5. Vulnerability; effects of slight changes in structure or components on system behavior.

C. Dynamic Considerations.#*

1. Conditioning, self-improvement, self-repair; relation to modern learning theories.

2. Adaptation and adjustment to environmental changes.

3. Generalization and Transfer; associative learning, relation to models for recognition and recall.

4. Initial storage of information about structure and organized behavior as a "genetic blueprint", acquisition and assimilation of new information with time.

5. General limit theorems and asymptotic behavior

VI. Central Problems of Synthesis

A. How to choose components, given the structure and the desired system behavior.#*

1. The reliability problem for mechanisms and robots

2. Choice of components by type (e.g. group-oriented) for optimum system with complex behavior.

B. Simultaneous choice of parts and structure to realize specified system behavior.##*

C. Existence theorems on possible constructions.##

1. What systems cannot be synthesized by some choice of components and structure?

2. Optimization: considerations of costs, etc., synthesis of systems with specified general characteristics (flexibility, complexity, reliability, learning speed, etc.) at minimum cost.

VII. Appendices*

A. Relation to statistical mechanics, chemical phusics, and basic physical theory.

B. Relation to relevant advanced mathematical theories: homotopy theory, theory of ideals, Markov and other stochastic processes, etc.

C. Some applications
D. Proposed experiments, conjectures, speculations
E. Open problems - suggestions for future research.

Topics on which deep and extensive results are presently available are marked**

Topics on which some results are known are marked*

Topics which are essential to the main theme of the book are marked##. These will be given the main emphasis and space.

Topics marked# are relevant to the main theme but not necessary for development of the logical sequence.

Unmarked topics are digressions which are sometimes interesting and important, and they may add to the book. They will be only briefly mentioned.

Many of the topics listed above will probably not, for various reasons, appear in the final manuscript. It is planned to omit or briefly refer to well-known material which is readily available in the published literature.

The expected length, based on the above topical list, would be 220-280 pages. During the actual writing, however, it is proposed to aim for about 150-180 printed pages.

April 3, 1958

Mr. James P. McCormick
Assistant to the Vice President
Academic Administration
Wayne State University
Detroit 2, Michigan

Dear Mr. McCormick:

I have received several invitations to speak to various groups during my stay at Wayne University. I have had correspondence with Mr. Donald Peteet, and have had correspondence and talked on the telephone with Dr. Givens. In each case I understood that the time had been arranged with your office.

I would appreciate knowing as soon as possible just what the schedule is for my entire visit so I may plan accordingly. I trust you will understand that each talk, with the exception of the College Professor, must be very brief as my health does not permit a heavy schedule.

An invitation has come today from Mr. Peteet for dinner in the University Room of the Student Center from 6:00 to 8:00 P.M. on April 16th. Would you be good enough to tell him I will be pleased to attend, providing you do not find this conflicts, and thank him for the invitation.

Sincerely yours,

Norbert Wiener

NW:AD

April 4, 1958

Dr. A. Walther
Institut Fur Praktische Mathematik
(16) Darmstadt
GERMANY

Dear Dr. Walther:

With respect to your son, I think that the Instituto Nacional de Cardiologia in Mexico would be an excellent place for him to work. I am forwarding your letter to me to Dr. Arturo Rosenblueth because he will be much better acquainted with what can be done in the case. I hope that this will come out well.

I have made arrangements to see your friend and his colleagues from Germany at my office at the Massachusetts Institute of Technology on April 7th.

With best wishes from house to house.

Sincerely yours,

Norbert Wiener

NW:AD

P.S. I am investigating the possibility of a stipend.

AMERICAN MATHEMATICAL SOCIETY

190 HOPE STREET, PROVIDENCE 6, R. I.

J. H. CURTISS
EXECUTIVE DIRECTOR

April 7, 1958

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

Dear Professor Wiener:

The Council and the Trustees of the Society have authorized the reprinting of COLLOQUIUM No. 19, Fourier transforms in the complex domain, written by you in collaboration with the late Professor Paley. The reprinting will be by photo offset from the latest edition, but a certain number of minor corrections would be quite permissible.

Please advise us as to whether you wish to make any corrections or revisions before the volume is reprinted.

Sincerely yours,

J. H. Curtiss

JHC:JW

[MD 9/15/58]

DOUGLAS LAWSON
Keeper of the Band
JAMES KEDDIE, JR.
Cheetah
HERBERT T. HAND, JR.
Herpeton
Philip R. Mather
Poker

The SPECKLED BAND of BOSTON

"It's a nice household"

Office of the Keeper
177 State Street
Boston 9, Mass.

April 7, 1958

To All Members of The Band and The Guests Who We Know Will Attend Our Annual Dinner on May 2nd:

It is with the deepest feelings of personal loss that I notify the Band and the B. S. I. that Rudolph Elie died on March 11, 1958.

Rudy was a very loyal friend of the Band and although he missed a couple of recent meetings, he has often enjoyed our annual dinners and regularly attended our Executive Committee meetings

The Band and its Keeper will miss him in so many ways.

* * * *

Attached you will find a Chairman's Report and the rules under which we will award our three prizes.

You will also find attached the quizzes which have been submitted.

Your solutions should reach the Chairman by April 25th and only the winning quiz will be read.

Yours sincerely,

Douglas Lawson

Douglas Lawson,
Keeper of the Speckled Band

DL:bm
Enclosures

A CHAIRMAN'S REPORT

OUR PROGRAM

We will carry on as usual with our cocktails at 6:00 and our dinner at 7:00, and we will have our various toasts and ceremonies, including the awarding of the Holmes Bowl for 1958.

At our meeting, following dinner, various papers and pastiches will be read if, in the opinion of the judges, Richard Wade and Herbert Hand (vice Elie) they are worthy of being read.

The Club will award two first prizes this year, in addition to the Holmes Bowl; one for the best solution to the quizzes and one to the author of the best manuscript submitted.

AWARDING THE PRIZES

The manuscripts will be awarded on a point basis worked out by the judges.

The winner for the best solution to the Bandquiz will be selected by the judges on a point basis: One point being allotted for each correct solution of the four parts of each quiz. I.E. if there are sixteen quizzes entered, the maximum total score would be 64. Partial credit may be awarded by the judges where the wording is incorrect but the intention is clearly correct. The four points: 1. the place; 2. the time; 3. the event; 4. the person, animal or thing.

MAILING RULES

All manuscripts and Quiz solutions must reach the Keeper by April 25th.

THE AWARDING OF THE HOLMES BOWL

Once again, we award the Sherlock Holmes Memorial Bowl, this year for the best Bandquiz submitted, and no points will be awarded in this contest for Bandquiz solutions.

The rules under which the judges will award the Bowl are as follows:

As each Bandquizzer must solve his own quiz, one correct answer will be eliminated in the scoring.

If everyone solves the quiz, no points will be awarded. (The quiz was too easy.)

If only the Quizmaker himself solves the quiz, no points will be awarded. (The quiz was too hard.)

If only one correct solution (in addition to the Quizmaker's own solution) is submitted, the Quizmaker will score 1 point for each incorrect answer; and failure to submit an answer to a specific quiz will be scored as incorrect.

This same rule will be adapted where there are three correct solutions; four correct solutions, etc., etc.

