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CORRESPONDENCE Jan. 16-31, 1960

CHERRY VALLEY
NEW YORK
JAN/16/60

PROFESSOR NORBERT WEINER
MASSACHUSETTS INSTITUTE OF TECHNICOLOGY
CAMBRIDGE, MASSACUSETTS.

DEAR SIR,-

SEVERAL YEARS AGO I WAS ENABLED TO PURCHASE FROM THE PUBLISHERS -

NATIONAL EDUCATIONAL ALLIANCE, Inc.

AT THAT TIME GIVING THE ADDRESS -

37 WEST 47th STREET
NEW YORK, N. Y.

A SERIES OF SHORT TREATISES BY EMINENT MATHEMATICIANS

AMONG THE MOST VALUED OF WHICH WAS ONE BY YOURSELF, COVERING PHASES OF THE SUBJECT OF CALCULUS.

NOW, I VALUED THIS SHORT WORK VERY HIGHLY, BUT IT APPEARS TO HAVE BEEN EITHER MISLAID OR TAKEN OUT OF THE HOUSE.

I HAVE WRITTEN THE PUBLISHERS AT THE NEW YORK ADDRESS GIVEN ABOVE BUT THE LETTER RETURNED WITH THE POSTAL STATEMENT THAT THERE WAS NO SUCH FIRM AT THIS ADDRESS.

SHOULD YOU HAVE INFORMATION AS TO WHERE I COULD CONTACT THIS FIRM AND ASCERTAIN WHETHER A COPY OF THIS BOOK COULD BE SECURED WOULD YOU OBLIGE, USING THE INCLOSED ADDRESSED ENVELOPE, BY CONVEYING THE ADDRESS TO ME ?

THANKING YOU,

VERY TRULY YOURS,

E. King Phelan

E. KING PHELAN

[ans 1/25/60]

1/16/60

237 E. Queen St.
Hampton, Va.

Dr. Norbett Weiner
M.I.T.
Cambridge Mass.

Dear Sir:

I have been reading about the machine that can play checkers and I became curious to know what progress is being made towards developing a machine that can play chess.

Could you send me some information on this subject?

Respectfully,
Gerald C. Teicher

Gerald C. Teicher

[ans 4/22/60]

Columbia University
in the City of New York
NEW YORK 27, N. Y.
DEPARTMENT OF CHEMISTRY
HAVEMEYER HALL

18 January 1960

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

Dear Professor Wiener:

I was very glad, indeed, to read your pleasant letter. We shall be just as happy to hear you speak next year.

Sometime early next winter, I shall contact you again to take care of the details of time and place. I wish you a fine trip abroad.

Sincerely yours,

William Bahary

William Bahary

WB/s

UNIVERSITY OF OREGON
COLLEGE OF LIBERAL ARTS
EUGENE, OREGON

DEPARTMENT OF MATHEMATICS

January 18, 1960

Professor N. Wiener
Department of Mathematics
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Professor Wiener:

At the present time I am preparing a short article on Cybernetics for a Polish encyclopedia. While rereading your book The Human Use of Human Beings I note that in Chapter I you state that a Polish scientist, in the early nineteenth century, had also introduced the term "cybernetics". I would be greatly obliged should you be kind enough to send me the name of this scientist and the context in which the term was introduced, or a reference that I might consult.

Thanking you, I remain,

Respectfully yours,

A. T. Bharucha-Reid

A. T. Bharucha-Reid

ATB-R

[ans 1/25/60]

The Technology Press

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE 39, MASSACHUSETTS

January 18, 1960

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

Dear Professor Wiener:

Sales of your books on our list for the last half of 1959 look like this:

	Last six months	Total
Cybernetics	463	33,152
Nonlinear Problems in Random Theory	528	2,515
Extrapolation . . . of Stationary Time Series	269	5,122

We are moving right ahead on the corrected edition of Cybernetics, and hope to have copy ready for the printer in about a month.

Very truly yours,

Lynwood Bryant

Lynwood Bryant
Director

LB:cp

STROMBERG-CARLSON COMPANY
A DIVISION OF GENERAL DYNAMICS CORPORATION

ROCHESTER 3, NEW YORK

January 18, 1960

Prof. Norbert Wiener
Department of Mathematics
M. I. T. College
Cambridge, Massachusetts

Dear Prof. Wiener:

It was a great pleasure to speak with you during my recent visit to M. I. T. In the excitement of having unexpectedly met you, I am afraid I failed to respond as much as I would have liked, to two interesting comments that you made during the course of our conversation.

I was particularly interested in your comments about Dr. Gabor's approach to the multiplier and your modification thereof. I recall your statement to the effect that the information is available in a small manuscript containing Dr. Gabor's acceptance address. However, I have been unable to find a more complete reference to the manuscript. If it is not too much of an imposition, I would greatly appreciate receiving a more detailed reference from you, to assist me in locating a copy of the manuscript.

You also asked if I had been giving thought to 'living circuits'. I have been doing some minor work in this area during the past few months although I refer to them as adaptive mechanisms. Incidentally, your recent book "Random Processes" and Von Neumann's "The Computer and the Brain" initiated my interest in them.

I wish again to express my pleasure in having met you and sincerely hope that the opportunity will present itself again in the near future.

Respectfully,

George A. Franco

George A. Franco, Manager
Radio Communication Laboratory
Research Division

GAF:rd

[ans 1/25/60]

PLAYBOY • 232 east ohio • chicago 11, illinois

January 18, 1960

Dr. Norbert Wiener
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Dr. Wiener,

A speech you recently made in Chicago, and which was subsequently picked up by the newspapers and by TIME, interests me as a possible idea for our pages.

I refer to the possibility of machines one day outstripping and outwitting man. Though, of course, an old idea in fiction, going back at least as far as Capek's R.U.R., it has never before struck me so vividly, so forcibly, with so much reality. I would like to see this concept linked in an article to another, related, subject...and here you must bear with my foggy memory and non-existent scientific training. I remember a piece in SCIENTIFIC AMERICAN, perhaps three or four years ago, which explored the possibilities of self-reproducing machines. Do you, by any chance, remember that article? If not, I will dig it up for you, contingent upon your reaction to the following paragraph:

The point of all this: would you be interested in doing for us an article combining both ideas? Do you have the time and the inclination? Though we are not a technical magazine, our readership has a high level of awareness and such an article need not be excessively "popular." Just say yes or no now, and if yes, I will go into details of length, price, etc. May I hear from you soon?

Cordially,

Ray Russell
Executive Editor

RR:jg
Air Mail

michigan 2-1000

[arz 1/20/60]

WILLIAM SIDNEY TAYLOR
5053 SOUTH 22ND STREET
ARLINGTON, VIRGINIA

18 January 1960

Professor Norbert Wiener
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Professor Wiener:

Having noticed several newspaper accounts concerning your paper on "The Technical Development of Automatization and Some of its Moral Consequences" as delivered in Chicago, I wondered if it would be possible to obtain a copy for research purposes.

The attached article written in 1958 indicates some degree of my interest in the phenomenon of large scale man-machine systems. I am writing a second article which proposes the development of a new system analysis technique, and I would like to quote or refer to your paper.

Sincerely yours,

Bill Taylor

Enclosure

Systems . . . Panoramic Approach to Management

In Management, we must concentrate upon the "whole system" to avoid what one management consultant aptly described as "polishing brass on a sinking ship."

by W. Sidney Taylor

THE BASIC concept of systems engineering is probably best described by a little ode from the Martin Aircraft Systems Engineering Manual:

"Now in building aircraft, remember too!
An integral plan must be carried through:
Lest the weapon prove an unhappy thing
With a jet too strong or a weakly wing,
With a tail too low or a cost too high,
With inadequate radar or fuel supply,
With a bombing load somewhat over-weight,
Or a system, perhaps, going out of date—
Designed too early or built too late!"

Rapid advances in science and technology are tending to preshape not only our personal lives, but our industrial progress and national destiny as well. Atomic power, the jet airplane and the TV set are but a few of many product and weapon systems which are today changing the American way of life and the American standard of living.

The effect of this phenomenon has been an increasing emphasis by top management—not only in business and industry but also in government—to think, plan and manage in terms of major operational "systems."

What do we mean by a "system"? A system, as the writer sees it, is an aggregation of interacting functions or components which have been assembled to achieve a specific objective or effect. In principle, this applies to a product, a weapon, a production line or an administrative process. Each has a purpose for being and each is an aggregation of related components. Inherent in this thinking is the premise that almost everything we do, make, operate or construct involves a system.

A system as such may involve human, mechanical, chemical or structural components. As a composite it may have operational, logistic or combat objectives. Determining precisely what is and what is not a "system" is purely relative. An air base involving 6,000 people and 50 airplanes can be a system. A servo mechanism on one airplane on the same air base can also be a system. It all depends upon the level of management involved and the scope of analysis.

In the past, systems engineering principles have largely been limited in application to the product-design or military-weapon fields. Industrial designers and engineers, particularly in the aircraft field, have leaned heavily upon the systems approach in developing large, complex, interacting operational systems such as are involved in guided missiles, supersonic aircraft or radar networks, etc. However, a gradual transition is now occurring in the management field where the application of operations-research and systems-engineering principles is becoming more and more commonplace.

Why Systems Engineering?

One of the primary reasons for this transition is the complex and panoramic nature of the action systems inherent in today's age of big business, big industry and big defense. Both weapon and product systems often involve all of the physical and many of the social sciences. As Goode and Machol wrote in their recent book *System Engineering* "There are more of us; we interact with one another more often; and we move with greater speed. We do more things, more kinds of things, and more difficult things." In such a climate, it is no longer sufficient to simply build the better mousetrap. Today's manufacturer or executive must think and plan in terms of an entire mousetrap system.

At the same time, today's operational systems (product, logistic or weapon) introduce new magnitudes of risk. Decision-making, particularly at top management levels, often encounters "the megabuck decision." This expression reflects the risk often involved in the modification of a major operational system. A million dollars (or megabuck) is often committed by the adoption of a single policy, plan, assumption or operational concept. Ford Motors' introduction of the Edsel, for example, was a 250-million-dollar "product system" decision. This is a king-size example. However, many average-size business and industrial enterprises face million-dollar decisions at least once a year. In the military services, the modernization of a bomber command, a naval task force or an airborne Army division may often involve billion-dollar "weapon-system" decisions.

Compounding this problem is the fact that decisions, like equipment, also become obsolete. A system based upon policies, concepts, or planning assumptions appropriate a year ago may be a costly way of doing business today due to technological, economic or legislative changes. The Jones and Lamson adage, "The man who needs a new machine tool is already paying for it," also applies to products, weapons or operational systems.

Expanding this point in a recent ORSA article, Dr. Ellis A. Johnson, Operations Research Office, Johns Hopkins University, pointed out:

> "Up until about 1000 A.D. weapons had a lifetime of about 400 years; from about 1500 A.D. until the beginning of the twentieth century, a lifetime of about 50 years. But today weapons systems have a lifetime of about five years, and tend to be obsolescent by the time the first units come off the production line."

Recognizing this trend towards inherent complexity, risk and obsolescence in large-scale operations, both industry and Government are placing greater emphasis upon the so-called "systems approach."

Systems engineering, similar to operations research, begins with a "whole system" attitude. This requires an ini-

tial determination of the boundaries and objectives of the system itself in broad terms. Once these are defined, then systems engineering is primarily concerned with optimizing operations in terms of the whole system rather than with improving operations within one division or function. However, in order to understand the whole system, study must be made into the various major components, their roles and interactions with one another. For this reason, work at the level of the whole organization or system requires a different attitude on the part of management than work conducted within one segment of the organization.

This attitude has been described in various ways by people from industry or business such as Mel Hurni of General Electric, who says:

> "In GE, there is a growing understanding that the real power of operations research lies not so much in the solution of individual problems as in providing an increasingly clear vision of a business as a whole . . . a basis for understanding by all our managers of their responsibilities within the almost autonomous departments that they run."

John E. Kusik, Vice President, Chesapeake and Ohio Railway Company, puts it thus:

> "Operations research may be defined as analysis of operations for decision making purposes and for designing efficient operating systems. The only element of newness in OR is a systematic search for opportunities for application of scientific techniques developed in the various fields of science. Its greatest contribution to business lies in the emphasis on viewing problems from a company-wide perspective."

OR or systems thinking tends continually to reorient the modern manager towards the fact that he is not only managing men or machines—but more importantly that he is administering a whole operational complex often involving an interacting mixture of people, machines, objectives, human motivations, controls, planning, programming, policies, methods, environments, etc. These include multidimensional factors and elements many of which cannot be easily quantified nor structurally portrayed. Once this awareness is achieved, it then becomes apparent that interactions between these various forces require the most skillful type of management analysis.

This has resulted in a multidiscipline approach which was summarized by Professor Russell L. Ackoff, Case Institute of Technology, in a talk recently:

> "Operations research can be characterized very briefly as the scientific investigation of problems involving the management of organized man-machine systems. It should be reemphasized that many of the phases of such problems are investigated by various branches of engineering and science, but it is the whole problem—the problem in all its aspects—that is the subject of operations research. Thus it is for this reason that the industrial engineer sees industrial engineering in OR, the economist sees economics, the statistician sees statistics, the cyberneticist sees cybernetics, and so on. It is all of these things and more. The 'more' arises out of the integration of all of these approaches."

In the weapon-systems area the Air Force, for example, has defined (AFR 5-47) a weapon system thus:

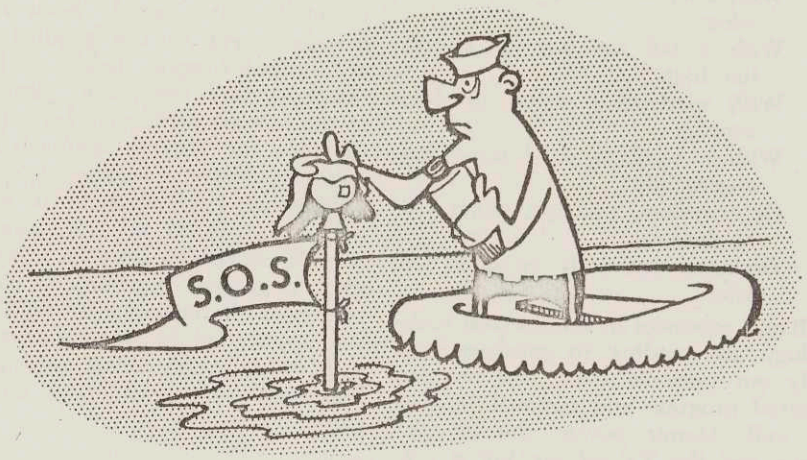
> "A weapon system is composed of equipment, skills, and techniques, the composite of which forms an instrument of combat, usually, but not necessarily, having an air vehicle as its major operational element. The complete weapon system includes all related equipment, materials, services, and personnel required solely for the operation of the air vehicle or other major element of the system, so that the instrument of combat becomes a self-sufficient unit of striking power in its intended operational environment."

In terms of the multibillion-dollar deployment of resources involved in our national defense programs, a weapon-systems concept becomes an important management tool, if not a weapon itself, directed towards insuring optimum distribution of resources and effort. This concept was largely outlined in a statement from the Hoover Commission Task Force on Research and Development in the Federal Government (May 1955):

> "The increasing application of science and technology in the instrumentation of warfare has brought about a major change in the character of weapons. An integration of the operating elements into a 'weapons system' is the growing pattern of weaponry. A single element of the system cannot be developed independent of the others."