For example: (Twenty solutions have been submitted)
On Quiz #15, there are two correct solutions (one being the Quizmaker's own), and seven answered incorrectly and eleven failed to submit an answer; the author of Quiz #15 would score 18 points.

Second example: (Twenty-four solutions have been submitted)
On Quiz #9, and eight are answered correctly (one being the Quizmaker's own). There are ten incorrect answers and six failed to answer the particular quiz, the author of Quiz #9 would score 16 points for his quiz.

5 additional points will be awarded if the quiz is in verse.

Thus, the award will be made on the basis of one quiz, although the winning Quizmaker may have submitted three additional quizzes. Each quiz will be judged on its own score distinct from any other entries by the same Quizmaker.

Should we have the misfortune to have a tie, the judges will take into consideration additional quizzes by the same authors, using the highest score of his second entry; and if we should have the double misfortune to still be tied, third entries will be taken into consideration; and so to the fourth and final solution.

i.e. If Quiz #13 and Quiz #7 tie with 20 points each; and the Quizmaker of #13 scored 16 points on his second quiz #'d 8, whereas the Quizmaker of #7 has a second entry which scored only 10, Quiz #13 would be the winning quiz.

Second example: If Quiz #11 and Quiz #2 both score 22 points, and the author of Quiz #11 had entered two other quizzes, and the author of Quiz #2 had entered no other quizzes, #11 would be the winning quiz.

I believe we announced that there would be a $1.00 charge for each submission of a solution sheet. Your committee has voted that there will be no charge made for submitting solutions, hence, Bob Harris will receive a $1.00 dividend towards his dinner.

For the Executive Committee

Douglas Lawson

Douglas Lawson,
Keeper of the Band

DL:bm

BANDQUIZ - - 1958

Entries

1. Coast, if you will, or drive in gloom
   This august vehicle, and feel 'er;
   It's not a hansom, trap or brougham -
   It's clearly just an old four-wheeler.

* * * * *

2. His noggin was brachycephalic
   And he had a supreme aptronymic;
   His soignee was short of the Gallic -
   But he harbored an anserine gimmick.

* * * * *

4. THE EVENT: A surgical proceedure not surgically performed.

   THE TIME: Summers warmest month - pleasant weather for the sea-side.

   THE PLACE: Two is company and three is a crowd in this boat.

   THE PERSON, ANIMAL OR OBJECT: A pierced hole in it to make it more beautiful.
   A large cut in it made it a horror.

* * * * *

5. The place was hard by old man Meyer;
   The time, when Holmes was overdue;
   The person, if you would inquire,
   Enjoyed the middle name of "Sue."

* * * * *

6. THE EVENT: Our Boswell came upon her, her eyes shining with the joy of living.

   THE TIME: Mid-afternoon in winter.

   THE PLACE: A garden encircled by the second person plural.

   THE PERSON: Does not shine as a wife, even by her own account.

* * * * *

TRIOLET TO V_____

(Much after Dobson)

8. So I hid by the road
   With the yew hedge along it.*
   As I crouched in the road,**
   She *** rode up that road
   Then swiftly went down it****
   While I hid by the road
   With the yew hedge along it.

9. The Master erred. He said he knew
The country that the town was in.
The thing was one among a few,
And, like the others, very thin.

* * * * *

SINISTER ABC's

- Complete Each Phrase -

10. A (l p h a I n n): The place that he left
B (a k e r, H e n r y): He who left
C (h r i s t m a s D a y): When he left
D (e r b y H a t): What he left (Americanized)

* * * * *

11. In a great, wandering old house, when the Century was new, a little wrinkled old fellow showed his hand, - giving the Master years later an opportunity to do the same.

* * * * *

12. THE EVENT: His hand on my shoulder was like a father's blessing.

THE TIME: Before January 7th.

THE PLACE: A fine room - very handsome.

THE PERSON: A very respectable, learned, talented sort of man.

* * * * *

13. THE EVENT: Surely the Master's closest approach to God.

THE TIME: There; time is almost meaningless.

THE PLACE: So high it makes one short of breath.

THE PERSON: The Master, yes, but not Holmes by name.

* * * * *

14. THE EVENT: A descent into a drain by a murderer.

THE TIME: Before a villian became a villian.

THE PLACE: "The gorgeous East".

THE PERSON, ANIMAL OR OBJECT: "After a life of murder I died at the hands of a sometime minister to the Shah".

* * * * *

The attachment was strong,
When he left London town,
After all, a lifetime together,
A cleavage, a parting,
Just to make half a crown,
Time is precious, we ride hell for leather.

Again the game's afoot,
If not almost ahand,
15. Watson and Holmes on a futile chase,
Pickled in a bottle,
Or just a burning brand.
But never again in the old place.

The thing? It is written.
The place? It is rotten.
The time? By the light of the moon.
The event? Even afoot game can hang too long.

* * * * *

THE EVENT: A wagon-driver is stopped from ever driving again.

THE TIME: After Watson's wedding and before another that occurred in spite of "the event".
16.

THE PLACE: By the water.

THE PERSON, ANIMAL OR OBJECT: After I had killed a man the Master carried me in his hand.

* * * * *

KING HENRY IV - PART 1

By W. Shakespeare

The clues will be found in this play spoken by the characters identified in the scenes noted. They are either near the opening or the close of these scenes -- in the latter case you may have to read the whole scene which should not necessarily be fatal. Nor
17. would reading the whole play.

THE EVENT: Act II, sc. 4 Prince and Peto
(ll. 523-525: A hotel bill changes hands).

THE PLACE: Act III, sc. 3 Falstaff
(l. 9: ".....in a church).

THE TIME: - according to Bell: Act I, sc. 1 Prince
(l. 36 ".....on Tuesday morning").

THE OBJECT: Act II, sc. 4 Peto
(ll. 526 et seq. - the Northumberland Avenue hotel bill).

In a bunk fit for a skunk
I was part of a smart but dirty trick,
But I was also a drawback.

He to whom I was so attached,
Got plastered,
And as he would not sponge on me,
I sponged off him.

18.

It wasn't late when he sort of became the late,
And finished me forever.

That is, if you could have called me,
A me instead of an it.

The place: Sniffy no doubt
The time: A. M. or about
The event: The method of his return would have done credit to Arden - - Enoch??
The person, animal or thing: On again; off again; gone again.

* * * * *

"It is I," said Holmes,
"It is you," said Holmes,
"It is he," said Holmes,
And that was not like Holmes.

"What's left must be the truth," said Holmes,
And yet, it wasn't the truth,
3. But Holmes had anticipated the truth beyond the truth,
Which was like Holmes.

The Place: Before a blazing fire.
The Time: Not specified, because the doctor was not in the house.
The Event: When the pseudo became the real.
The Person, Animal or Thing: Though not real, caused real unhappiness.

* * * * *

Rats and beetles by the score,
Blood and sherry on the floor;
7. That we read;
After we met,
By way of a pet,
Who thought me bread.

7. (Cont.)

Because of his chew,
He united us two.

And later we read;
When his papa was dead;
And then we parted,
He, broken-hearted.

Place: Nearly to worship.
Time: A. M.
Event: It hurt a good bit.
Person, animal or thing:
He thought the game was afoot.

* * * * * * *

THE EVENT: Discovery of gold.

THE TIME: A Friday afternoon in June.

19.

THE PLACE: Right under the slates.

THE PERSON: A man with a frank, honest face lately connected with high finance.

CORRECTION

re: letter from Professor K.O. Friedrichs, April 8, 1958 -

The time of arrival in New York from Greenport should read

6:06 p.m.

instead of 9:10 p.m.

Institute of Mathematical Sciences
25 Waverly Place, New York 3, N.Y.

April 8, 1958

Dear Colleague:

The original time for the meeting has turned out to be most suitable for the majority, after all. The plan then is that the meeting should be from noon June 3rd, to noon June 6th.

Shelter Island can be reached by a Long Island Railroad train which leaves New York (Pennsylvania Station) at 8:39 a.m. (change in Jamaica) and arrives in Greenport, L.I., at 11:35 a.m. There one takes the ferry to Shelter Island alongside the train. - Another connection is: leaving New York at 4:41 p.m, arriving in Greenport 7:40 p.m. The return connection is: leaving Greenport 3:25 p.m., arriving New York ~~9:10~~ 6.06 p.m. (There may be more possibilities in June). Those who want to come by car should take the ferry in Greenport, L.I., which leaves every 20 minutes. (The trip from Greenport to Shelter Island by ferry is 10 minutes).

Those, who arrive in La Guardia airport or Idlewild by plane may perhaps want to take a cab to Jamaica and board the train there. Those who want to come earlier to Shelter Island or stay longer than the meeting will have the opportunity to do so. They should get in touch with:

Mr. Peter Katavolos
Court View Hotel
Mineola, L.I. (N.Y.)

You will receive information about the program somewhat later.

Looking forward to seeing you in Shelter Island,

Sincerely yours,

K.O.F.

KOF:la

K. O. Friedrichs

Current Science Association

RAMAN RESEARCH INSTITUTE, BANGALORE-6

No. 73/5.

Dated 8--4--1958

Dear Professor Wiener,

You may probably be aware of the journal CURRENT SCIENCE which is a Premier Monthly Scientific Journal in India published under the auspicies of the Current Science Association from Bangalore. It is run much on the same lines as NATURE and has a very wide circulation in India and a considerable foreign mailing list.

We invite articles from eminent persons on topics of special interest. These articles serve the purpose of keeping our readers informed of the modern developments in science, at first hand. I am very glad to say that our attempts in this direction has been very rewarding and I have had enthusiastic responses from many scientists.

I have great pleasure in inviting you to contribute an article of about 2500 words on 'Cybernetics' for publication in CURRENT SCIENCE. I shall be perfectly willing to leave the choice of the subject, if you so desire. Our reader would immensely enjoy reading a contribution from a person of your eminence.

I was one of those who attended your lectures, delivered two years ago at the Indian Institute of Science. It was a treat to listen to your proof of the Birkhoff's ~~ergodic hypothesis~~ theorem. Kindly let me know of your acceptance. The article may be sent at your earliest convenience.

With deep regards,

Yours sincerely,

A. Jayaraman

EDITOR

[and 4/15/58]

Prof. Norbert Wiener
Dept. of Applied Mathematics
Massachusetts Institute of Technology
Cambridge, Massuchasetts U.S.A

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
School of Industrial Management
CAMBRIDGE 39, MASSACHUSETTS

EXECUTIVE DEVELOPMENT PROGRAMS

April 8, 1958

Professor Norbert Wiener
Room 2-276
M.I.T.

Dear Professor Wiener:

I want to thank you again for being with our senior executives last Wednesday. I know from their comments after the session that they gained a great deal from their discussion with you.

Sincerely,

Howard W. Johnson
Director

HWJ:ecs

DR. WILLIAM ZIELONKA
1120 ST. PAUL STREET
BALTIMORE 2, MD.

MULBERRY 5-8564

8 April 1958

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

Dear Dr. Wiener:

The four weeks between my conversation with you and your secretary and the proposed lecture date of Friday evening, May the second, is considered by the Foundation as too short a time to organize a meeting and obtain an appropriate audience for you. I have been requested by the Board of the Robert Lindner Foundation to request that the May meeting be changed to October, 1958. You will then be the first speaker sponsored by the Foundation in the Fall. Any Tuesday, Wednesday, or Thursday evening suitable to you in October for a lecture in Baltimore will be acceptable to the Foundation and we will make appropriate arrangements.

Please let me know, as soon as you have a schedule for October, the title of your talk and the date you will be available. We will work along with you in having your talk published if you desire. Your usual honorarium and expenses will, of course, be provided. Your audience will consist of persons of varying professional backgrounds and interests from the Baltimore-Washington community. Your lecture will be announced in the Departments of Mathematics, Physics, Psychology, and Biological Sciences of the local universities, as well as in the public libraries.

The difficulties at this end with receiving your reply to my first letter I find most unfortunate. On behalf of the Robert Lindner Foundation I look forward to your participating with us.

Most sincerely,

William Zielonka

William Zielonka, Ph. D.
Vice-Chairman
Robert Lindner Foundation

WZ:APP

{ans 4/9/58}
{ans 4/10/58}

April 8, 1958

Samuel P. Bessman, M.D.
Associate Professor of Pediatrics
University of Maryland
School of Medicine
Baltimore 1, Maryland

Dear Dr. Bessman:

With regard to the lecture on "Communication" which I am to give on May 3rd, I would appreciate having a schedule giving the exact time etc. so that I may plan accordingly.

Thank you.

Sincerely yours,

Norbert Wiener

NW:AD

[nws 4/11/58]

April 8, 1958

Dr. Arturo Rosenblueth
Instituto Nacional de Cardiologia
MEXICO

Dear Arturo:

I am forwarding you a letter which I got from Dr. Walther in Darmstadt concerning his son. Walther is a reliable man and a good judge of ability. I think it will be an excellent idea if something could be done for the boy. I am leaving the matter entirely in your hands as I am out of the picture.

I am working hard both on the practice and the theory of the brain waves and will soon have a mathematical book ready in which I discuss some of the problems of self-organizing systems. I shall forward it to you when I get a copy. Next summer I shall be at a scientific meeting on Lake Como in Italy for a couple of weeks.

I am looking forward to the time when Margaret and I can visit Mexico again and see our old friends. Margaret's health is excellent, and it appears that the operation she had for the removal of a cancer of the sigmoid has been completely satisfactory. It took place a little over a year ago and around Christmas time the surgeon who did the operation, Dr. Welch, gave her a thorough examination in connection with a minor operation which had nothing to do with the cancerous condition. He told her not to come back to see him for another year. In my opinion this means a thorough conviction on his part that she is in excellent condition.

We both send our regards to both of you.

Sincerely yours,

Norbert Wiener

NW:AD
Enc.

April 8, 1958

Mr. S. Stephenson Smith
Supervising Editor
Funk and Wagnalls Company
153 East 24th Street
New York 10, New York

Dear Sir:

In your letter to Professor Wiener dated March 27th you requested a glossy photograph for your files. Since in error it was not sent to you with his letter of April 2nd, it is enclosed herewith.