In weapon systems, the primary problem is not always technological; in many cases, it is managerial. We may have the people, the skills, the equipment and the know-how. Success may not depend upon resources as such, but rather upon how we utilize and deploy resources. In today's global weaponry race, any single component can become operationally or technologically obsolete overnight

The same problem exists in business and industry. Without proper deployment of resources, it is possible to operate an efficient, yet ineffective, business. Like tactics versus strategy on the battlefield, it is possible to win a battle and thereby lose a war. Some business firms which have emphasized efficiency and economy have nevertheless fallen in the competitive race. This does not mean to encourage slipshod methods, wasteful practices, nor inefficiency. However, it does emphasize the need for concentrating upon the "whole system" to avoid what one management consultant aptly described as "polishing brass on a sinking ship."



Under modern tax laws, for example, some large firms actually seek inefficiency in the form of tax-loss corporations. Uniquely enough, when losses are injected into a large corporate system (under present tax rules), they often improve overall profit effectiveness. The same situation exists on the production line. One OR study, for example, revealed that full utilization of productive capacity actually reduced the profit potential of an industrial firm by $250,000. It is

at this point that we begin to differentiate between the scientific management problems of the late 1920s and the strategic management exemplified by OR and systems-engineering techniques of today.

Advancements in data processing are having the interesting side effect of making managements look at their whole enterprises or businesses, in some cases, for the first time in their existence. Integrated data processing, particularly, is forcing modern managements to think in at least two dimensions: (1) analysis of major functions in a vertical sense, down through various organizational echelons; and (2) analysis of the interactions between major functions—in a horizontal sense—across the board.

This is one of the primary reasons for the expanding role and importance of the computer (analog or digital). Human ability to memorize the numerous elements involved in large-scale business or government operations is no match for a battery of tireless electronic memory devices containing possibly 5,000,000 characters with individual access timed in a matter of milliseconds. This has given rise to one of the most important applications of the computer—its ability to simulate large-scale operations, on paper, from data or information often too voluminous or complex for human comprehension.

This process was summarized in a recent WALL STREET JOURNAL article concerning activities of the RAND Corporation in working for the Air Force.

> "Some of RAND's best brains dwell in a world of pretense—a world of violence in which the casualties are often shocking but so far purely imaginary. They are conducting an endless series of mock air battles by feeding complex data into a huge, flashing analog computer. The object: To discover, by bloodless trial and error, the best combination of men, weapons and tactics to crush an enemy."

However, computers and data processing are only one facet of the total systems problem. As more complete, and current, management information becomes available through integrated data processing, the decision-making process at top management level become more, not less, difficult. The ultimate problem in large management control systems is not one of collection but rather one of interpretation, analysis and synthesis of what the readings on the electronic instrument panels of management really mean. Nobody has yet developed a black box to replace human judgment. Managers still have to manage. The data-processing problem really begins when the final report, electronically prepared and electronically computed, lands on the president's desk. At this point, the role of the modern executive becomes one of a master synthesizer who must recognize and relate all the important elements of an entire operating system —before making megabuck decisions.

The Challenge To Management

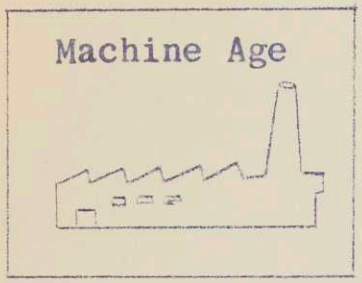
Underlying this situation is the fact that improvements are needed in the techniques for comprehending and managing large-scale man-machine systems. Operations research is one of the most promising developments to date. However, like Alice in Wonderland, modern managements must learn to step through the looking glass of present-day operations into a never-never land of yet unborn, yet unknown, products or weapons. This is not easy. In many areas, 90% of the products or weapons in use today were completely unknown or unborn as recent as the 1930s. Advancements in basic science have opened up the way for complete breakthroughs in applied science or technology. In weapon systems, for example, modern electronics and nucleonics have made the guided missile a wild deuce in the poker deck of airpower. In product systems, automation, new materials and new resources are creating a situation where our ability to produce is rapidly overtaking our ability to manage.

Although we have the energy (atom), and the tools (automation) to usher in an entirely new era, one ingredient is missing. Greater managerial skill and imagination (computers can't do this) are needed to synthesize the nonmechanical, nonmetric aspects of large-scale man-machine systems.

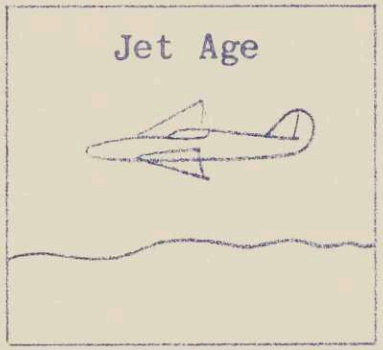
This is indicated by the paradox that our weapon systems may soon take us to the moon, while our abilities in socioeconomic systems have not yet solved such earthly matters as inflation or human unemployment. These challenges plus the growing bigness and complexity in business and governmental operations are ushering in a new era of systems and systems thinking. As part of this process, OR concepts and data processing may soon combine to produce a new and real breakthrough in the art and science of management.

NOTE: Mr. Taylor is a member of the Systems Analysis Group, Directorate of Personnel Planning, DCS/P, Headquarters United States Air Force. The views and opinions expressed in this article, however, are solely those of the author.

TREND toward .....SYSTEMS management:



(productivity)



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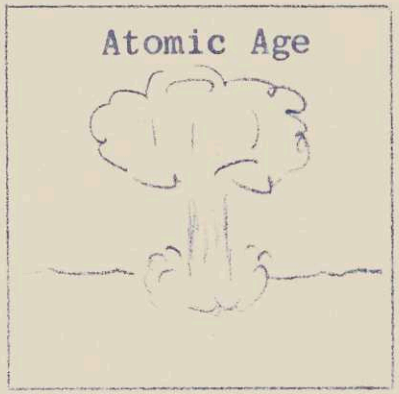
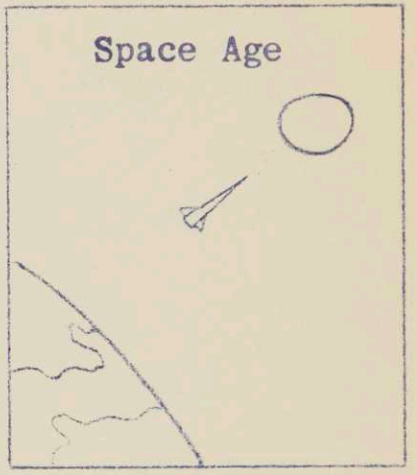
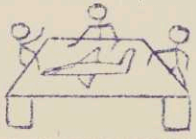


(power)

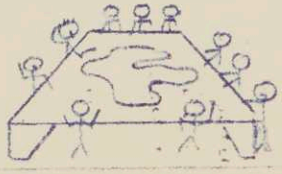


(system)

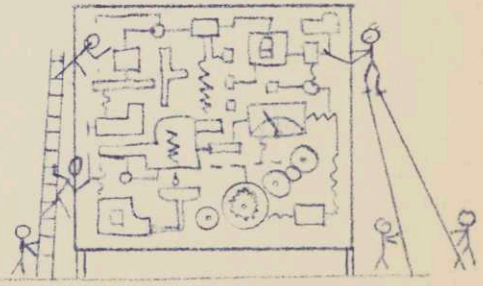
(inventor)



(team)



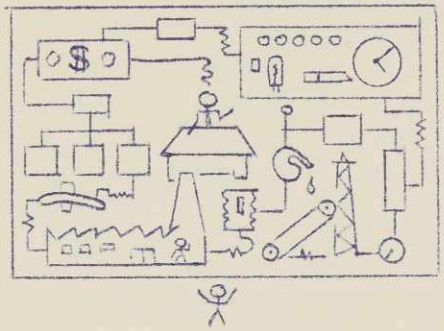
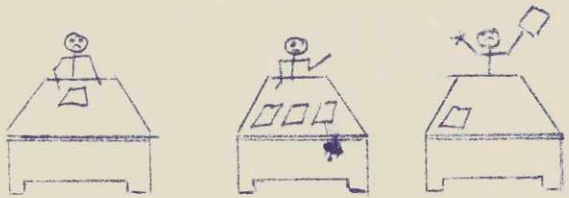
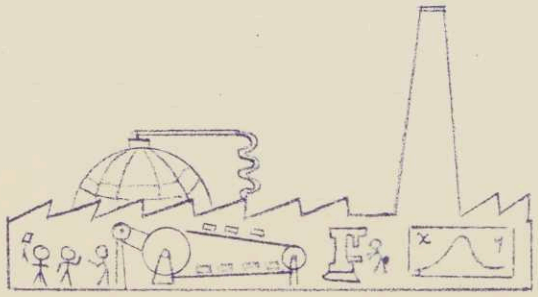
(task force)



(multi-discipline) group

EXECUTIVE SKILLS:

The human component in man-machine systems.

Area	Skill	Characteristic
Managing the BUSINESS 	Conceptual (ideas)	Ability to see the enterprise as a whole; achieve an optimum balance in objectives, forces, functions, structure, plans, policies, controls, strategy, etc.
Managing PEOPLE 	Human (people)	Ability to work with people. Understanding of human motivations and aptitudes. Leadership skill in terms of people.
Managing WORK 	Technical (things)	Ability to work with things (as opposed to people); hardware, equipment, tools, material, data, techniques. Technical or engineering leadership.

January 18, 1960

Prof. Y. R. Chao
Dept. of Oriental Languages
University of California
Berkeley 4, Calif.

Dear Chao:

I think the situation is still the same and that there is no adequate account that mathematical formulae are to be pronounced in different languages.

It is awfully good to hear from you people. The best wishes from all the ramifications of our family to all the ramifications of yours. It is interesting to find that you have not lost the continuity with your family in China.

Margaret and I are well and are going to spend next summer and fall in Europe. I am officially retiring at the end of this year, but I am going to be kept on for another 5 years. I suppose you find yourself in a somewhat similar situation.

With the best of wishes.

Sincerely yours,

Norbert Wiener

NW/emr

January 18, 1960

Mr. Graham DuShane
Editor
SCIENCE
1515 Massachusetts Avenue, N.W.
Washington 5, D. C.

Dear Mr. DuShane:

Many thanks for your letter of January 15. Why don't you send me a copy with your revisions or with an indication of the places which you think I should revise myself. I should get it back to you as soon as possible.

With many thanks and pleasant memories of our breakfast table session, I remain

Sincerely yours,

Norbert Wiener

NW/emr

January 18, 1960

Mr. Martin J. Gould
Space Technology Laboratories, Inc.
P. O. Box 4277
Patrick Air Force Base, Fla.

Dear Mr. Gould:

I am very much interested in your letter of January 8. I probably followed to some extent along the plans which you indicated by going down to Florida for a couple of weeks during my Christmas vacation, which was paid for by a lecture I gave at the University of Florida. There are definite possibilities in your scheme and definite problems. As far as I myself am concerned, I retire from M.I.T. this year, but shall be kept on for a period on half time. Next winter, I shall follow out your scheme to the extent of lecturing in Naples, Italy. Winter after next, I shall probably be in Mexico City. In having these opportunities, I am more fortunate than many of my colleagues, and I see clearly that something could be done along these lines to make a larger proportion of retired men available. To some extent, the retired man who still retains a fair amount of health and vigor and is fairly well known in his field, is quite likely to be in request for further activity. If on the other hand his health, his personal and moral vigor is not what it was, it may be hard to take care of him even on your scheme. What you are planning is a good idea and would take a great deal of thinking-out.

Sincerely yours,

Norbert Wiener

NW/emr

January 18, 1960

Miss Thelma Hepburn
Public Relations
Newsweek
Newsweek Building
444 Madison Ave.
New York 22, N. Y.

Dear Miss Hepburn:

It is only now that I find time to thank you for the copy of Newsweek which you so thoughtfully sent to Professor Wiener. He was very pleased and wishes me to express his appreciation to you.

Sincerely yours,

Eva-Maria Ritter (Mrs.)
Secretary to Prof. Wiener

January 18, 1960

Mr. J. Paul Kourkene
Prestressing Consultant
Langley Porter Neuropsychiatric Institute
First and Parnassus Avenues
San Francisco, Calif.

Dear Mr. Kourkene:

Many thanks for your interest in my book. As to the matter of prestressing, it is a highly complicated art to which I do not feel competent to give any sound advice. To the best of my knowledge, the earliest work in this field was in the matter of the construction of cannon. One of the ways of prestressing which was used in this was the shrinking of successive steel jackets onto the gun barrel which would produce a stress counter to the stress produced by the explosion of the powder charge so that when the gun is fired, part of the inward stress is reversed. Another method used was the winding of wire under stress around the barrel of the gun to produce the same effect. You will find a full account of these on the article of ordnance in the 11th edition of the Encyclopedia Britannica.

You will see that with such an old prior art only an expert could undertake to judge the limitations of previous work and the new directions in which your own work has carried the field. I am not an expert and am scarcely in a position to give you some help. However, I do appreciate your asking me.

Sincerely yours,

Norbert Wiener

NW/emr

January 18, 1960

Prof. Eric Reissner
2-274

Dear Prof. Reissner:

I have looked the enclosed manuscript over carefully and feel that it is important and should definitely be accepted.

Sincerely yours,

Norbert Wiener

NW/emr

Enclosure

January 18, 1960

Mr. Lawrence E. Spivak
MEET THE PRESS
528 Lexington Avenue
New York 17, N. Y.

Dear Mr. Spivak:

Many thanks for your invitation to participate in a Meet the Press interview. Frankly, I have my doubts about the advisability of my going into this, and I think it best not to accept. My chief reason is that I feel my work has been over-publicized already and that I consider the situation of a man who has been over-publicized as intrinsically dangerous. I do not have the full energy that I had when I was younger, and therefore I am compelled to direct my efforts in a more concentrated way to the scientific endeavors and the literary work which I intend to do in the future. I hope you will understand.

Sincerely yours,

Norbert Wiener

NW/emr

January 18, 1960

Mr. Otto W. Winter, Chairman
Honor Awards Committee
1815 Winter Road
Grand Island, N.Y.

Dear Sir:

Thank you for your kind letter of January 9. It looks to me as though I shall find time to be in person at your Honor Awards dinner -- the fact that it is planned for a Saturday evening is indeed a great help -- to accept the A.S.T.E. Research Medal. I hope you will understand that my hesitation was not due to any lack of good will, but merely to the fact that I have to watch my schedule against taking too many responsibilities on. I feel highly honored by the award you are making, and I shall be glad to make contact with you and your colleagues.

Sincerely yours,

Norbert Wiener

NW/emr

SOCIETA' INTERNAZIONALE DI MEDICINA CIBERNETICA
S. I. M. C.

IL PRESIDENTE

NAPOLI 19/1/60
VIA ROMA, 348
TEL. 32.26.23 - 31.31.84 - 31.31.25

Dear Professor Wiener,

while I thank you for your letter of January II, I have pleasure in informing you that the Organizing Committee of the International Symposium on Cybernetic Medicine, which will take place in Naples in September 1960, has decided to arrange the schedule of the Symposium so as to make it coincide with your presence in Naples, soon after September 20th, according with the date you mentioned in your letter.