Very truly yours,

Secretary to
Professor Norbert Wiener

WAYNE STATE UNIVERSITY

DETROIT 2, MICHIGAN

OFFICE OF THE VICE PRESIDENT
FOR ACADEMIC ADMINISTRATION

April 9, 1958

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

Dear Professor Wiener:

The program of the symposium on The College Professor is now in print and I am enclosing two copies for your information. Let me now write to your letter of April 3.

The only extra activity that I have definitely scheduled for you is the meeting with Dr. Givens and the mathematics group in the late afternoon of Thursday, April 17. It is my understanding that this will be most informal. I have spoken with Mr. Peteet about the student dinner on Wednesday evening and told him not to count on you. If you should decide Wednesday that this is something you would like to do, we can make arrangements then. But please feel perfectly free to say no.

Two other pieces of business. May we have your permission to record your talk for later broadcast over the University's educational radio station? And would you be willing to have it filed with the National Association of Educational Broadcasters?

I am enclosing a tax exemption certificate that you may be able to apply on your transportation. If you can tell me the airline and flight number, I will try to have the University car meet you at Willow Run airport on April 15 at 9:23 p.m. Should we miss connections, however, you may take the limousine to the Sheraton-Cadillac hotel (first stop in Detroit) and then take a taxi to the Park-Shelton where your room is reserved.

I am looking forward to seeing you again next week. I hope we can make your visit a really happy one for you. The new ideas you have advanced, and the challenging ways in which you have related mathematics to human beings, have stimulated students and faculty on this campus, concerned as it is with a computation laboratory and mathematics. I can assure you of the great respect with which your name is held.

Sincerely,

James P. McCormick

James P. McCormick
Assistant to Vice President
Academic Administration

JPM:ahc

DAVID RIESMAN

LL.B., LL.D., has been a law clerk to Mr. Justice Brandeis, has practiced law in Boston, and taught law at the University of Buffalo before becoming Professor of Sociology at the University of Chicago. Among other volumes he has published *The Lonely Crowd* (1950) and *Constraint and Variety in American Education* (1956).

HAROLD TAYLOR

Ph.D., was educated in Toronto, Canada and London, England. He taught philosophy at the University of Wisconsin, is a director of the American Labor Education Service and chairman of the U. S. Commission on Labor Scholarships in The United Kingdom, and since 1945 has been President of Sarah Lawrence College. He has contributed to *Democracy in the Administration of Higher Education* (1950) and is the author of *On Education and Freedom* (1954).

HELEN C. WHITE

Ph.D., LL.D., Litt.D., L.H.D., is a novelist, critic, and Professor of English of the University of Wisconsin. She is a member of the U. S. National Commission for UNESCO, the U. S. Board of Foreign Scholarships, past President of the American Association of University Women (1941-47) and is President of the American Association of University Professors. Among other works she has written *Not Built With Hands* (1935) and *The Tudor Books of Private Devotion* (1951).

NORBERT WIENER

Ph.D., has lectured in mathematics in England, China, France and at the Massachusetts Institute of Technology where he joined the faculty in 1919. He has been Vice President of the American Mathematical Society and member of the National Academy of Sciences. In addition to highly technical articles and books, he has published *Cybernetics* (1948) and *I am a Mathematician* (1956).

Wayne State University Symposium

THE COLLEGE PROFESSOR

APRIL 16 — 17, 1958

The University Council cordially invites you to attend a Symposium on the College Professor, presented for students, faculty, and friends of the University. A panel of four leading spokesmen for the academic world, each an influential figure in his own field, will attempt to draw out of their wide range of combined experiences a picture of college-teaching as a profession.

The Symposium will consist of the following program:

WEDNESDAY, APRIL 16

2:30-3:45 P.M. Rackham Memorial Building

Professor:
Helen C. White
Chairman, English Department
University of Wisconsin
President, American Association of University Professors

Chairman:
Harold A. Basilius
Professor of German
Director of the University Press
Wayne State University

4:00-5:15 P.M. Rackham Memorial Building

Professor:
Norbert Wiener
Mathematics Department
Massachusetts Institute of Technology

Chairman:
Dr. J. E. Goldman
Manager, Physics Department
Scientific Laboratory
Ford Motor Company

THURSDAY, APRIL 17

2:30-3:45 P.M. Rackham Memorial Building

Professor:
Harold Taylor
Philosophy Department
President, Sarah Lawrence College

Chairman:
Francis C. Rosecrance
Professor of Education
Dean, College of Education
Wayne State University

4:00-5:15 P.M. Rackham Memorial Building

Professor:
David Riesman
Sociology Department
University of Chicago

Chairman:
Leonard Kasle
Vice President
Kasle Steel Company
Chairman, WSU Board of Governors

8:00-10:00 P.M. Detroit Institute of Art
Large Auditorium

Panel:
David Riesman, Harold Taylor, Helen C. White, Norbert Wiener.

Chairman:
Clarence B. Hilberry
Professor of English
President, Wayne State University

The Symposium is open to the public, attendance is free, and there are no reservations necessary.

Wellesley Travel Service
Ce - 5 - 4900

Mr. Quarterman

Plane leave Boston
april 15th
5:25
arrives Detroit 9:23
Stop at Buffalo
Flight No. 735

Dr. G. R. Verma M. A.
Ph D
Depatment of Mathematics.
BIRLA COLLEGE PILANI

4th April 1958.

Dear prof. Weiner,

I am sending herewith the copies of the Statement of my qualifications and that of the list of publications.

I am interested in doing post doctoral studies in U.S.A. The subjects of my interest are elasticity, Hydromechanics and Aero-dynamics.

It will be very kind of you if you may please try to secure a part time teaching work or a research fellowship in your Institute, either in the mathematics division or in the engineering division.

Prof. Narliker of Banaras Hindu University, Dr. B. B. Sen of Jadavpur University Calcutta 32, and Dr. S. M. Mitra Principal, Birla College Pilani may be kindly referred to as regards my academic qualification and attainments.

I wonder if you still remember our meeting in the hotel in Agra where you were staying at the time of Science Congress.

With best regards

Yours very truly

G. R. Verma.

Dr. G. R. Verma M. A.
Ph. D
Depatment of Mathematics,
BIRLA COLLEGE, PILANI
RAJASTHAN, INDIA.

[ans 4/16/58]

STATEMENT OF QUALIFICATIONS.

Name:	GHASIRAM VERMA, M.A., Ph.D.
Date of birth:	August 1, 1927.
Academic qualifications:	Passed Matriculation, Intermediate, and B.A. examinations in Second Division. Took M.A., (Mathematics) in First Division from Banaras Hindu University.
Research experience:	Three years'; got Ph.D., degree in 1957 on the thesis "Application of Dirac's delta function in isolated force problems of elasticity."
Publications:	Seven papers published so far in Indian and foreign Journals and three papers are under publication.
Teaching experience:	As honorary lecturer - three years' teaching experience in Birla College, Pilani (In accordance to the Govt. of India's Senior Scientific Research Scholarship Scheme, under which I was working here, I was not expected to draw any other honorarium. I, therefore worked here in honorary capacity during my period of research.) As an Assistant Professor on the regular staff of Birla College, Pilani - one year's teaching experience.
Classes taught:	Intermediate Science, B.Sc. and M.Sc. (Statistics.)