After the lecture you are going to deliver at Hannover on September 20th, please consider yourself our guest as far as travelling expenses, hotel accomodation and all other expenses are concerned. Our invitation is meant for as many days as you choose to remain in our town.

Our offer has nothing to do with any arrangements you may make with Prof. Caianiello or other Institutes. As far as we know no program has yet been made by them.

Our schedule includes three days. The first day will be filled with lectures (the main of which will be held by you) and with receptions in town. The second day will be devoted to a trip to Ischia with receptions there and scientific conversations open to all participants. On the third day there will be a reception in your honour as the founder of Cybernetics.

If the dates 23rd, 24th, and 25th September suit you, please let us know kindly and we shall include those days in the final program . Otherwise we are prepared to make slight alterations for your better convenience.

Sincerely yours,

Prof. Aldo Masturzo

Masturzo

[ans 1/22/60]

Lou Ventoulet, I6 Avenue de la Mitre
Mourillon TOULON (Var)

I9 Janvier I960

Professeur N.Wiemer
Laboratoire de Cybernéthique
Institut de Technologie du Massachussets
U.S.A

Monsieur le Professeur

Un journal français vient de publier un bref compte-rendu d' une communication que vous avez récemment faite à l' Association sur l' Avancement des Sciences et dans laquelle vous dénonciez le danger des machines pensantes.

L' Ancien Bactériologiste, que je suis, a pris pour thème de son discours inaugural du Congrés National d' Hygiène qu', en Novembre I957, il présidait à l' Institut Pasteur, la nécéssité d' associer la culture générale et la technicité.

J'avais cité votre opinion sur le manque de culture de nombreux savants américains. Je compte reprendre le thème en faveur des cultures générales, à l' occasion d' une confèrence devant l' Académie du Var dont je fais partie. J' aimerais pouvoir citer quelques unes de vos pensées antérieures ainsi que celles derniérement émises. Le journal précité mentionne notamment celle-çi:"Si nous n' y prenons garde, le cerveau électronique nous ruinera et nous réduira à l' esclavage."

N' abuserais-je pas de votre amabilité en vous priant de me communiquer des tirés à part de vos communications traitant ces sujets? Le remplacement de l' homme par la machine

ne peut, à mon humble avis, n' être qud partiel et non total comme l' envisage, sans crainte, ka jeunesse d' aujourd'hui.

Avec mes remerciements et mes excuses, veuillez agréer, Monsieur le Professeur, l' expréssion des mes sentiments trés respectueux.

Dr Paul Rossi

[ans 2/5/60]

INSTITUUT VOOR PERCEPTIE ONDERZOEK

Prof.Dr.J.F.Schouten
Director

INSULINDELAAN 2 - EINDHOVEN
the Netherlands

January 19, 1960

TELEFOON:
K 4900-65703
K 4900-60000-Toestel 7390
K 4900-68000-Toestel 206
JFS/EK
No.60/17

Prof.Dr.Norbert Wiener
53 Cedar Road
Belmont
Cambridge-Massachusetts
U.S.A.

Dear Dr.Wiener,

I shall be participating in a meeting at the California Institute of Technology during the week of February 8th. I am planning to be in or around Boston during the week of the 15th.

I do hope that you will be at home in that period and that there will be an opportunity of meeting again. Would it be possible to let me know before my departure on Saturday February 6th?

With kind regards also to Mrs.Wiener,

yours very truly,

Jan F Schouten

[Jans. 1-25-60]

Avco CORPORATION
CROSLEY DIVISION
P. O. BOX 116—EVENDALE PLANT
CINCINNATI 15, OHIO, U. S. A.

PRINCETON 1-8931

January 19, 1960

Dr. Norbert Wiener
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Dr. Wiener:

On 12 and 13 April 1960, the Southern Ohio Section of the American Rocket Society and the local chapter of the Institute of Radio Engineers will hold the "Fourteenth Spring Technical Conference" at the Alms Hotel in Cincinnati, Ohio. This meeting is a regional meeting held every year and has enjoyed continuous growth over the years. Participation includes many universities and industrial concerns of the Midwestern United States. All thirty-two papers presented during the meeting will presented in Proceedings to be issued to participants of the conference. Besides copies to participants, the Proceedings will be issued to libraries only upon request and cannot be obtained except by participation.

There will be six panels with four speakers each, dealing with the following subjects.

1. Panel on Bio-Electronics, Chairman: Colonel Paul Stapp, President ARS
2. Panel on Inertial Guidance, Chairman: Dr. C.S. Draper, M.I.T.
3. Panel on Missile and Space Vehicle Reentry, Chairman: Major General Marvin Demler, USAF
4. Panel on The Objectives and Accomplishments of the International Geophysical Year, Chairman: Dr. J. Kaplan, UCLA
5. Panel on Data Processing and Data Handling, Chairman: Open
6. Panel on Can Computers Out-think Human Beings

For this latter panel we feel that we would not be able to find a more qualified person to serve as chairman than yourself. We, therefore, invite you to take the chairmanship of this panel. We have already received a number of proposed papers on this subject and would be very pleased if you would assist us in the selection of the best qualified papers. We still expect additional papers to arrive and assume that the Bell Laboratories, as in the past years, will contribute some of their outstanding not yet published research work. As you will note under Item 2, Dr. C.S. Draper of M.I.T. is another of our distinguished panel chairmen.

Based on previous years' experience and the response we have obtained so far, we expect an attendance in excess of 1,000 persons, consisting of engineers and scientists of government institutions, universities, high schools and industry of the Midwestern United States. Aircraft and Missile Industry participation from the entire U.S. is expected since practically all these companies have sponsored exhibitions. The Inertial Guidance Panel is set for the afternoon of 13 April and the panel on the I.G.Y. is set for the morning of 13 April.

The papers to be given should be submitted not later than 10 March 1960 and will be printed in the Proceedings of the conference. The panel chairman will obtain the submitted papers of his panel three weeks in advance of the conference to enable him to prepare the questions discussed during the panel session. Each speaker will be allowed thirty minutes for the presentation of his paper and for five minutes question period from the floor. Another ten minutes of panel discussion will be devoted to each paper including cross references to other papers. Some of the panel chairmen will discuss details of the topics with the individual speakers to insure a well balanced program within each panel. I assume that the panel chairmen will desire to cooperate with the individual speakers as to the particular areas dealt with in their papers and advise these as to content, special features and overlap with respect to other papers.

The Hotel Alms has sufficient accommodations for speakers and guests and we will make every effort to assist in the necessary accommodations, if so desired.

I am hoping to obtain a favorable reply soon.

Respectfully yours,

E.A. Steinhoff/rc

Ernst A. Steinhoff
Program Chairman
Southern Ohio Section
American Rocket Society

rc

[ans 1/27/60]

PERGAMON PRESS, INC.

122 East 55th Street

New York 22, N. Y.

Telegraphic Address: PERGAPRESS, NEW YORK

Telephone: PLAZA 3-9651

January 20, 1960

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

re: KYBERNETICS OF NATURAL SYSTEMS
by D. Stanley-Jones

Dear Professor Wiener,

Many thanks for your letter of 15 January 1960 and the copy of the preface which you have kindly written for this book by Stanley-Jones which we will soon be publishing. We are most grateful to you for a preface which seems to me to deserve to be followed by a work which is every bit as good as you say the book is!

As you requested I have written to the Technology Press about the question of copyright, and I inclose a copy of this letter for your information.

With best wishes,

Very truly yours,

E. Dews

EDMUND DEWS

ED:ck

January 20, 1960

Professor Lynwood Bryant
Director
Technology Press
Massachusetts Institute of
Technology
Cambridge 39, Massachusetts

re: KYBERNETICS OF NATURAL SYSTEMS
by D. Stanley-Jones

Dear Professor Bryant,

Professor Norbert Wiener has just written a preface for a book on the Kybernetics of Natural Systems which will be copyright and published by Pergamon Press within the next few months. He informs me that he may wish to use some of the material in this preface, with certain changes, as part of a new chapter of the revised edition of "Cybernetics" which he is writing for publication by you.

I am therefore writing to confirm that we are willing for Professor Wiender to use the material in this preface in any way he desires without obtaining our further permission. We would naturally expect that you would make the usual acknowledgement of the source of this material.

Very truly yours,

EDMUND DEWS

ED:ck

c.c. Professor Norbert Wiener ✓

PHONE UNIVERSITY 4-7300

AMERICAN SOCIETY of TOOL ENGINEERS

10700 PURITAN AVENUE DETROIT 38, MICHIGAN

January 20, 1960

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

Dear Dr. Wiener:

I am most pleased to have your acceptance to receive our Society's Research Medal Award for the year 1960.

Accordingly, this letter confirms the action of the National Honor Awards Committee and officially notifies you of it.

The Committee will, of course, directly inform you of all the plans and details for the time, place, and procedure in presenting you with this distinguished award.

I look forward with much pleasure to meeting with you personally, on the happy occasion.

Very sincerely,

AMERICAN SOCIETY OF TOOL ENGINEERS

Wayne Ewing

Wayne Ewing
President

WE/lq

POLAROID CORPORATION
CAMBRIDGE 39, MASSACHUSETTS
RESEARCH DIVISION, 730 MAIN STREET

UNIVERSITY 4-6000

January 20, 1960

Professor Norbert Wiener
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

Dear Professor Wiener:

Last November I wrote you a ccuple of rather searching questions about the fundamentals of mathematics and physics. Having received no reply, I wonder whether my letter did not reach you, and am taking the liberty of sending you a copy of the November 13 letter.

I look forward to your reply.

With best wishes,

Bob Jones

R. Clark Jones

RCJ:ecj
Enclosure

[ans 1/25/60]

Offer
Wiener

November 13, 1959

Professor Norbert Wiener
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

Dear Professor Wiener:

A couple of questions concerning fundamentals of mathematics and physics have been bothering me for a number of years, and I can think of no one who would be more competent to shed light on these questions than you. Here they are.

1. Let us say that a real number has rank one, a complex number rank two, and a quaternion rank four. It is well known that the solutions of algebraic equations with real coefficients are in general complex; that is to say, of rank two. What is the basic significance of this number two, Professor Wiener? Must we take this number two as being a brutal fact that cannot be analyzed further, or is there a more fundamental significance to the number two?

2. Consider the class of all physical quantities that are usually considered to be functions of frequency. It is usually supposed in physics that the functional dependence on the frequency is an analytic function of $p = i\omega$. Why is it permissible to assume this all-pervading analyticity? Can one show an absurdity if any one of these physical quantities is non-analytic over a finite range of frequency? The immediate answer that occurs to me is that we physicists always write the basic differential equations so that only analytic solutions are permissible. Perhaps this is the only answer, but I hope that there is a more fundamental answer.

Any help you can give me on these problems will be much appreciated.

With best wishes,

R. Clark Jones

RCJ:ecj

January 20, 1960

Prof. Dennis Gabor
The Imperial College of Science & Technology
The University of London
London, England

Dear Gabor:

Your Inaugural Address is magnificent. I wonder if you have explored the relations of your ideas as compared with those of the IBM group. I am spreading far and wide the fame of the voltage multiplier invented in your laboratory, and I believe it is exactly what we need not only to realize your nonlinear apparatus, but mine, too.

I am enclosing a proposed preface to the revised edition of my "Cybernetics". Tell me frankly what you think of it and what suggestions you may have for supplementing the book by new appendices and the like. Also, if you can, tell me what you think of my novel.

Sincerely yours,

Norbert Wiener

NW/emr

Enclosure

January 20, 1960

Mr. Ray Russell
Executive Editor
PLAYBOY
232 East Ohio
Chicago 11, Ill.

Dear Mr. Russell:

Thank you for your interest in my speech in Chicago and its implications. I greatly fear, however, that I have enough work lined up ahead of me to make it impossible to do another popular article. As you are well aware, an author is in great danger of repeating himself contracting for the same idea in several places, etc. Therefore, I hope you will excuse me if I find myself unable to comply with your request.

Sincerely yours,

Norbert Wiener

NW/emr

January 20, 1960

Mr. D. Stanley-Jones
Buckshead, Townshend
Hayle, Cornwall
England

Dear Mr. Stanley-Jones:

Many thanks for your appreciative letter concerning my preface to your book which is now either in your hands or in those of the Pergamon Press. I scratch your back and you can scratch mine.

I am enclosing a carbon copy of the preface for your book as well as one of the proposed preface to my own corrected edition of "Cybernetics" which I intend to supplement by several important appendices. Please tell me what you think of it even if your opinion is not favorable. I would appreciate hints, too, as to what appendices you would think to be in order. I am getting opinions of several of my friends here, too.

Sincerely yours,

Norbert Wiener

NW/emr

Encs: 2

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
LINCOLN LABORATORY
LEXINGTON 73, MASSACHUSETTS

VOlunteer 2-3370

January 21, 1960

Mrs. William Court
830 Barrington Road
Detroit 30, Michigan

Dear Mrs. Court:

Dr. Wiener sent me your letter of December 29, and your essay of December 9 on "The Indubitable Deterrent." I am much interested in material of this type, and I happen to know Morgenstern and Schelling (among others). I am quite concerned with such affairs at the present time, being involved with the preparation and editing of a book on arms control, for example.

Perhaps the ensuing discussion can be somewhat sharpened if we consider an extreme form of the system discussed in your essay. Suppose we assume that a weapon which would have sufficient yield to extinguish all life on the planet may be coming into the realm of technical feasibility. Herman Kahn, an analyst with the Rand Corporation, has aptly dubbed such devices "doomsday machines." (They would be quite large machines and could not be delivered as bombs or by missiles. However, this would not matter; wherever it was set off such a device would lead to the same end result.) He has discussed the possibility of using these devices as a retaliatory deterrent threat, in which the triggering of the device would be controlled by a computer, essentially as indicated in your essay. When implemented for automatic operation in this manner, he refers to the device as a "doomsday-in-a-hurry" machine.

A doomsday-in-a-hurry machine would obviously be the ultimate in deterrence against nuclear attack. I am afraid the proposal in your essay is essentially a proposal for a doomsday-in-a-hurry machine. You do not indicate the exact yield you wish to achieve from your deterrent force, but the phrase "as dirty as possible" is certainly moving in that direction. I am afraid that I do not approve of doomsday-in-a-hurry machines, even if not quite sufficient to extinguish life on the planet. There are several reasons for this, as follows.

1. Technical Feasibility. You ask that it be "triggerable only by and inevitably by a nuclear attack on us or on our allies." As a technical objective, this cannot be achieved. If, as you seem to suggest, the machine is to be a one-shot affair, not to be asked to conduct a detailed and complicated war on the basis of intermediate retaliatory steps by the enemy, the only technical problem is deciding the criteria for firing the mechanism and the engineering character of the sensory inputs to the decision mechanism. If the firing criteria are defined by blast and shock effects from a nuclear attack, the device could be triggered by a large earthquake. If the

device did not fire promptly, but instead waited for radiation levels from fall-out to reach a certain threshold, the people in charge of the device would have time to have second thoughts about the matter and could disable the device, if by no other means than removing or shielding its sensory devices and shutting down the prime power inputs to the device. There is also, as you perceived, a very large reliability problem, apart from the problem of initation by a spurious signal such as an earthquake.

2. Strategic Desirability. Even if the machine were technically realizable in the form you prescribe, and even if it did not destroy all life on the planet, I should say that there are numerous reasons why we should not wish to build a doomsday-in-a-hurry machine. To begin with, the machine would be so expensive that it would consume a large fraction of our resources that might otherwise be directed at solutions of the more basic problems concerned, such as developing the underdeveloped countries and establishing a more rational world political climate. It would divert resources from our conventional armed forces. This would mean that the Communist powers, knowing full well that our retaliation would only be triggered by a direct nuclear strike, and also knowing full well that we had no conventional armament worth mentioning, would feel perfectly free to march all over the world seizing whatever pleased their fancy. I also believe that the construction of such a system would have an adverse effect on the world political climate, which would definitely act to our long-term strategic disadvantage.

3. Absence of Need. I cannot agree that our present nuclear deterrent is either excessively vulnerable or excessively threatening. I believe Morgenstern has overemphasized the extent to which our present and immediately projected weapon systems are vulnerable or threatening. Perhaps the best publishable evidence I can cite for this is Khrushchev's recent talk about unilateral Russian arms reductions, which would be the height of irrationality if he really thought we were threatening him. The effective invulnerability of our deterrent is a highly technical matter involving such questions as the actual number of operational Russian missiles, the effectiveness of their air defense forces, the number of our bombers and their ability to penetrate Russian air defenses, and the amount of warning we might have of various types of Russian attack. I can assure you that the people who are most intimate with this problem area and who are most competent to judge the question are confident that our deterrent forces will not be excessively vulnerable at any time within the near future. For example, I am sure you must have heard or seen some of the discussion in newspapers and elsewhere related to the use of SAC bombers on airborne alert, as protection against a surprise missile strike, at such time as the Russians might have a significantly larger missile force than we.

4. Subtle Consequences. If I have understood Professor Wiener correctly, the machine he was discussing and to which you refer was a much more complicated concept that involved the detailed conduct of a complete war. I believe his essential point was that we could not understand the consequences of our strategy even if we were able to devise a programmed strategy that would "win" in the terms in which the program was defined. The same problem is of course true of even a relatively simple doomsday-in-a-hurry machine; unless the machine actually destroyed all life, we do not have much idea of what the world would be like afterwards if the machine were ever called upon to do its work.

In spite of my disagreement with the content of your essay, I found it most stimulating, and helpful for bringing these issues into sharp focus. It is gratifying to discover people who are intelligently concerned with the character of the situation in which we find ourselves; so long as such people exist we may have some hope of achieving a solution to our problems that does not entail global suicide. Perhaps our greatest hazard is that we may simply drift into a situation from which there is no escape.

Sincerely yours,

D. G. Brennan

DGB:jej

cc: N. Wiener

JOHN WILEY & SONS, INC.

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PUBLISHERS OF BOOKS

440 FOURTH AVENUE

NEW YORK 16, N. Y.

MURRAY HILL 9-7690

January 21, 1960

Mr. Lichtenstern
Veb Gustav Fischer Verlag Jena
Postschliessfach 176
Villengang 2
Jena, Germany

Dear Mr. Lichtenstern:

We were indeed pleased to receive your recent letter wherein you let us know of your desire to translate the book entitled CYBERNETICS by N. Wiener into German.

The rights to the publication are controlled by the author, Doctor Wiener, and we would suggest that you contact him for further information concerning the translation rights. His address is the Massachusetts Institute of Technology, Cambridge, Massachusetts.

We are taking the liberty of sending a copy of this letter to Doctor Wiener so that he will know of your interest in his book.

Most sincerely,

Frank Forkert

or

Frank Forkert
Overseas Division

FF:ar

WASHINGTON UNIVERSITY
ST. LOUIS 30, MISSOURI

COMMITTEE ON MOLECULAR BIOLOGY
ADOLPHUS BUSCH III LABORATORY

January 22, 1960

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

Dear Dr. Wiener:

First let me thank you for the very exciting talk that you gave at our recent symposium. As you already know it has created a considerable interest in the point of view that you have developed.

The editor of Science is interested in publishing your paper and I hope that he will be willing to publish a manuscript from Dr. Chisholm and possibly a summary of my comments at the same time. Publication in this form will give the readers of Science a good indication of the points of view developed at our symposium.

I hope that you have found the copies of your talk that we sent you recently sufficient for your needs. I have retained only one or two file copies.

Your expense account has been submitted to the AAAS office for payment and you should hear from them directly soon. If you do not, please let me know.

With all good wishes,

Sincerely yours,

Barry Commoner

Barry Commoner

BC:da

SCIENCE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE
1515 MASSACHUSETTS AVENUE, NW, WASHINGTON 5, D.C. • DUPONT 7-7171

22 January 1960

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

Dear Professor Wiener:

We will copy edit your manuscript within the next few weeks and then send you a copy so that you can see the changes that we propose to make.

Sincerely,

Graham DuShane, Ph.D.
Editor

GDuS:lw

Massachusetts
Institute of
Technology CAMBRIDGE 39, MASSACHUSETTS *the Libraries*

January 22, 1960

Professor Norbert Wiener
2-276

Dear Professor Wiener:

The autographed copy of your book, "The Tempter", has just arrived. May I thank you, in the name of the Libraries and the Institute, for your kindness in making this presentation to the Technology Collection.

We are eager for the Collection to be completely representative of the work of the Institute alumni and staff and your contribution will help.

Sincerely yours,

William N. Locke

WNL/sw

William N. Locke
Director of Libraries

PHONE UNIVERSITY 4-7300

AMERICAN SOCIETY of TOOL ENGINEERS

10700 PURITAN AVENUE DETROIT 38, MICHIGAN

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H. E. CONRAD EXEC. SECRETARY

January 22, 1960

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

Dear Dr. Wiener:

It is reported to our Headquarters Staff that you have written formal acceptance of the ASTE Research Medal, following upon balloting by our National Honor Awards Committee. May I offer my own most sincere congratulations, and say that I very much look forward to seeing you in person in Detroit next April.

So that you may definitely reserve the date, the Honor Awards Dinner at which the award will be conferred upon you is scheduled to take place at the Sheraton-Cadillac Hotel, Detroit, Michigan, Saturday evening, April 23.

Details for the dinner and the award ceremonies are now being worked up. As soon as they are finalized, we will inform you in detail.

The better housing accommodations will be very scarce during the Engineering Convention in April. We therefore enclose hotel room reservation form and suggest that you fill it in and mail it as soon as possible.

Cordially,

F. W. Wilson

Frank W. Wilson
Technical Director

FWW/lq

Enclosure

January 22, 1960

Prof. E. R. Caianiello
Instituto di Fisica
Universita di Napoli
Naples, Italy

Dear Caianiello:

I want to thank you for the prompt, courteous, clear and fully acceptable offer which you have made me. It is accepted, as I say, and we shall go ahead with our plans. I shall also try to have a good deal of new content ready for the lectures I am going to give.

I have already written to the Society of Cybernetic Medecine of my acceptance of their plans which I believe will not interfere with yours, With great anticipation, best regards and much friendship from my wife as well as from me, I remain

Sincerely Yours,

Norbert Wiener

NW

January 22, 1960

Dr. Barry Commoner
Adolphus Busch III Lab.
of Molecular Biology
Washington University
St. Louis 30, Missouri
USA

Dear Dr. Commoner:

The copies of Prof. Wiener's AAS talk arrived today, and I wish to thank you for your prompt and courteous reaction to my request.

Sincerely yours,

Eva-Maria Ritter (Mrs.)
Secretary to Prof. Wiener

January 22, 1960

Prof. Aldo Masturzo
President
Societa Internazionale di Medecina Cibernetica
Via Roma, 348
Napoli, Italia

Dear Prof. Masturzo:

Thank you for your kind letter of January 19 and your generous offer.

I have heard from Prof. Caianiello, and the arrangements about my talking to you which you have made are clear and perfectly acceptable. In a few weeks I shall write you about the detailed plan of my talk and the topic which I intend to discuss.

Sincerely yours,

Norbert Wiener

NW/emr

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1939

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Mr.
Professor Dr. Norbert WIENER
Professor of Mathematics
Massachusets Institute of
Technology
C a m b r i d g e 39
Massachuset - USA

Geneva, January 25th, 1960
BW/sk

Dear Professor Wiener,

We understand that you recently spoke before the American Association for the Advancment of Science in Chicago.

As publishers of Swiss periodicals we would be greatly interested in reading, and perhaps, publishing your adress. Therefore, we would like to ask you to be so kind as to supply us with a copy of your speach.

Hoping to hear from you soon, we remain,

Yours faithfully,

UNIVERSUM PRESS
Wyler & Co.

R. Eckert

Dr.Rudolf Eckert

[Jans. 2-3-60]

THE LIBRARY OF CONGRESS

WASHINGTON 25, D. C.

REFERENCE DEPARTMENT
MANUSCRIPT DIVISION

January 25, 1960

Dear Dr. Wiener:

For many years the Library of Congress has been collecting the personal papers of American scientists. The holdings of the Manuscript Division already include collections of this nature ranging in time from the Benjamin Franklin papers to the newly acquired Irving Langmuir papers.

Because of the rising interest in the history of science and technology, we recently surveyed our holdings in order to locate gaps in our collections. One noticeable gap we encountered is in mathematics.

Because of your many contributions to modern mathematics, the Library of Congress would be proud to start its collecting activities in this field with your personal papers. We hope that you will decide to place these manuscripts in our institution at a time convenient to you so that they will become available to students of the history of science.

We look forward to your reply. We also welcome suggestions of other mathematicians' personal papers suitable for inclusion in our Manuscript Division.

Faithfully yours,

David C. Mearns
Chief
Manuscript Division

Enclosure

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

THE LIBRARY OF CONGRESS
REFERENCE DEPARTMENT
MANUSCRIPT DIVISION

Private Papers

A Plea for Their Preservation and An Explanation of Their Importance to the National Collections

Manuscript Division

THE MANUSCRIPT COLLECTIONS of the Library of Congress are composed of many millions of papers valuable to students of the American past. Here are the originals of the rough draft of the Declaration of Independence; George Washington's commission as Commander-in-Chief of the Continental Army; the notes on the proceedings of the Constitutional Convention; the first telegraph message; the first and second drafts of the Gettysburg Address; the correspondence of George Washington, Thomas Jefferson, James Madison, James Monroe, Andrew Jackson, Martin Van Buren, William Henry Harrison, John Tyler, James Knox Polk, Zachary Taylor, Franklin Pierce, Abraham Lincoln, Andrew Johnson, Ulysses S. Grant, James Abram Garfield, Chester A. Arthur, Grover Cleveland, Benjamin Harrison, William McKinley, Theodore Roosevelt, William Howard Taft, Woodrow Wilson, and Calvin Coolidge; a great variety of papers of their outstanding contemporaries from Benjamin Franklin and Alexander Hamilton to Charles Evans Hughes and Cordell Hull; and the papers of distinguished jurists, warriors, scientists, explorers, authors, architects, artists, editors, clergymen, diplomats, labor leaders, social workers, teachers, actors, doctors, merchants, industrialists, financiers, and philanthropists—in short, the papers of those men and women who, throughout the centuries, have most profoundly influenced the lives and destinies of their countrymen. In addition there are millions of transcripts and photoreproductions of material in the archives of Great Britain, France, Spain, Mexico, and Canada relating to the people of the United States.

The autographic value of the collections is large, for there are rare and curious papers of persons foremost in national life; but the chief value of the collections is historical. In the case of a man or woman who has played a significant part in national affairs, the Library desires all the papers—letters sent and letters received, drafts, memoranda, diaries, journals, notes of every sort and kind.

These national manuscript collections are housed in fireproof, vault-like, air-conditioned stacks with humidity control. An expert staff organizes them for use, insures their protection and preservation, and provides for their scholarly reference use in the Division's commodious and well-equipped reading room. Craftsmen, skilled in modern techniques, repair and restore manuscripts received in damaged condition. The Library maintains an excellent photographic laboratory where manuscripts may be copied.

It is seldom possible to write from source material on any phase of American civilization—political, military, social, economic, religious, or artistic—without recourse to these great national collections. Indeed, historical writers of standing constantly avail themselves of the resources and facilities of the Manuscript Division. For this reason, representation in these collections is the surest way to secure recognition in the history of the Nation. Persons justly proud of the achievements of an ancestor present his papers to the Library in order that historians may have access to them. This they regard as both a duty and a privilege for here they become a living, evocative, and enduring memorial.

Manuscripts are often given to the Library subject to certain conditions, which are faithfully and scrupulously observed. Thus for a period mutually acceptable to the Library and the donor the conditions may provide that the papers may be examined in each instance only upon the specific authorization of the donor; or that for a time the papers will be withheld altogether from public use; or that literary property rights will be reserved by the donor. It is not unusual, however, for donors to dedicate their literary property rights to the public, an action which markedly extends the usefulness of the manuscripts. The collections are made available only to serious scholars. No instance is known of their having been exploited wilfully to injure the reputations of persons whose papers are in our keeping.

The Library will submit for the donor's signature a formal instrument of gift embodying any reasonable conditions which the donor may impose. In shipping, the right way is for the sender to include every paper, even those considered intimate or trivial. The Library will examine all with a view to selecting those of permanent importance to research, and will, upon request, return what appears to be inappropriate. The Library will also, upon request, submit for tax purposes an appraisal of the value of gifts received. Instructions for shipment at the Library's expense will be sent upon application to the Library of Congress, Exchange and Gift Division, Washington 25, D. C.

The advantages to be derived from placing collections of papers in the Library of Congress are:

1. To preserve them. Here they are in an institution belonging to the Government. They will survive as long as the seat of Government survives, and they will be as far beyond danger of loss, dispersion, or deterioration as in an age of perilous weapons it is possible for them to be. They are guarded around the clock.

2. To contribute to the truth of history. While in private hands, they are inaccessible to historians. Their existence is not generally known. There are no facilities for their use.

3. To give the individual whose papers they were the place in history to which he may be entitled. The historian is a reporter. He must have material on which to base his statements. The public man whose papers are accessible takes his proper place in history. The public man whose papers have been destroyed or are kept in private hands is often inadequately or mistakenly estimated—or is entirely overlooked. To retain the papers of a national personage in private hands is to deprive him of the abiding fame which is his right and to which he properly looked forward.

4. To complement a national resource. "History is the memory of mankind." But just as a man's memory is, in particulars, fallible, imperfect, shaded by personality and passion, so the memory of mankind must be collective, cumulative, tested, and proven if history is to further an understanding of experience. The elements of truth must be integrated. A collection of papers in combination with the papers of close associates and formidable adversaries assures sound evidence, and from the reality of experience comes confident ground for present action. And to this consideration there is a compelling, a decisive corollary, for in the Manuscript Division private papers are juxtaposed to the most comprehensive, encyclopedic, universal aggregate of books and pamphlets, magazines and newspapers, maps and charts, prints and photographs, and other records of the human family ever brought together at any place in any time. They can shape the future, for in the Library of Congress private papers are added to the sum of knowledge.

August 6, 1958.