List of papers published by G.R.Verma.

1. Application of Dirac's delta function in isolated force problems of elasticity part I (Indian Journal of Theoretical Physics Vol.2 Number 4 January 1955.)
2. Application of Dirac's delta function in isolated force Problems of elasticity part III (Proceedings of Rajasthan Academy of Sciences Vol 5 May 1955.)
3. Application of Dirac's delta function in isolated force problems of semi-infinite elastic solid of isotropic and non-isotropic material. (Zeitschrift fur angewandte Mathematik und Mechanik, Berlin Band 37, Heft 1/2 Januar/ Februar 1957.)
4. Note on the Application of Dirac's delta function in isolated load problems of the theory of elasticity part IV (Proceedings of Rajasthan Academy of Sciences Vol. VI July, 1956.)
5. On the stresses produced by impulsive diplacements applied to the inner surface of a spherical cavity (Geofisica Pura E Applicata Milano Italy Vol. 37 1957).
6. Note on the application of Dirac's delta function in solving problems of semi-infinite elastic solid with transverse isotropy part VI (Proceeding of Rajasthan Academy of Sciences Volume VI July 1956).
7. Stresses in a circular cylinder and in a paraboloid of revolution due to shearing forces produced by circular rings of the curved surface (Indian Journal of Theoritical Physics, Calcutta Vol. 4 Number 4 December 1956).

April 9, 1958

Dr. William Zielonka
1120 St. Paul Street
Baltimore 2, Maryland

Dear Dr. Zielonka:

I find that I can accept with pleasure your invitation to speak at the Robert Lindner Foundation on May 2nd.

I will appreciate it very much if you could make reservations in my name at a hotel conveniently located, also taking into consideration my lecture at the University Hospital. Since Mrs. Wiener will accompany me, but will not arrive at the hotel until late Friday night, I will need a room with twin beds and bath for all day Friday, Friday night, Saturday and Saturday night.

Would you also let me know the exact time of the lecture and whether a tuxedo is in order. Perhaps it will be helpful for you to know that I am a strict vegetarian.

My honorarium will be Two Hundred Fifty Dollars, and I will therefore pay my own expenses.

I look forward to seeing you on May 2nd.

Sincerely yours,

Norbert Wiener

NW:AD

BATES COLLEGE
Lewiston, Maine

OFFICE OF THE PRESIDENT

April 10, 1958

Dr. Norbert Wiener
53 Cedar Road
Belmont, Massachusetts

Dear Dr. Wiener:

On June 6 and 7, Bates College is undertaking a major two-day event, the Bates College Challenge Convocation. One of the main features of the Convocation will be a dinner for representative executives of New England Business and Industry, to be held Friday, June 6, at 6:30 p.m., in the Men's Memorial Commons in Chase Hall on the Campus. The dinner will be followed by an assembly with a larger audience.

Mr. Ralph J. Cordiner, President of the General Electric Company, will be the guest of honor at the dinner and will be the featured speaker at the assembly.

An important part of the evening will be the awarding of citations to a small number of citizens of New England who have distinguished themselves in their areas by outstanding achievement and by service to their fellow citizens. Among the people invited to accept Bates' Distinguished Citizen Citations will be leaders in education, business, homemaking, public service, religion, science, and the professions.

It is my pleasure to advise you that you have been selected as one of this small group to be invited to receive a citation. I hope very much that your schedule will allow you to accept the invitation and be our guest on June 6. I regret that citations cannot be awarded in absentia.

We should appreciate hearing from you at your earliest convenience. Further details will be provided as soon as we know of your acceptance.

We shall feel honored if we may award a citation to you on June 6.

Sincerely yours,

Charles F. Phillips
President

[ans 4/14/58]

April 10, 1958

Dr. William Zielonka
1120 St. Paul Street
Baltimore 2, Maryland

Dear Dr. Zielonka:

I regret that there has been confusion about the arrangements for the Robert Lindner Foundation lecture. The fact is that it took me a considerable time to come to a decision to accept the invitation, for which I am deeply grateful. The state of my health and the body of work before me to be done are such that I am forced to cut my commitments to the bone, not only in view of the actual work involved in such lectures, but in view of the decisions to be made in advance of each one. I have come to the decision not to accept any such engagements in the future. You will therefore understand why I feel unable to accept your kind invitation to give the Lindner lecture next October.

Sincerely yours,

Norbert Wiener

NW:AD

TEXAS EDUCATION AGENCY

AUSTIN, TEXAS

• STATE BOARD OF EDUCATION
• STATE COMMISSIONER OF EDUCATION
• STATE DEPARTMENT OF EDUCATION

April 11, 1958

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

Dear Professor Wiener:

Your writings have always been very important to me in my work in the history and philosophy of education, especially in the role of mathematics and science.

Therefore, I introduced my students in the general television audience to some of your lines of thought.

The Doubleday Anchor edition of The Human Use of Human Beings was very popular. One student wrote, "In the scientific field I learned of the tremendous present and future impact of science from Cybernetics and I am A Mathematician." It has always seemed to me that Cassirer, in his Essay On Man, and you in your own writing broke new ground in the whole field of communication and symbols which is so fundamental in education's role in the human culture.

Sincerely,

Arthur Henry Moehlman
Professor of the History
and Philosophy of Education

Television Instructor
"Adventures in Education"

AHM/jw

[ans 9/25/58]

"ADVENTURES IN EDUCATION"

Arthur Henry Moehlman

University of Texas

Professor of the History
and Philosophy of Education

The University of Texas gave me a year's leave to act as television writer and instructor for the TV project "ADVENTURES IN EDUCATION" sponsored by the Texas Education Agency, (that is, State Department of Education) and the colleges and universities of the state. The Fund for the Advancement of Education made the grant supporting the undertaking.