U. S. GOVERNMENT PRINTING OFFICE

PLAYBOY • 232 east ohio • chicago 11, illinois

January 25, 1960

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

Dear Dr. Wiener,

Thank you for your prompt reply to my letter.

Although I am sorry you won't be able to do the article for us, I do understand the reasons.

Would it be possible to obtain a transcript of your Chicago speech? If copies are easily obtainable, I would like to read the full text myself. Also, in the event we commission another writer to do an article in roughly the same area, he would undoubtedly want to quote you on some points.

Cordially,

Ray Russell

Ray Russell
Executive Editor

RR:jg
Air Mail

michigan 2-1000

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VERLAGSLEITUNG

Mr. Norbert Wiener
c/o Random House Inc.

457 Madison Avenue
New York 22, N.Y.

25-1-1960
vW/oe

Dear Mr. Wiener,

As we have the pleasure to publish your book "The Tempter" next autumn we would like to ask you a favour.

On the occasion of our ten years' existence we want to hand over a small almanac to the bookselling-trade and to friends of our house. In this almanac our most important authors will say their opinion - according to their own choice - to the following questions:

1. How your book published by us came into being
2. Why you wrote this book.

Of course you can answer either or both questions.

Please write for us such a small contribution, minimum 10 maximum 60 lines, how your book THE TEMPTER came into being. We should be thankful, if we could get your contribution until March 1st.

Herewith we hope not only to give an attractive documentation but also to give the great number of our readers a glimpse into the working methods and thoughts of our authors.

Yours affectionately,

Wehrenalp

(v.Wehrenalp)

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[ans 2/26/60]

January 25, 1960

Mr. A. T. Bharucha-Reid
Department of Mathematics
College of Liberal Arts
University of Oregon
Eugene, Oregon

Dear Mr. Bharucha-Reid:

I have completely lost touch with the place where I heard of the Polish scientist who used the word "cybernetics". I even forgot from whom I heard it. It may have been Prof. Marc Kaz, Cornell University, but I am by no means sure that it was. Why don't you contact him. I hope you will find the proper reference and give credit where credit is due.

Sincerely yours,

Norbert Wiener

NW/emr

January 25, 1960

Mr. George A. Franco, Manager
Radio Communication Laboratory
Res. Division
Stromberg-Carlson Company
Rochester 3, N. Y.

Dear Mr. Franco:

It was a great pleasure to meet you and a great compliment to find you interested in my book. As to Prof. Gabor's paper, it is his inaugural address on appointment to professorship at the Imperial College of Science and Technology which is one of the colleges of the University of London, Engld. I am quite sure that if you write to him at that address, you can get a copy. It was printed privately.

With best wishes,

Sincerely yours,

Norbert Wiener

NW/emr

le 25 janvier 1960

Hermann et Cie
6, rue de la Sorbonne
Paris V, France

Messieurs:

Nous sommes en train de vérifier notre compte et état de finances et nous serions bien heureux d'avoir votre assistance, s'il est possible.

Je suis très curieux de savoir combien des exemplaires de mon livre "Cybernetics" ont été déjà vendus par vous. J'ai reçu le cheque ($47.85) que vous m'avez envoyé, mais je ne connais pas le nombre total. Je ne sais non plus combien des droits de traduction ont été accordés, ni le nombre des pays (et langues) à qui vous avez donné la permission de traduire le livre. Est-ce que je demands trop en vous priant de m'envoyer ces chiffres?

Veuillez agréer, Messieurs, mes sentiments les plus distinguées et devouées.

Norbert Wiener

NW/emr

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NEW YORK NOV. 24, 1959

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INTERNATIONAL DEPARTMENT
REMITTANCE DIVISION

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MEMORANDUM

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To NORBERT WIENER
MASSACHUSSETTS INSTITUTE OF TECHNOLOGY
DEPARTMENT OF MATHEMATICS,
CAMBRIDGE 39, MASS.

WE ENCLOSE OUR OFFICIAL CHECK

RE. DROITS DE TRADUCTION SUR LE LIVRE CYBERNETICS.
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PLEASE SIGN AND RETURN ATTACHED RECEIPT TO US.

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January 25, 1960

Dr. R. Clark Jones
Polaroid Corporation
Research Division
730 Main Street
Cambridge 39, Mass.

Dear Dr. Jones:

As to your first question, I think it has been shown and is well recognized that the only algebras satisfying the associative, commutative and distributive laws for addition and multiplication apart from possible finite algebras can be embedded either in ordinary real algebra or ordinary complex algebra. Quaternians are not commutative. In the theory of algebraic equations, commutativity is an important property and indeed necessary for the proper definition of these equations. I think this is the reason that two is of such importance in algebra.

As to the second question, if we work in ordinary algebra, harmonic analysis has its importance because of functions e^{i} are linear invariants of the translation group; in fact, its characters. This has nothing to do with analyticity and it is on this that harmonic analysis depends.

Sincerely yours,

Norbert Wiener

NW/emr

January 25, 1960

Mr. E. King Phelon
Cherry Valley
Otsego County
New York

Dear Mr. Phelon:

I am afraid that the book that you mention belongs to my remote past and that I have no copy of it. I am very sorry that I am unable to fill your request.

Sincerely yours,

Norbert Wiener

NW/emr

January 25, 1960

Prof. Dr. J. F. Schouten
Director
Instituut voor Perceptie Onderzoek
Insulindelaan 2
Eindhoven, Holland

Dear Schouten:

I was delighted to hear from you. We want you very much at our house some time in the week of the 15th, as may be convenient to you. How about Tuesday, the 16th of February? We have plenty of room to put you up in our home, but hesitate to offer it in view of the fact that you may prefer the freedom of motion of a hotel and that our house is a bit remote from the center of Cambridge and Boston.

How is your family and, in particular, your father? My son-in-law, Gordon Raisbeck, joins me in sending our best wishes.

Sincerely yours,

Norbert Wiener

NW/emr

INTERNATIONAL COOPERATION ADMINISTRATION
UNITED STATES OPERATIONS MISSION TO PAKISTAN

26 January 1960

Cable : INCOPADMIN

Dr. Norbert Wiener
Massachusetts Institute of Technology
Cambridge , Massachusetts

Dear Dr. Wiener:

Thank you very much for your very kind letter. It reminded me very much of one I received twelve years ago from Dr. Einstein. He did not necessarily subscribe to my findings but he encouraged me to continue and to document my findings. That I have done.

You wrote of perhaps there being a deeper meaning that was not apparent in the paper as prepared. In response to that I have amended the latter portion to point out how it ties into classical mathematics and some of the implications involved.

Thank you again for your kind words and the great amount of help and encouragement you have given me through your publications.

Sincerely yours,

Weldon T. Ellis Jr.

Enclosure

See page 4 as marked for new portion

FUNDAMENTAL INTERRELATIONSHIPS and Their Impact Upon Higher Mathematics

by

Weldon T. Ellis Jr.

Principal Atomic Energy Advisor
USOM/Pakistan

This paper is presented with the belief that the time is rapidly approaching when a fuller and more exact understanding of the fundamental interrelationship of the forces of nature will require a more precise statement of the concepts underlying the higher mathematics in use throughout the world today. It is hoped that a statement of these interrelationships and some of the impacts upon the concepts underlying mathematics will help hasten the development of the type of mathematics necessary to express a fuller understanding of the forces of nature.

Before describing the fundamental interrelationships among the forces of nature, it is necessary to state the parameters within which the interrelationships, as described below, have been developed. As in any system one can, by changing the parameters, change the interrelationships. In brief these parameters, as pertaining to the universe in which we are now living, are:

This universe is finite in space and infinite in time, and
This universe is finite in matter and infinite in energy.

There follows a brief description of the theory involving those interrelationships considered as fundamental to the universe and all that occurs within it.

Theory in Essence

The universe consists of a unified spectrum. All forces of nature are but different aspects of that spectrum. Through an understanding of and control over one aspect all aspects can be controlled. In other words, the forces of nature can be so directed as to interplay and modify one another to a degree hitherto unpractised by man.

Maintaining Focus

In order to keep the theory in sharp focus, it is absolutely essential to keep the following thought in mind at all times. The basic components or facets of nature ... space, energy, matter, time and reactivity are inseparable. Only for purposes of discussion can they be considered separately.

(more)

For the purpose of this paper those facets are defined as follows:

1. Space - - Space is composed of a basic substance that can be called ylem. The relative degree of concentration of ylem determines the relative amount of space. At one extreme there is a minimum concentration of ylem. This represents a state of maximum expansion of space. At the other extreme there is a maximum concentration of ylem and a minimum amount of space. Between the two extremes there are varying degrees of concentration of ylem and thus of space. The degree of expansion or of relatively free ylem determines the relative amount of space. Space can thus be visualized as one facet of a continuum ranging from maximum expansion through all the intermediate stages to maximum concentration.

2. Energy - - There is an energy facet of the continuum paralleling the space facet. The spectrum of energy ranges from the pattern of motion of the smallest unit-of the basic substance ylem-through the patterns of motion of all the components of the universe to include the pattern of motion of the universe itself. Implicit in the concept is the fact that energy is motion and that everything is always in motion. Only relatively speaking is anything ever at rest. Also involved is the hypothesis that all motion is waveform or pulsing in nature. Since there cannot be motion without space in which to move, space and energy must be considered as inseparable. Likewise, there cannot be motion without something to set in motion so it follows that space, energy and matter are inseparable.

3. Matter - - Matter can be considered as the antithesis of space in that it is the result of the concentrating action of energy upon space. The action of the various wave patterns of energy flowing through space produces zones of compression and rarefaction. Within those zones there are further interactions of the waves that create endless complexes of vortexes, nodes and shells. The result is a multiplicity of concentrations of ylem. We call those complex concentrations matter. These we recognize in the form of atoms and molecules. At a lower level we recognize them as sub-atomic particles. Actually they are all nothing more than a segment of the matter facet of the continuum. This facet starts with the smallest unit, ylem, and continues up through all the different combinations and sized units of matter to embrace the largest unit of all, the universe in its entirety.

(more)

4. Time - - The passage of time is dependent upon and relative to the rate of energy flow. The faster the rate of energy flow the faster the passage of time. To state it differently, the greater the amount of energy the greater the potential amount of time. In terms of ageing, the greater the degree of concentration of energy or density of matter the longer its potential life. Also, the greater its density the better it can resist the dissipating effect of the energy flow and the longer it will be able to survive. Conversely, where there is less energy involved there is less time. These interrelationships mean that there is a time facet of the continuum paralleling the space-energy-matter facets. The time spectrum ranges from the pulse rate of the smallest unit, ylem, up through those of all the components to the pulse rate of the universe itself.

5. Reactivity - - Reactivity is the fifth and final facet to the continuum. It is the facet that binds together and gives direction to the other four. The ability to react to changes in pressure, temperature and other environmental forces determines the ability to survive. The extent to which that ability is organized and given direction determines the ability both to survive and to control environment. The forces of environment range from the energy patterns that form the sub-atomic particles, up through the complex forces of nature, to include the radiations that emanate from and act upon all components of the universe. At the lower level reactivity can be viewed as purely mechanical. As it progresses up through the more highly organized and better integrated units it can be called life. As life itself becomes more purposeful it becomes more intelligent. Intelligence helps give control over environment. Intelligence is the highest form of reactivity. Reactivity parallels and is an integral part of the entire space-energy-matter-time continuum. It is the facet that pervades and gives guidance and purpose to nature and all that it includes.

Mathematical Implications

Perhaps the primary change in the system of mathematics needed to express accurately the above concepts lies in the definitions of finite and infinite. The above calls for a definition of finite as being one or unity. In turn, the open-end concept of infinite will have to be replaced by that of the closed or completed cycle. These will be more in accord with both quantum and wave theory than present day definitions. In addition, the concept of equality will have to be modified since pure equality is non-existent within the present universe. For example, it will no longer suffice to say that for every action there is an equal and opposite reaction. It must be restated as-for every action there is an almost equal and almost opposite reaction. To state otherwise is

(more)

to postulate a perfectly balanced and thus a perfectly static universe. That we know is not true.

The concept of zero will have to be eliminated from the new system. Such a concept is sufficiently exact when dealing with the daily needs of, say, an economic system but it is not admissible when expressing universal interrelationships. The use of zero postulates the existence of nothing a contradiction on the face of it. In the place of zero the concept of spatial displacement will have to be adopted. Taking away two apples from a pile of two does not leave zero apples. It merely displaces them, otherwise a segment of the universe will have been destroyed and with it the parameters within which this paper was developed.

Derivative Definitions

When viewed in terms of the above hypothesis, a number of formerly hazy concepts can be defined precisely and in quantitative terms. Such definitions can then be expressed mathematically. Two cases in point are entropy and chaos.

Entropy

The entropy, or stage of degradation of any system, at any given point in time, is directly proportional to the mean wave-length of energy of the system.

Chaos

The potential for chaos in any system, at any given point in time, is inversely proportional to the stage of development of the reactivity of the system.

From the above it can be seen that the potential for chaos of any system is inversely proportional to the entropy of the system. This is not entirely in accord with the classical definition. In the past the concept of chaos has been derived from what might be considered as the statistical probability of the physical universe. This meant that past events were the controlling factor and how they happened to occur was the pattern of probability for the future. When reactivity in the form of intelligence is introduced the picture is changed.

Without the modifying influence of reactivity at the higher level, man's future, and the development of man himself, is dependent entirely upon the haphazard impacts of environment or the influence of some outside force. That concept negates completely the doctrine of freedom of choice or of man having any say so in his future. Man is already demonstrating his ability to exercise control over his environment and his physical and mental well being. Slight though that control may be it still denies any contention that he is powerless to do so. The act

of his so doing automatically changes the former concept of entropy being a measure of chaos.

The ability to express mathematically both entropy and chaos and to relate one to the other would provide a formidable mathematical tool that could be used to analyze the status and thus to predict the behaviour of all types of systems. A mathematical system capable of such a breadth of application would fulfill the dreams of mathematicians down through the ages.

Fundamental Relationship

The fundamental interrelationships among space, matter, energy and time, as modified by reactivity, can be expressed as follows:

$$\frac{m}{s} \approx \left(\frac{e}{t}\right)^{r}$$

It will be noted that there is no constant involved, rather, there is a series of inter-related variables to which a constant value or values can be attached. Further, it is believed that the potential of intelligence, or the ability to exercise concious control over environment, has been introduced, for the first time, as a factor to be considered in mathematical computations.

Relation to Classical Mathematical Systems

As stated in the beginning, by changing the parameters of any system the system itself can be changed. In the universe, as visualized by Sir Isaac Newton, everything was in balance and thus the mathematical system had to be balanced. This was changed when Dr. Albert Einstein introduced the concept of relativity. He introduced the variable that upset the Newtonian balance for a period. Actually, this represented a shift in parameters to take into account greater influences.

The universe, as conceived by Dr. Einstein, though considerably broadened, was limited by the speed of light. Thus the equation $e = mc^2$ automatically circumscribed the potential of the universe so expressed. It also limited the degree of control that man could exercise over his environment since it limited all speeds to that of light. In addition, it gave man no control over time and space. Despite these obvious limitations it represented an evolutionary, if not revolutionary, step forward in the field of mathematics.

The equation, as expressed in this paper, is merely another step forward. It represents an attempt to remove those limitations that man has placed on the mind of man. Without a supporting mathematical system this step will be of little value. There is already evidence of a start toward such a system. Dr. A. B. Pal of the University of

the Punjab, Lahore, Pakistan, has presented a paper on the elimination of the concept of zero. His paper shows how this eliminates certain discontinuities in classical mathematics. This, and other such papers, will make the elements of a meaningful system that will prove useful to mankind.

The three systems, one limited by balance, one by the speed of light and the other by the intelligence of man, can easily be reconciled. In the formula $e = mc^2$, if c is made equal to one then the old Newtonian balance is restored, since speed is eliminated as a factor to be considered. The same is true in the latest equation if "r" is made equal to one. Likewise, if the limitation of the speed of light is removed from Dr. Einstein's equation there is no basic conflict with the more inclusive equation.

Other Implications

Man is different from the other animals. He has the ability, not only to learn and to think, but also to create. It is the creative element of the spectrum of reactivity that distinguishes him from lower forms of life. There is a quantum jump between his brain, and thus his mental capacity, and those of lesser forms of life. It is this difference that gives him the freedom of choice if he chooses to exercise it. This jump is what changes the classical entropy-chaos relationship.

Freedom of choice is both a curse and a blessing. It has too often in the past been a curse when it has led to violence and destruction; destruction of those very resources upon which the existence of man himself depends. Man is once again faced with a choice as to whether to use the intelligence element of reactivity creatively or destructively.

To the extent that man uses reactivity and his freedom of choice creatively he is approaching the divine. This can be proven mathematically. It can also be shown mathematically how very insignificant man is in relation to the entire universe with its estimated millions of centers of intelligence but the relationship exists nonetheless. Man as an individual, nations and civilizations, all have a collective intelligence. So it is with the universe in its entirety. As man approaches the upper levels of reactivity, as expressed by the orderly pattern of development of the universe, he approaches the divine.

ENDICOTT JOHNSON CORPORATION

BETTER SHOES FOR LESS MONEY

ST. LOUIS 2, MO.

January 27, 1960

Dr. Norbert Wiener
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Dr. Wiener:

Read your article in the January 11th issue of U. S. News and World Report. Found it very interesting mainly because we are living more and more in a push-button world.

This, however, I do believe, that man is undoubtedly superior to the machine since it was first born in the realm of his own brain.

Do not know how true this statement is but have often heard it said that man actually only uses one-quarter of his brain power.

Because of your scholastic standing in the scientific world, possibly you could tell me how would it be possible for man to utilize or learn to use parts of his brain that are lying dormant and useless now and to what advantage would it serve him if he could?

Any comments or suggestions you would care to make would be very much appreciated. Please use the enclosed self-addressed envelope when replying.

Cordially yours,

G. J. DeRousse

GJD/jt

[ans 2/3/60]

Veuillez agréer, Monsieur le Professeur,
l'assurance de notre Haute considération.

Le Secrétaire adjoint,
Signé :
Robert Plancher

Comité du Front National Français

Paris, le 27-1-60

Monsieur le Professeur,

De deux choses l'une : ou bien il existe un créateur de l'univers ou bien il n'y en a pas. Si créateur il y a, celui-ci contrôle tout ou partie de ce qu'il a créé. S'il n'y a pas de créateur, il y a matérialisme. Dans la première hypothèse, l'Homme créé par le créateur devrait automatiquement subir le contrôle de celui qui l'a créé. On ne peut concevoir un être vivant ou une chose vivante sans contrôle.

Partant de ces conceptions logiques et en face de toutes les choses qui nous environnent et que nous voyons et touchons à chaque instant de notre vie, on peut dire que la base fondamentale du Christianisme est une fausseté et donc une pure invention de l'Homme. Une seule phrase contenue dans la Bible suffit à démolir tout son édifice. Cette phrase dit : Jésus Christ, fils de Dieu

II

est mort, a été enseveli, est descendu aux enfers, est ressuscité des morts, est monté aux cieux d'où il viendra juger les vivants et les morts. Cela veut dire que le créateur a créé l'Homme puis, abandonnant tout contrôle sur lui (pourquoi pas aussi sur toutes ses créations, ce qui voudrait dire alors que tout marche sans contrôle, qu'il n'y a pas de créateur et qu'il faut donc croire au matérialisme) l'a laissé aller à la dérive, libre de son destin puis, au bout de quelques milliers, de millions ou de millards d'années, le créateur s'est créé un fils «jésus-christ» et l'a ensuite chargé de revenir un jour sur terre pour juger les vivants et les morts. Cette conception, base fondamentale du Christianisme est donc une fausseté. Elle fait apparaître que: Les anges, les saints, la vierge, le saint esprit, jésus christ, les innombrables miracles de celui-ci, l'Eglise et tous ses dirigeants, tout cela n'est que pure invention de l'Homme et donc un tissu de mensonges; un métier stérile exercé par des fainéants et charlatans. Il n'y aura jamais eu bien sûr et il n'y

III

aura jamais de religions et de civilisations basées sur le mensonge, l'Hypocrisie, eternelles.

On peut dire que le Christianisme porte en son sein le virus qui l'emportera un jour qui ne peut-être éloigné maintenant.

Notre monde s'achemine vers la vérité vraie. Encore quelques années (peut-être 15 seulement au maximum) et on verra l'intelligence supplanter l'instruction et avoir le dernier mot parce que la 1re est naturelle et donc éternelle et produit des valeurs réelles pour le bien de l'intérêt général. La seconde étant artificielle ne produit que des valeurs secondaires qui vont à l'encontre de l'intérêt général d'où l'injustice sous toutes ses formes.

La disparition de certains mythes et modes de vie est certaine dans un avenir assez proche. Indiscutablement, la science, nous apporte chaque jour davantage les éléments nécessaire pour cette disparition.

MRS. JESSIE B. SHEUERMAN
325 HIGHLAND AVENUE
MOUNT VERNON, N. Y.

1-27, '60.

Mr. Biesen;
Dear Sir;
Just wondering whether you can stand a bit of Ancient History this evening.
I Dislike (very much) to bring the "first personal pronoun" into prominence, but, otherwise, how can I tell of story?
My maiden-name was Jessie Bachrach (of Kansas City, Mo.) & I graduated from Central High School (Eleventh & Locust) in 1894. Before

2

~~that~~ time I had studied two years of German with your dear father, (& two years with his successor, Miss Von Olnwerth.) You may have heard "Prof. Diener" speak of "Prof. Greenwood" — our then superintendent of schools who brought "gymnastics" at the course early & helped lift your Dad to _____ &c, when he belonged.

My father saw brother to the original Bachrachs, — (photographers in Baltimore) of whom the 3rd. generation is now "carrying on" in New York.

MRS. JESSIE B. SHEUERMAN
325 HIGHLAND AVENUE
MOUNT VERNON, N. Y.

City & vicinity.

I have "kept up" through the press, whatever pertained to the early days in my "old home town"; so, when I read of you & your attainments, I (mentally) "go back through Memory's Lane".

"Pardon my intrusion; but "it" just "popped out" — with every good wish to you & yours,

I remain,

A page from the past

Jessie Bachrach Sheuerman.

January 27, 1960

Prof. Arthur W. Burks
180 Frieze Building
The University of Michigan
Ann Arbor, Michigan

Dear Prof. Burks:

As time is drawing near for the February 23 lecture Prof. Wiener agreed to deliver at your University, we thought it might be helpful in making the necessary travel arrangements to find out at what time on February 23 the lecture has been scheduled. Since he agreed, too, to give an additional, more advanced talk, we would appreciate it very much if you would let us know if this has been planned for a specific time or if it depends on Prof. Wiener's choice.

Thank you for your kind offer to arrange transportation on campus and to assist in any other matter. As Prof. Wiener will be flying out, any suggestions you might have re getting to Ann Arbor will be greatly appreciated.

May we hear from you soon?

Sincerely yours,

Eva-Maria Ritter (Mrs.)
Secretary to Prof. Wiener

[ans 1/28/60]

January 27, 1960

Mr. Lichtenstern
Gustav Fischer Verlag
Postschliessfach 176
Villengang 2
Jena, Germany

Dear Mr. Lichtenstern:

The Overseas Division of John Wiley & Sons, Inc., Publishers, has forwarded a carbon copy of the letter they wrote to you in response to your interest in translating my book CYBERNETICS.

I am indeed interested in seeing it translated into German, but if you do intend to publish it, there are a few things to consider: 1. (which was your main concern) all rights regarding the book belong to Hermann & Cie, Paris. I suggest that you get in touch with them, as they printed the first edition. 2. Frau Gertrud Walther, wife of Professor Walther of the Technische Hochschule in Darmstadt, has done translations of my books before, and has previously expressed interest in translating "Cybernetics", but could not find a publisher. Would you consider contacting her for a translation? 3. I am working on a revision of the present book and suggest that if you do get the translation rights, you wait until the new version has come out.

Wishing you good luck in your undertaking and hoping to hear from you, I remain

Sincerely yours,

Norbert Wiener

NW/emr

January 27, 1960

Mr. Ernst A. Steinhoff
Program Chairman
Southern Ohio Section
American Rocket Society
Avco Corporation
P.O. Box 116-Evendale Plant
Cincinnati 15, Ohio

Dear Mr. Steinhoff:

Thank you for your letter of January 19 in which you invited me to be one of the speakers at the 14th Spring Technical Conference. I feel honored indeed to be asked to act as chairman on the panel on "Can Computers Out-think Human Beings"; unfortunately, however, I am so heavily loaded up with lectures, scientific articles and my own research work that I find it impossible to accept your invitation.

I see you have a fine list of speakers. Please accept my best wishes for a successful conference.

Sincerely yours,

Norbert Wiener

NW/emr

THE UNIVERSITY OF MICHIGAN
ANN ARBOR

January 28, 1960

Professor Norbert Wiener
Institute Professor
c/o Department of Mathematics
Massachusetts Institute of Technology
Cambridge 39, Mass.

Dear Professor Wiener:

We have scheduled your University lecture for 4:15 p.m. on the afternoon of the 23rd. For the more informal (but more technical) discussion two alternatives suggest themselves: (i) the evening of Tuesday, February 23, 8:00 p.m. (ii) the morning of Wednesday, February 24, 9:00 a.m. If either of these times is satisfactory or if you would like to suggest an alternative would you inform us of your choice? Also could you supply us with a title for you University lecture?

Would you like us to make arrangements for a room at the Michigan Union for the night of Tuesday, February 23? If I can help you in this or in any other way, please let me know--

John Holland

John H. Holland
Logic of Computers Group
4001 Angell Hall

JHH:af

Title of lecture

[ans 2/5/60]

HUMBLE OIL & REFINING COMPANY
EXPLORATION DEPARTMENT
GEOPHYSICS EXPLORATION & RESEARCH DIVISION
HOUSTON 1, TEXAS

January 29, 1960

R. R. Thompson
P. O. Box 2180
N-351 Houston Research Center

Dr. Norbert Wiener
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Dr. Wiener:

Since returning to Texas, I have thought a great deal about your book, "The Tempter." I don't know how the sales are going here in the Southwest, but I have prompted two bookstores in Houston to get copies of it by way of persuading friends of mine that they should go down to their bookstore and get a copy. My daughter informs me that there is a copy in the library at the senior high school which she attends. Thus you see that the book is making progress here.

I am now convinced that I recognize the main characters: Woodbury is Oliver Heaviside; Dominguez is Michael Pupin; and, Williams Controls is the Bell Telephone Company. The other characters I do not recognize and I wonder if all of them are real.

I will always remember the pleasure of the brief chats I had with you at the Faculty Club and the very interesting experience of hearing you tell about writing the novel in your talk to our group at Endicott House. I sincerely hope that I will get back to M.I.T. and get a chance to talk with you again at a future date. If you should get to Houston, I would certainly enjoy the opportunity of showing you around our research laboratory and telling you something about the way we attempt to use the physical sciences in exploring for oil.

Yours sincerely,

R. R. Thompson

R. R. Thompson

RRT:mg

January 30, 1960

Mr. Jason Epstein, Editor
Random House, Inc.
457 Madison Avenue
New York 22, N. Y.

Dear Jason:

I just received the enclosed letter. Can you tell me anything about the circumstances under which this company acquired rights in my novel and whether by any chance Mrs. Walther is the translator? Can you also let me know if there are other translations completed or under way?

I am thoroughly satisfied with the way the book is selling and is accepted. I know it won't be a best-seller, but it is far from a failure. I do again wish to express to you my gratitude for your encouragement and your very good and sensitive editing.

With best wishes from house to house,

Sincerely yours,

Norbert Wiener

NW/emr

Enclosure: Copy of Letter by Econ Verlag, Germany

(1)

WILLIAM APPLEBAUM
29 TOBEY ROAD
BELMONT 78, MASSACHUSETTS

January 31, 1960

Dear Prof. Wiener:

You will recall that about a week ago I introduced myself to you at the MIT Faculty Club. Our conversation was much too brief — and now that I've finished The Tempter I hope we can resume the conversation at some other chance opportunity.

Felix Browder, as I mentioned to you, sent me a copy of The Tempter, with the recommendation that it was very much worth reading. Felix' wife, Eva, lived with us for a period about twenty years ago. Anyway, I'm glad that I got the book. Now for a few comments, as promised to do. Let me set these down in terse form; the order is immaterial:

1. The author has great respect for the intelligence of his reader. He proceeds on the basis that honesty, integrity, justice and fair play are universal virtues devoutly to be wished. Hence infractions and violations of these virtues are evil and should be disclosed to indignant censure.

2. I know of no passage in literature where man's conscience pleads more contritely than that recorded on pages 200–201. If to forgive is divine, then Woodbury's statement (last ¶ p. 201) in accepting the medal comes close to it.

WILLIAM APPLEBAUM
29 TOBEY ROAD
BELMONT 78, MASSACHUSETTS

3. One can only be grateful to the author for his consideration of the reader's time and energy. From the obituary column to Gregory James' final signature there isn't a wasted word. Every sentence fits and belongs to the unity of the whole. So much has been packed into 240 short pages — what an economy of words!

4. The narrative is racy, very interesting and full of surprises. The weakest part is the esoteric love relation between Gregory and Helen — and the dialogue between them is much too formal. Aleste is a far more real woman than Helen in the rôles portrayed. The summary of the contents of A Border Scientist reveals the author's narrative power at its best.

5. The author has the reader's gratitude for doing so effective a job in introducing the uninitiated to the spirit of engineering and machines. Like Ezekiel's dry bones, these man-made shapes of metal come to meaningful life.

6. The story — racing through many years and touching the soil of several countries — is sprinkled with a vast array of cultural tid bits and wise observations about places, people and issues. The author has read, traveled, observed and thought widely. For those who have delved into the philosophy of the tragedy, the last two pages of the narrative are especially meaningful.