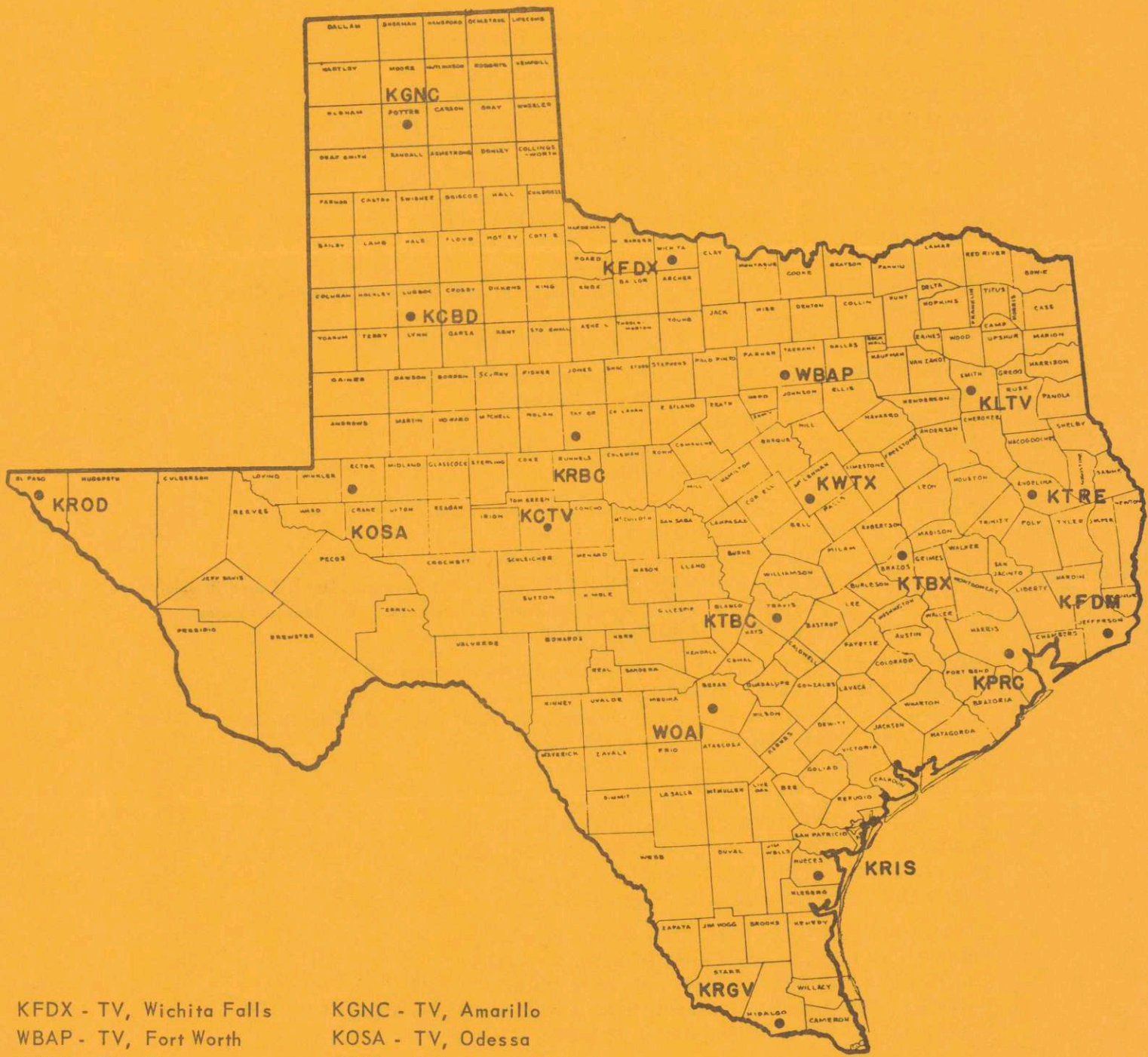
A major aim of "ADVENTURES IN EDUCATION" was to recruit teachers with a first-class background in subject matter areas, both those with B.A. or B.S. or Arts and Science College seniors. Some 542 students are enrolled in the course and the majority of these are already teaching in elementary and secondary schools.

In addition a major objective was the interpretation of education to citizens in general as a vital instrument for cultural survival and change. The television audience at a minimum has been a quarter of a million and very probably half a million at 8:30 each Saturday morning for 26 lessons, beginning on September 28, 1957. Since paper back books were used as major references we have discovered a tremendous impact upon reading interest of people in general. Stations have requested special reading lists for their audiences which range from young children to grandparents.

"ADVENTURES IN EDUCATION" has proved to be a magnificent opportunity for the humanization of knowledge from the major disciplines - the arts and humanities, the social sciences and natural sciences with reference to the professional area of education in the elementary, secondary, and higher institutions of education. Since the entire series has been put on Kine film I have an invaluable opportunity to study the new field of television education systematically. The entire experience has helped me to visualize increasingly clearly the problems of improving instruction.

The material was based on my own research and teaching. I have been writing all of the telescripts and then presenting them from station WBAP at Fort Worth over the 18 station state-wide network, 12 live and 6 on Kine. I thought that you would be interested in this analysis of television education.

LOCATION OF STATIONS WHICH WILL TELECAST "ADVENTURES IN EDUCATION"



KFDX - TV, Wichita Falls
WBAP - TV, Fort Worth
KWTX - TV, Waco
KTBC - TV, Austin
KPRC - TV, Houston
KFDM - TV, Beaumont
WOAI - TV, San Antonio
KRBC - TV, Abilene
KCBD - TV, Lubbock

KGNC - TV, Amarillo
KOSA - TV, Odessa
KRIS - TV, Corpus Christi
KRGV - TV, Weslaco
KROD - TV, El Paso
KTRE - TV, Lufkin
KLTV - TV, Tyler
KTBX - TV, Bryan
KCTV - TV, San Angelo

(over)

College Representatives For "Adventures In Education"

ABILENE CHRISTIAN COLLEGE -- Dean Walter Adams, Dr. Orval Filbeck.
AUSTIN COLLEGE -- Dr. Garmon B. Smith.
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BISHOP COLLEGE -- Dean H. C. Sun.
EAST TEXAS BAPTIST COLLEGE -- Dean George Thompson.

EAST TEXAS STATE COLLEGE -- Dean Frank Young.
HARDIN-SIMMONS UNIVERSITY -- Dr. H. B. Smith, Dr. J. B. Adair.
HOWARD PAYNE COLLEGE -- Dr. Joe B. Rushing, Dean Z. T. Huff.
INCARNATE WORD COLLEGE -- Sister M. Clement, Sister John Marie.
LAMAR STATE COLLEGE OF TECHNOLOGY -- Dr. Ruth Olcott.

McMURRY COLLEGE -- Dr. Joe Humphrey, Dr. Morgan Young.
MARY HARDIN-BAYLOR COLLEGE -- Dr. R. M. Hawkins.
MIDWESTERN UNIVERSITY -- Dr. D. L. Ligon.
NORTH TEXAS STATE COLLEGE -- Dr. Witt Blair, Dr. Jack Cross, Dr. Charles Clark.
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OUR LADY OF THE LAKE COLLEGE --Dr. Harold A. Wren.

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PRAIRIE VIEW A. & M. COLLEGE -- Dean J. M. Drew.
RICE INSTITUTE -- Dean G. H. Richter.
SACRED HEART DOMINICAN COLLEGE -- Sister M. Matthew.
ST. MARY'S UNIVERSITY -- Dr. Henry Ringkamp.

SAM HOUSTON STATE TEACHER COLLEGE -- Dr. Suler Ryan.
SAN ANGELO COLLEGE -- Dr. Harmon Lowman Jr.
SOUTHERN METHODIST UNIVERSITY -- Dr. Bob G. Woods.
SOUTHWEST TEXAS STATE TEACHERS COLLEGE -- Dr. Pat Norwood, Dr. J. Lloyd Rogers.
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STEPHEN F. AUSTIN STATE COLLEGE -- Dr. Lawrence Franks.

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TEXAS CHRISTIAN UNIVERSITY -- Dr. Jeff L. Horn.
TEXAS COLLEGE (TYLER) -- Dean A. C. Hancock.

TEXAS LUTHERAN COLLEGE -- Dr. Arthur Hafner.
TEXAS SOUTHERN UNIVERSITY -- Dr. A. N. Thompson.
TEXAS TECHNOLOGICAL COLLEGE -- Dr. Morris Wallace.
TEXAS WESLEYAN COLLEGE -- Dean James Kincaid.
TEXAS WESTERN COLLEGE -- Mr. Virgil Hicks.

TEXAS WOMAN'S UNIVERSITY -- Dean Spencer L Stoker.
TRINITY UNIVERSITY -- Dr. Felix Ullrich, Dr. Janie Silver.
UNIVERSITY OF CORPUS CHRISTI -- Dr. A. H. Wilcox.
UNIVERSITY OF HOUSTON -- Dean Arvin N. Donner, Dr. Charles White.
UNIVERSITY OF ST. THOMAS -- Rev. J. D. Sheehy

UNIVERSITY OF TEXAS -- Dr. A. C. Murphy.
WAYLAND COLLEGE -- Dr. Cecil Cosper.
WEST TEXAS STATE COLLEGE -- Dean Walter Juniper, Dr. J. B. Roberts, Mr. Curtis Babcock.
WILEY COLLEGE -- Dean W. T. Cole.

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TEA-857-2M-2599-B259

UNIVERSITY OF MARYLAND
SCHOOL OF MEDICINE

DEPARTMENT OF MEDICINE
DIVISION OF NEUROLOGY

University Hospital
BALTIMORE 1, MARYLAND

April 11, 1958

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

Dear Dr. Norbert:

My apologies for having delayed so long in thanking you for agreeing to speak to our freshman class as part of the course, "Man and His Environment". Dr. Bessman may have told you that this involves speaking for one hour, followed by an hour of discussion. Your lecture will take place on Saturday, May 3, 1958, from 9:00 to 11:00 A.M. and will be held in Chemical Hall of the Medical School, Northeast corner of Lombard and Greene Streets.

He may also have told you that our budget is not very large and we can pay you an honorarium of only $100.00 plus expenses, which we estimate in advance and include in one check. If you wish, my secretary will reserve a room for you at the Lord Baltimore Hotel, which is convenient to the Medical School, for the night of May 2.

We would appreciate it if you could let us know whether or not you expect to use slides or movies for your lecture so that we can arrange for a projector and projectionist.

Again, thank you for agreeing to undertake this task and if there is any way in which I can be of assistance, please let me know.

Sincerely yours,

Charles Van Buskirk

Charles Van Buskirk, M.D.
Professor of Neurology

CVB:ep

P. S. I enclose a copy of the schedule for the course "Man and His Environment" for your interest.

[ans 4/15/58]

October 28, 1957

SCHEDULE
1957-1958
MAN AND HIS ENVIRONMENT

Chemical Hall, Saturdays, 9:00-11:00 A. M.

September 14, 1957	Origin of the Universe SPEAKER: William G. Pollard, Executive Director, Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn
September 21	Nature of Particulate Matter SPEAKER: Donald H. Andrews, Prof. of Chemistry, Johns Hopkins University.
September 28	Biochemical Evolution SPEAKER: Dean Burk, Prof. of Chemistry, National Cancer Institute, N.I.H., Bethesda, Md.
October 5	Physiological Evolution SPEAKER: Homer W. Smith, Prof. of Physiology, New York University College of Medicine
October 12	Physical Anthropology SPEAKER: M. F. Ashley Montagu, Prof. of Anthropology, recently of Rutger's University, New Brunswick, N.J.
October 19	Cultural Anthropology SPEAKER: Margaret Mead, Prof. of Anthropology, American Museum of Natural History, New York City.
October 26	Physical Anthropology SPEAKER: William L. Straus, Prof. of Physical Anthropology, Johns Hopkins University School of Medicine.
November 2	Growth and Development Speaker: Benjamin Pasamanick, Prof. of Psychiatry, State Institute of Psychiatry, University Health Center, Columbus, Ohio.
November 9	Experimental Embryology SPEAKER: J.F.K. Holtfreter, Prof. of Biology, University of Rochester, Rochester, N.Y.
November 16	Social Factors in Disease SPEAKER: John P. Spiegel, Research Associate, Laboratory of Social Relations, Harvard University.
November 23	Genetics SPEAKER: William J. Young, II, Asst. Prof. of Anatomy, Johns Hopkins University School of Medicine.
December 7	Genetics SPEAKER: H. Bentley Glass, Prof. of Biology, Johns Hopkins University.
December 14	Medicine of Pre-History and Primitive Peoples SPEAKER: Richard H. Shryock, Wm. H. Welch Prof. of History of Medicine, Johns Hopkins University Sch. of Med.

January 4, 1958 — History of Psychiatry
SPEAKER: Gregory Zilboorg, Prof. of Psychiatry, New York Medical College, New York City

January 11 — History of Physiology (19th Century Concepts in Physiology)
SPEAKER: Dr. Chauncey D. Leake, Dean, College of Medicine, Ohio State University, Columbus, Ohio.

January 18 — History of Medicine in the United States
SPEAKER: Maurice C. Pincoffs, Prof. of Preventive Med, Ret. Acting Head, Dept. of Preventive Med. and Rehabilitation.

January 25 — Influence of Disease on Civilization in the Past
SPEAKER: Owsei Temkin, Prof. of the History of Medicine, Johns Hopkins Univ. School of Medicine.

February 1 — Modern Disease Patterns
SPEAKER: John Dingle, Prof. of Preventive Medicine, Western Reserve University, Cleveland, Ohio.

February 8 — Physiological Problems of the Future
SPEAKER: Isaac Asimov, Assoc. Prof. of Biochemistry, Boston Univ. School of Medicine.

February 15 — Population Pressures
SPEAKER: William Vogt, Ph.D., National Director, Planned Parenthood Federation of America, Inc.

March 1 — Adaptation
SPEAKER: David McK. Rioch, Director, Div. of Neuropsychiatry, Walter Reed Hospital, Washington,D.C.

March 8 — Philosophy of Science
SPEAKER: Thelma Z. Lavine, Asst. Prof. of Philosophy, University of Maryland

March 15 — Social Patterns of Disease
SPEAKER: René J. Dubos, Member and Prof., Rockefeller Inst., New York City, Chairman, Depts. of Pathology & Bacteriology

March 22 — Juvenile Delinquincy
SPEAKER: Peter P. Lejins, Prof. of Sociology, University of Maryland.

April 12 — Content of Gerontology
SPEAKER: Edward J. Stieglitz, M.D.: Consulting Gerontologist, National Institutes of Health. Consulting Editor "Geriatrics".

April 19 — Heredity and Disease
SPEAKER: Richard McConnell, M.B, B. Ch., Heredity Clinic, David Lewis No. Hospital, Liverpool, England.

April 26 — Adaptation
SPEAKER: Matthew Tayback, Sc. D., Asst. Commissioner of Health Research and Planning, Baltimore City Health Department.

May 3, 1958 — Communications
SPEAKER: Norbert Wiener, Prof. of Mathematics, Massachusetts Institute of Technology, Cambridge, Mass.

May 10 — Behavior and Disease
SPEAKER: Harold Wolff, Prof. of Neurology and Psychiatry, Cornell Univ. Medical College, New York Hospital, N.Y.

May 17 — Physical Environment of Man
SPEAKER: Abel Wolman, Prof. of Sanitary Engineering, Johns Hopkins University.