(3)

WILLIAM APPLEBAUM
29 TOBEY ROAD
BELMONT 78, MASSACHUSETTS

7. As one ponders the moral of the tale, one comes away with emptiness in the pit of his stomach. Quem patronum rogaturus, vix cum justus sit securus? (my Latin may be scrambled) What did Gregory James get out of life? And wasn't Watman a little bit illegitimately pregnant? And what about all the Mannings in our institutions of higher learning? Catherine de Medici — that shrewed, superbly competent and brutally efficient woman who master-minded with consumate ambition a long era of royal and political adventure, intrigue and cruelty — had her "Flying Squadron" of extremely clever and beautiful young women who were so devoted to Catherine that they were happy to serve in every way that a beautiful woman might conceivably please a man. Are those who apply the sciences less susceptible to sin? Perhaps these sins, while they hurt the tempters and tempted (and of course the Woodburys are victimized) are mitigated by the end-results of the game: material progress, even when "continually devoted to the creation of new weapons" (p. 238). Perhaps the author has scored a bull's eye with this reader.

8. I must now read some of your other books and look forward to the novel which is now in process of gestation.

Sincerely
William Applebaum

Personality: Globe-Trotter With Easy Pace

Love Takes World Textile Interests in Stride

Head of Burlington Industries First a Family Man

By WILLIAM M. FREEMAN

Lela Love, now 8 years old, and her sister, Spencie, just about 10 by now, recall vividly the day the living room was all moved this way and that.

They peeked in to see the strange goings-on, and Yousuf Karsh, the distinguished Canadian photographer who has claims to fame other than his portrait of a scowling Winston Churchill, turned his camera around.

He was there—in a good-size house at Greensboro, N. C.—to take a picture of J. Spencer Love, chairman of Burlington Industries, one of the world's largest textile organizations. This was serious business, but the entrance of the two giggling girls changed all that.

Mr. Karsh took pictures of Lela and Spencie (whose full name is Cornelia Spencer Love), and their father couldn't have been more delighted. The resulting picture is one of his treasures.

Mr. Love, although a family man first, is a leader of the textile industry, keenly alert to its ups and downs. Burlington most recently was in the news last week when a proposal to merge Burlington with James Lees & Sons Company, rug manufacturer, was announced.

Global Enterprise

His home is in Greensboro, but he is obliged to move around often and fast in the course of his work, directing Burlington Industries, the world's largest producer of man-made fiber fabrics, which employs some 60,000 persons in 123 plants in seventeen states and four foreign countries. The giant concern, one of the first to use rayon, reported its assets as of last Oct. 3 at $525,719,091, with earnings in the fiscal year ended last Oct. 3 of $27,642,895 on sales of $805,450,222.

Mr. Love does not indicate any great pressure. In a quiet, rambling talk in his office the other day there was no sign that busy hours were ahead, except for a brace of heavily packed briefcases near his desk.

The desk is in an unpretentious office on the sixteenth floor of 1430 Broadway, the structure that not long ago replaced the Empire Theatre. Mr. Love is well aware of the theatrical history of the site and of his concern's part in taking over the Empire as the theatre continued its northward march, and the textile industry began to take up residence in the Forties.

The New York Times

Always ready to travel, J. Spencer Love, chairman of Burlington Industries, keeps packed briefcases in his office.

In an easy-going conversation, touching on a hundred subjects and proving that conversation itself was by no means a lost art, he mentioned Katharine Cornell and other luminaries who graced the Empire. He discussed in detail the troubles of the textile industry, its recent gains and its long-term trials, and more than once he returned to the subject of his family and his home life.

He was at his New York office only for the day. In a matter of hours he was planning to be on his way to Philadelphia to confer with Joseph L. Eastwick, president of James Lees. From there he was to go on to a meeting of the Business Advisory Committee, an unofficial group of leading industrialists, in Washington. After that he would be on his way to Greensboro, and from there to his home in Palm Beach, Fla., with a return to his desk in New York planned for tomorrow.

Thoughts Racing

Except for the two briefcases standing ready, Mr. Love does not give the impression of being in a hurry, although he speaks quickly, with his thoughts seeming to race ahead. He likes flying, using a company plane, but he chooses the best means of travel available. He studies weather reports and makes his decisions at the last minute, acting on the latest information available.

The son of a mathematics professor at Harvard, he took a B. A. degree there and studied also at the Harvard Graduate School of Business. He left for war service and was promoted to Major in the Army in Europe. He is now on the visiting committee at the Harvard Business School and is a trustee of Davidson College, Davidson, N. C., and of the University of North Carolina, Chapel Hill, N. C. He is deeply interested in people and has surrounded himself with a group of skilled textile men who share his interest in education ranging beyond the textile industry.

He is highly vocal in discussing trends in the textile industry, and it is apparent that long study has produced his views, some of them a product of Government service in World War II.

How does foreign competition affect domestic producers?

"Like others in the textile industry," he said, crossing a long leg in a simply-outfitted combination living room-meeting area adjoining his office, "I am very much concerned about the threat of foreign competition from low-wage areas.

"The problem is not that of the textile industry alone but of the entire economy. I do not believe the United States can keep the relative productivity advantage it has enjoyed until recently. Others in Asia and in Europe are catching up fast. There is an artificial advantage, a subsidy in buying our cotton at less than we pay for it and returning finished goods for less than we can sell them for."

With the company's approach broadened, as indicated in the name, Burlington Industries, replacing the earlier name of Burlington Mills Corporation, were there any further plans for expansion?

This brought a smile and a ready answer, to the effect that there were no plans for any further acquisitions or mergers, at least for a while, until "digestion" had taken its course.

Was there any single factor responsible for the return of the textile industry from the all-too-recent days of weeping and wailing to the present prosperity, with customers being asked to wait until the third quarter or later for deliveries of some popular cotton constructions?

Balance Improved

"The period of adjustment following the war is not yet over," Mr. Love said, "but the balance is vastly improved. It took this long for the domestic industry to catch up with the three-shift operation that started in 1939. This country supplied all the textiles the war made necessary, and now consumption is catching up."

Burlington has no plan to go into a truly vertical operation, making fiber, fabric and finished goods plus consumer products. It does turn out hosiery under the well-known Bur-Mil trade name, but in the main it concentrates on supplying goods to apparel manufacturers and converters, who sell to makers of consumer end-products.

There are worries ahead, in Mr. Love's view, and not the least of them is the rise of modern textile plants abroad, especially in Hong Kong, in Osaka and in cities in Germany and elsewhere.

On the walls of his office as he spoke were pictures of Spencie and Lela and a portrait of his father, the late James Lee Love. There are two boys, Charles, 14, and Martin, 12, at home, and four sons by an earlier marriage, James Spencer, Robert Lee, Richard and Julian.

Mr. Love seems to like the competition of the market place — he thinks the textile industry is one of the most competitive in the economy — but his heart is clearly with the children.

New York Stock Exchange Trading for Week

Continued From Page 2

1959-60 High.	1959-60 Low.	Stock and Div. in Dollars.	100s.	High.	Low.	Last.	Net Chge.
31⅝	26	Fla Pw .80	113	29¼	29⅛	29⅛	..
56½	43	Fla P & L .88	110	53⅞	51¾	52⅜	-1
27⅜	15	Fluor	33	15¾	15¼	15¼	-⅜
43	30⅜	Food Fair 1	63	31⅞	31⅜	31⅜	-½
93	84	Food F pf 4.20 ...z	10	84	84	84	..
35¼	22	Food G Mkt 1.12f	99	28⅛	26⅞	27¼	+¾
17¾	11	Fd G Mkt pf .40	35	14⅛	13⅜	13⅜	+⅛
56⅜	40	Food Mach 1.20	213	52¼	49	49½	-2¼
95	87	Food M pf 3.75 ...z	100	91	90	91	+1½
223	170	Food M pf 3.25....z	80	208	205½	205½	-17½
20¼	14¾	Food Mart .60	88	18⅞	17⅝	17⅝	-⅝
45⅝	25½	Foote M .80	55	30¾	28⅛	28⅛	-2¾
93½	50¾	Ford Mot 2.40a	1873	84	79⅛	79⅜	-4¾
21¾	18	Forem Dair 1	107	19	18½	18½	-⅜
49½	31¼	Fost Wheel	340	41⅜	38¼	40¼	+1⅞
12¾	6	Francis S	14	6¼	6	6	-¼
19⅜	14⅞	Frank Str .80	12	15	14⅞	14⅞	-⅛
37⅜	23¾	Freept Sul 1.20	276	25¾	24⅛	24¾	+¼
30¾	18⅜	Frueh Tra .30e	601	27¾	25⅜	26¾	+¼
77	68	Frueh T pf 4.......z	100	70	70	70	+1
33	12⅝	GABRIEL .60	51	19½	18⅛	18⅛	-1¼
27⅞	16⅞	Gamble Sk 1	43	25½	23⅞	23⅞	-1½
51½	44½	Gam Sk pf 2.50	2	45	45	45	..
8	4¾	Gar Wood	38	5⅞	5⅝	5⅝	..
37½	28	Gar Wd pf 2.25	2	30⅜	30⅜	30⅜	-⅛
56⅜	40½	Gardner Den 2	55	50	46	48½	+¾
50⅞	38	Garrett 2a	41	46⅛	44	44⅜	-1¾
19¼	17⅛	Gen Accept 1	39	18⅛	17¾	17⅞	+¼
8	5½	Gen Am Indus .20g	24	5⅞	5¾	5¾	-⅛
36⅝	27½	G Am Inves 2.45g	86	28¾	27½	27½	-1⅛
39	22	Gen Am Oil .40b	44	24½	22⅝	22¾	-2½
67½	51¼	Gen Am Tran 2.10	102	61¾	59½	60⅝	-⅝
14¼	11	Gen Bak .60	44	12⅛	11⅞	11⅞	-¼
153	138	Gen Bak pf 8 ....z	190	144	142⅛	143	..
10⅜	7⅝	Gen Banc .40	26	8⅞	8¾	8⅞	..
42½	29⅝	Gen Bronze 1.50	40	34½	32⅜	34¼	+2¼
45⅞	37½	Gen Cable 2	46	45⅝	42½	43	-2½
84	74	G Cbl pf 4 ....z	20	80	79½	80	+3
33⅜	25	Gen Cigar .80	21	26	25⅜	25½	-¼
9⅜	7½	G Cont Fin .40	38	8	7½	7¾	-¼
39¼	24	G Controls .60	34	26⅞	25¼	25⅝	-1⅛
66½	42⅞	Gen Dynam 2	281	49⅞	46½	46⅞	-2½
99⅞	74	Gen Elec 2	825	90¼	84⅝	85½	-4⅞
40	30¾	Gen Finan 1.20	7	33½	32½	32½	-1¼
107¾	74¼	Gen Fds 2.60	134	101¼	98⅛	98¾	-2¼
38⅜	16½	Gen Instru .15g	97	27⅝	24¾	25	-2⅛
37⅝	28⅛	Gen Mills 1.20	128	29½	28⅛	28¼	-½
114	101¼	G Mills pf 5.......z	510	104	102½	103¾	+1¼
58⅞	45	Gen Motors 2	1941	50⅞	47½	47⅞	-2¾
112½	100⅜	Gen Mot pf 5	26	102½	101½	102	..
87	75¼	Gen Mot pf 3.75	5	79½	78½	79½	+¾
26	23½	Gen Out Ad .32h	14	24⅛	23¾	23¾	..
43⅞	33½	Gen P Cem 1.20a	52	36⅞	33½	33⅞	-3
60	31½	Gen Prec .25g	82	50⅞	48	48¼	-2
73	52¼	G Prec 3 pf 3	10	66½	64½	64½	-½
76	53½	G Prec pf 2.98	9	67½	64	64	-1¼
5⅞	5⅛	Gen Pub Sv .36e	204	5¼	5⅛	5¼	+⅛
26¼	22¾	Gen Pub Ut 1.12 xd	219	23½	22¾	23	..
39¼	26¾	Gen Ry Sig 1a	36	31	29	29¼	-2¼
21	11⅜	Gen Realty 1e	13	12⅛	11⅞	12	-¼
39¾	28⅛	Gen Refrac 1	57	29⅞	28⅛	28⅝	-1⅜
31	24⅜	Gen Stl Cast 1.60	38	28	26⅝	26¾	-1
85⅛	60	G Tel & El 2.20	512	80⅞	75⅝	75¾	-4⅝
29½	24⅞	G Tel Fla pf 1.32..z	30	26	25¾	25¾	-⅜
26⅜	24	G Tel Fla pf B 1.30	9	25	24½	24½	-⅜
119¼	35	Gen Time 1a	118	106¾	98	98⅞	-6⅞
86¾	4 4⅛	Gen Tire 1b	399	80¼	73¼	73¼	-5⅝
104	98	Gen Tire pf 5.50...z	30	100¾	100¼	100¼	-½
99½	90	Gen Tire pf 5......z	210	94½	93¼	93¼	-¼
40⅞	27	Genesco 1.50	54	37⅛	36	36	-1⅛
72	40¼	Ga Pac Cp 1b	130	48¼	46⅛	46⅜	-1⅜
71	46	Gerber Prod 1.60a	51	54	51⅜	52	+1
28¼	1⅛7	Getty Oil .25f	166	17¾	17⅛	17½	..
68⅞	44¾	Gillette 2.50a xd	107	64	60⅝	60⅞	-2
55	36⅝	Gimbel 2.20	116	55	53⅜	54¾	+1⅛
27⅜	19⅞	Glad McB 1	34	25	24⅛	24⅝	+⅛
29¾	13⅛	Glen Ald .40a	753	21⅜	18⅞	19⅛	-2⅜
50¼	40¾	Glidden 2	33	41⅞	41	41¼	-¾
24⅞	17½	Globe W 1.20	8	19⅞	19⅛	19⅞	+⅜
4⅝	2⅝	Goebel Br	374	3⅞	2⅞	2⅞	-⅞
103¼	76¼	Goodrich 2.20	170	82	79½	79¾	-1¼
49⅜	40	Goodyear .90b	402	42½	40	40⅜	-2
45¼	35¼	Gould Bat 2	6	44¼	42½	42½	-2¼
54½	41⅝	Grace & Co 1.60b	82	43¾	41⅝	41⅝	-2
4	2⅛	Grah Paige	500	3⅛	2¾	2¾	-¼
11	8¼	Grah Pg pf .60	52	9¾	9⅛	9½	-¼
10⅛	6¼	Granby M	29	7⅜	7	7	-⅝
37⅞	29¼	Grand Un .60 xd	62	30⅜	29¼	29¼	-½
83¼	56	Gran C Stl 2.40	93	68	65⅜	66	-2⅛
34⅞	33	Gran C Stl wi	54	34⅝	33	33⅛	-1¼
50	38⅛	Grant 2.20	83	46½	45	45⅝	-⅜
84¼	74	Grant pf 3.75......z	290	75	74	75	+1
16¼	8½	Grays Rob .62f	43	13¾	13⅛	13⅛	-⅝
55⅜	35¾	Gt A & P 1b	159	39¾	37⅝	37⅝	-2⅛
31½	24⅝	Gt N Ire Ore 1.50g	35	26¾	26⅛	26⅛	-¼
60¼	45⅛	Gt No Pap .60	38	50¾	48½	49	-1⅞
59⅞	44¾	Gt No Ry 3	104	51⅞	50	50⅜	-1½
56½	35¾	Gt W Fin .48b	88	42⅝	40¾	40¾	-1½
32⅞	25¾	Gt West S 1.20a	32	31½	30	30	-1⅜
141¼	126	Gt West S pf 7....z	10	134	134	134	..
47½	23	Green (H L) .25r	76	26½	25½	25¾	-⅞
24¼	17⅝	Greyhound 1b	118	21⅛	20½	20½	-⅛
89	82	Greyh pf 4.25......z	30	82½	82½	82½	-½
30¾	20½	Grum Airc 1.50	110	25	22⅞	22⅞	-⅛