SERVOMECHANISMS LABORATORY
DEPARTMENT OF ELECTRICAL ENGINEERING

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE 39, MASSACHUSETTS UNiversity 4-6900

J. FRANCIS REINTJES, Director
GEORGE C. NEWTON, Jr., Associate Director
JOHN E. WARD, Executive Officer

April 11, 1958

MEMORANDUM

TO: Prof. J. F. Reintjes

FROM: J. E. Ward

SUBJECT: Iron Lung

I was visited yesterday by a Dr. Birger Grape who has been using our iron lung pressure control at the Lemuel Shattuck Hospital. He is working there under the direction of Dr. Tyler. They have been performing some very interesting work in the use of our system to aid patients who are able to breathe but who either expend too much energy in breathing or are not adequately ventilating themselves. They use a strain guage arrangement to measure the chest volume. This signal, plus its derivatives, is used as an input to our system in place of the function generator. Positive feedback is obtained so that the respirator aids the patient's muscles. The circuitry for this application was worked out one evening last summer at a meeting between Dr. Mead and Dr. Arthur Miller of Sanborn Instruments and myself. Dr. Grape and his colleagues are presenting two papers on this research at a convention in Atlantic City in early May, and we will be able to get copies of the papers.

The gist of Dr. Grape's problem is that he is the head of a group doing research at St. Goran's Hospital in Stockholm, Sweden. He will be returning to Sweden this July and is desirous of obtaining a Chinese copy of the present respirator to take back to Sweden with him. He stated that the respirator has been used about five hours a day for over a year now and has given no trouble whatsoever. His work with it has given him such confidence in the equipment that he would rather get one just like it than design something different.

Professor Newton and I explained to Dr. Grape the position of the Institute in such matters. We stated that in general we would not like to undertake to build an exact copy of the present equipment, feeling that this is a job better suited to an industrial organization. We offered to make all drawings available with the acquiesence of the Foundation for Infantile Paralysis and told him that he should be able to get a company either here or in Sweden to build the equipment. While Dr. Grape was here, we called Ted Heuchling at Feedback Controls and found that Ted was interested in the job. He made arrangements to visit Dr. Grape at the Shattuck Hospital. I told Ted that we would be willing to help him in any way with the job since we were quite interested in the equipment and its use. We also told Dr. Grape that if he was unsuccessful making satisfactory arrangements with Feedback Controls or other companies that we could then explore the possibilities for more direct MIT assistance.

I personally feel that we should seriously consider building a second model of this equipment for Dr. Grape if he has trouble on the outside. I look on this as a direct extension of the original project, and I believe that it would further the original aims of the work to make sure that Dr. Grape has a successfully working unit for his research in Sweden. I suspect also that the prestige value of such a unit in use in Sweden should not be overlooked. I expect to put time in on this project whether or not MIT is directly involved because of my personal interest in it.

John E. Ward

JEW:mb

cc. Prof. G.S. Brown
Prof. G.C. Newton
Prof. N. Wiener
G.A. Bierason

Local address: Dr. Birger Grape
70 Cloverdale Road
Newton Highlands, Mass.
Phone: LA 7-8382

Swedish addr: Hantverkargatan 14, Sweden
Phone: 500552

ARMOUR RESEARCH FOUNDATION OF ILLINOIS INSTITUTE OF TECHNOLOGY
TECHNOLOGY CENTER · 10 WEST 35TH STREET · CHICAGO 16, ILLINOIS · CAlumet 5-9600

ELECTRICAL ENGINEERING
RESEARCH DEPARTMENT
3440 SOUTH STATE STREET

April 11, 1958

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

Dear Professor Wiener:

We wish to thank you for your cooperation in providing us with your impressions of potential future developments in the forthcoming years. It was a great personal pleasure for me to talk with you in this manner, and I hope that some similar opportunity will arise in the future.

Sincerely yours,

Richard B. Schulz

Richard B. Schulz
Research Engineer

RBS:cp

April 11, 1958

Mr. J. M. Campbell
Scientific Director
Research Staff
General Motors Corporation
Box 188
North End Station
Detroit 2, Michigan

Dear Mr. Campbell:

I am truly honored by your invitation to visit the General Motors Technical Center on April 17th and sincerely wish it was possible for me to do so. However, I find that plans have been made for me to give a talk at 4:00 o'clock that day and there is to be a panel discussion in the evening. In order to do my best on these occasions I feel that I should not make any other commitments for that day. I feel sure you will understand the situation, and thank you again for your kindness in inviting me.

Sincerely yours,

Norbert Wiener

NW:AD

cc sent to Mr. Hendle

April 11, 1958

Captain Henry P. T. Corley
Oklahoma City Air Material Area
U. S. Air Force
Tinker Air Force Base
Oklahoma

Dear Sir:

With reference to your recent letter to Professor Wiener, I regret to inform you that because of pressure of other work of a scientific nature here at the Institute, he will not be able to continue with this correspondence.

Very truly yours,

Secretary to
Professor Norbert Wiener

April 11, 1958

Mr. Kendall G. Getman, Editor
John Wiley and Sons, Inc.
440 Fourth Avenue
New York 16, New York

Dear Mr. Getman:

I am fully convinced of the need for research in the mathematical theory of organized systems and of the appeal of a book in this field. The abstract of the book seems to be interesting and important, but I doubt if it is sufficient to enable me to make a final judgment as to the value of this particular book. My impression is favorable, but I do not wish to give any final opinion on the data submitted.

Sincerely yours,

Norbert Wiener

NW:AD

[ans 5/1/58]

April 11, 1958

Mr. Maurice Lachin, Editor
Automatisme Industriel et
Gestion Automatisse
7 Rue Chasseloup-Laubat
Paris XV
France

Dear Mr. Lachin:

In reply to your letter of April 2nd, I am afraid that I find it necessary to withdraw from all publications and indeed activity outside of my own scientific field. This includes the writing of prefaces to books, whether by myself or by anyone else.

Sincerely yours,

Norbert Wiener

NW:AD

April 11, 1958

Mr. James P. McCormick
Assistant to the Vice President
Academic Administration
Wayne State University
Detroit 2, Michigan

Dear Mr. McCormick:

Thank you for your letter of April 9th giving me the details which I needed in planning my trip to Detroit.

You have my permission to record my talk for later broadcast over the University's educational radio station, and I am perfectly willing to have it filed with the National Association of Educational Broadcasters.

I will arrive on April 15th on American Flight No. 735 at 9:23 P.M. and appreciate the arrangements you have made for my transportation to the hotel.

Sincerely yours,

Norbert Wiener

NW:AD

April 11, 1958

Mr. Gene Marine, Associate Editor
Frontier
527 North La Cienega Boulevard
Los Angeles 48, California

Dear Mr. Marine:

In reply to your letter of March 31st, I am afraid that I am not available for any comment on articles or letters appearing in popular journals, or in fact for any journalistic work whatever.

Sincerely yours,

Norbert Wiener

NW:AD

April 11, 1958

Mr. C. B. Petry II
530 N. W. 179th Terrace
N. Miami 69, Florida

Dear Sir:

Your letter of April 7th to Professor Wiener has been received and has been forwarded to our Admissions Office for a reply.

Very truly yours,

Secretary to
Professor Norbert Wiener