1959-60 High.	1959-60 Low.	Stock and Div. in Dollars.	100s.	High.	Low.	Last.	Net Chge.
88¾	72¼	Kan C Sou 4	13	77½	75¾	75⅞	-1⅛
38¾	34½	Kan C Sou pf 2	8	35¾	35	35	-½
50	39½	Kan G & E 1.64	53	47½	44	44	-3
33¾	28½	Kan P&L 1.36	12	32¼	31½	31½	-⅞
14	11	Kayser Roth	794	14	13	13⅜	..
41¾	34	Kellogg 1a	38	41	38⅝	39⅞	+1¼
50¾	41½	Kelsey Hay 2.40	29	45½	45	45	-½
63	51¾	Kendall 2	31	54½	52¼	53	-1⅜
117¾	90½	Kennecott 6	223	94⅜	92	92½	-1¾
64	45½	Kern C Ld 2a	59	51¾	50	50¼	-¾
70⅜	44⅞	Kerr McGee .80	43	49¾	47½	47½	-1½
31½	22½	Kerr McGee pf 1.12	23	23¼	22½	22½	-⅞
54½	43	Keystone S 2	4	45¾	45¼	45¼	-¾
74	59	Kimb Clk 1.80	59	67	63	64⅞	-2⅛
47¾	26½	King Seel 2a	8	41	40	40	-1⅞
39⅜	27⅛	KLM Airl 1.85g	11	29⅞	29⅜	29½	-⅜
51½	37¾	Koppers 1.60	67	44¾	40¼	40¼	-4⅛
85	77	Koppers pf 4.......z	20	78½	78	78½	+½
21	13⅜	Korvette	109	17¾	16¼	16½	-1⅛
35	30⅛	Kresge (SS) 1.60	62	32⅜	31½	31½	-⅞
43¼	28⅝	Kress (SH) 2	220	30½	28⅝	29	-2
26¼	17¼	Kroehler 1	18	20	18¼	18¼	-1⅝
34⅜	27⅛	Kroger 1.10 xd	181	33⅝	31⅛	31⅝	-1¼
36	31⅛	Kvp Suth	37	32¼	31⅛	31⅛	-1
23½	19	LACLEDE GAS .90	17	19½	19¼	19⅜	..
4¼	3⅝	La Cons pf .30g	4	3⅞	3⅝	3⅞	..
34½	24⅛	Lane Bry 1.20b	18	32	30½	31	-½
23¼	9⅛	Lear .40	258	18¾	17½	17⅝	-⅜
30½	21½	Lee Rub & T 1.20	42	22½	21½	21½	-1
55½	39	Lees & Sons 2b	405	49½	46½	48⅝	+¾
104	85	Lees & S pf 3.85..z	10	104	104	104	+18
15⅝	10⅜	Lehigh C&N 1g	63	12¼	11¼	11⅝	-⅜
37⅜	28⅜	Leh Port C 1.20	62	30¼	28¾	28¾	+⅛
3½	1⅝	Leh Val Ind	85	3	2⅝	2⅝	-¼
32¼	15⅜	Leh V Ind 1 pf	14	31¼	30	30	-2¼
10½	5¼	Leh V Ind 2 pf	35	9⅝	8⅞	9¼	-½
10⅞	6½	Leh Val RR	22	7⅝	7	7	-½
31⅞	26¾	Lehman 1.50e	152	29⅜	27⅛	27½	-1¾
57¾	36	Lehn & F 2	11	49	45¼	45¼	-4¼
24⅜	18⅝	Lerner Str 1.20	43	23¼	22	22	-1
77½	57½	LOF Glass 2.40a	148	69⅝	65¼	66	-3½
13¾	10¼	Lib McN&L .40	174	11	10¼	10¼	-⅝
98⅞	80⅜	Ligg & My 5	74	89⅜	87	87	-2⅛
152	140	Ligg & My pf 7...z	260	142½	141¾	142½	+1¼
63½	48	Lily Tulip 1	76	55⅞	53¼	53½	-1½
73	54½	Link Belt 2.40a xd	23	57¼	54½	55	-1⅛
15⅛	9⅜	Lionel	100	14⅝	13¾	14¼	..
73½	57⅝	Litton Ind	221	64¼	60⅞	62	-½
39¾	24⅝	Lockh Airc 1.20	302	29⅛	27½	27⅝	-1⅝
37	27¾	Loew's Inc 1.20	140	29⅛	27¾	27⅞	-1¼
17¼	10½	Loew's Thea	181	15	14¼	14⅜	-½
37¼	27¾	Lone S Cem 1.20	160	29½	27¾	27⅞	-1⅝
46⅞	36¼	Lone S Gas 1.80	157	38¾	37½	37½	-⅜
139¾	112	Lone SG pf 4.84....z	20	115	114	115	+3
36⅜	29⅝	Long Isl Lt 1.30	87	31¾	31	31⅛	-½
89	79¼	Long IL pf D 4.25.z	30	81½	80	81½	+1½
155½	128¾	Long IL pf G 4.40	4	135	135	135	-5
48⅝	36⅛	Lorillard 2a	341	39⅛	36¾	37	-1¾
142⅞	131	Lorillard pf 7......z	220	132¾	131¼	132	+½
44⅞	36¾	Louisv G&E 1.40	23	40	39⅛	39⅛	-½
88	69	Lou & Nash 5 xd	24	78⅛	76	76	-1
22	15¼	Lowenstein 1	56	18⅞	18⅛	18¼	-¼
104¾	71¼	Lukens Stl .50e	137	87	82	82½	-⅛
34⅞	18¾	Lykes SS 1	36	20	19⅛	19⅛	-1

M—N—O—P

1959-60 High.	1959-60 Low.	Stock and Div. in Dollars.	100s.	High.	Low.	Last.	Net Chge.
35	28¼	MacAND & F .65e	8	28½	28¼	28½	-⅛
52⅜	32¼	Mack Trk 1.80b	167	48⅞	45¼	45⅞	-2¾
48	44⅞	Mack pf ww 2.62	42	48	47	47	-⅞
43¾	37	Macy 2	42	39	38¼	38¼	-½
87½	78½	Macy pf 4.25.......z	210	81	80	80	-¼
20⅛	17½	Madison Fd 1.53e	266	19⅝	19⅛	19¼	-¼
19⅞	14	Mad Sq Gar 1g	2	18¼	18¼	18¼	-¼
78	47¾	Magma Cop	110	55⅛	50	50⅝	-3⅞
40⅜	32¾	Magnavox 1	148	36¾	34¼	35	-1⅜
50⅞	35¾	Mallory 1.40b	24	43¾	42	42	-2
7¼	3½	Manati S	24	3⅞	3½	3¾	..
9½	5⅝	Mandel Bros	7	6⅛	5¾	5¾	-½
22¾	15¼	Manh Shirt .70	32	18¾	17¼	18	+1
33	22¾	Manning 1.40	12	26½	24⅛	24⅛	-2⅝
7⅞	4⅞	Marac Oil .15g	27	5½	5⅛	5¼	-¼
21½	15⅝	Maremont .60b	56	16⅞	16⅛	16½	+½
29⅝	23½	Marine Mid 1b	137	29¼	27⅝	27¾	-1½
59⅜	44¼	Marq Cem 1.80	24	49¾	46½	46½	-3¼
40¼	28⅝	Marsh Field 2.50	38	47⅞	46½	46⅝	-1⅜
62¾	32⅜	Martin Co. 1.60b	276	42¾	40⅛	41⅜	-¾
46⅞	34	Masonite 1.20b	19	36¼	35¼	35¼	-1½
53⅝	46	May D Str 2.20	84	48¼	46⅝	47⅜	-⅛
81	71	May 1945 pf 3.75...z	20	75	75	75	+1
81	71	May 1947 pf 3.75..z	60	73½	72	73½	+1
72¼	65⅛	May 3.40 pf 3.40...z	10	66	66	66	..
44½	32¼	Maytag 2a	52	43½	40⅛	40½	-2½
38	25¼	MCA Ind	64	27½	25¼	27	+⅛
31½	18⅝	McCall .60b	18	29	27⅞	27⅞	-1⅛
42	29	McCord 2.20	6	40	39½	40	-½
53	44	McCord pf 2.50.....z	70	48	47⅞	47⅞	..
19¾	13⅜	McCro McL .80	36	13¾	13½	13½	..
94½	77½	McCro M pf 3.50...z	20	79¾	79¾	79¾	..
58	32⅛	McDon Air 1b	689	39¾	31⅛	38	+6⅛
48¾	37¼	McGraw Ed 1.40	59	45	42¾	44¼	-⅝
72	54	McGraw H 1.40a	20	68½	66	67	-½
21½	17	McGreg Don A 1	15	18½	17¼	17⅜	-½
33	28¾	McIntyre	18	29½	28¾	29	-⅝
35⅞	27	McKee 1.50	20	30¾	29½	30¼	-¾
50	37¼	McKess & R 1.50	50	43¾	41	42¼	-1¾
10½	8⅛	McLean T .40	34	8⅝	8⅜	8⅜	-¼
28¼	20⅛	McQuay Nort 1.20b	12	27⅝	26	26¼	-1⅜

1959-60 High.	1959-60 Low.	Stock and Div. in Dollars.	100s.	High.	Low.	Last.	Net Chge.
88½	79¼	N S Pw pf 4.11....z	60	80½	80½	80½	+1¼
88½	78	N S Pw pf 4.10..z	220	80	79	80	+1¼
77½	67	N S Pw pf 3.60...z	360	73½	71½	73	+1½
44¾	24⅝	Northrop 1.60	124	30¼	27¼	27¼	-2¾
46⅛	24	Nwst Airlin .80	142	27	25¼	25⅜	-1⅝
44	26	Nwst Air pf 1.31	35	28⅝	27⅝	28	-⅝
45	39¼	Norwich Ph .80	112	45	41½	41½	-⅜
67¾	57⅛	OHIO EDIS 2.64	36	61¾	60½	60½	-1
100	87¾	Oh Ed pf 4.56....z	190	91	90	91	+1
95¼	86	Oh Ed pf 4.44....z	30	88	88	88	..
95¾	83	Oh Ed pf 4.40.....z	350	89½	88	89	+¾
85	74	Oh Ed pf 3.90.....z	140	79	78	78	-2
46½	34½	Ohio Oil 1.60	189	36	35	35	-⅜
34¼	27⅝	Okla G & E 1.12	33	30	29½	30	-¼
18	16	Okla G & E pf .80	4	16	16	16	..
30⅞	25¼	Okla N Gas 1.24 xd	24	26⅞	26¼	26¼	-⅜
58⅜	41⅞	Olin Math 1	252	49⅝	45¼	45¾	-3⅛
26⅛	14⅛	Oliver Cp .60	347	18	16⅞	17⅜	-⅝
92	61½	Otis Elev 2.80	113	92	83¾	83¾	-4⅜
39⅜	29¾	Outb Mar .80	268	35⅜	33¾	33¾	-1¼
120	104	Outlet 2.25e.......z	290	109¾	107¾	107¾	-1¼
23½	21½	Outlet wi........z	740	21⅞	21½	21½	-⅜
94¾	61¼	Owens Cng 1	64	81	75	80	+1¾
108	79½	Owens Ill Gl 2.50	69	103	96	98	-4
110½	97¾	Owens Ill pf 4	7	109¼	107½	109	-¾
38⅝	26¾	Oxford Pap 1	79	34½	32	32½	+¼
99¾	85	Oxf Pap pf 5......z	170	88½	87	88	+2
14¼	9⅝	PAC AM FISH	16	12⅞	12⅜	12⅜	-½
23¾	16½	Pac Cem & Ag 1	22	17⅞	17¼	17¼	-⅜
15⅜	11⅛	Pac Coast	10	14	14	14	..
67¼	51½	Pac Fin 2.60	38	57	54¾	55½	-1⅝
66¾	58¼	Pac G & El 2.60	63	63½	61⅛	61½	-1
56¼	45⅞	Pac Ltg 2.40	73	49	48⅛	48⅜	-¼
32¼	25⅝	Pac T & T 1.14	346	32¼	29½	31	+1⅝
144¾	126	Pac T & T pf 6....z	140	144	137½	143¾	+4¾
7½	4¼	Pac Tin .20	138	6½	5½	5¾	-½
46½	30	Pack Bell .50b	51	37⅞	33¼	33½	-3⅝
35¼	19¼	Pan A W Air .80	455	20¼	19¼	19¼	-⅞
59¼	43	Panh E P L 1.80	83	44⅜	43⅛	43½	-¼
50⅞	41	Param Pict 2	48	42¾	41	42¼	+¼
49¼	36⅜	Parke Da 1a	162	42½	38¾	39	-2⅝
31½	23⅜	Park Rust 1.50	8	27¾	26¼	27¾	+1
65½	42¼	Parmelee .50a	6	55	52¾	52¾	-3¼
3⅛	2	Patino Min	8	2½	2¼	2⅜	..
18¼	12½	Peabody Coal .40	191	16¼	15¾	15¾	-⅜
64⅝	45½	Penick & F 2.20g	16	48½	47	47	-1½
39⅜	30⅛	Penn Dix 1.40a	60	31½	31	31¼	..
131½	98½	Penney J C 3.60a	97	122¼	117	118	-4¾
36	26	Pennsalt .60a	110	27½	26½	27½	+⅞
35½	32⅜	Pa G Sand 1	3	34	32¾	32¾	-2
29½	25⅜	Pa Pw & Lt 1.25	146	26	25⅜	25½	-⅜
102½	88	Pa P & L pf 4.50..z	490	91⅝	90¼	91⅝	+⅛
98¼	84½	Pa P & L pf 4.40..z	430	87½	86⅛	86½	-¼
20	15⅛⅛	Pa RR .25g	234	16¼	15¾	15⅞	-⅛
55½	40⅛	Peoples Drug 2	4	42⅝	42½	42½	-½
64⅞	49¾	Peoples Gas 2.30	57	59⅞	56⅝	56⅝	-3
40⅜	26¼	Pepsi Cola 1.40	154	36½	34¼	34½	-2⅛
50	36¼	Pet Milk 1.10	12	44⅞	44	44	-½
19¾	15¼	Petrol Cp 1e	31	15⅞	15¼	15⅝	..
6⅜	3⅞	Pfeiffer Br	36	5	4⅝	4⅝	-¼
43⅞	28⅞	Pfizer .60a	646	30⅞	28⅞	29¾	-⅞
100	94½	Pfizer pf 4........z	140	99	98¼	99	..
70½	53¾	Phelps D 3	155	55⅜	52¾	53	-2⅛
57	46⅞	Phil El 2.24	54	50¾	50⅛	50¼	-¼
104½	93	Ph El pf 4.68.....z	200	95½	95	95½	+1
103½	87½	Ph El pf 4.40....z	380	94½	90½	93½	+2
99	84½	Ph El pf 4.30....z	30	86½	86	86½	+1
88½	75	Ph El pf 3.80.....z	300	80	79	79⅜	+1⅜
22¾	20	Ph El pref 1	5	20½	20½	20½	-⅛
56¼	39½	Phil & Rdg 1b	238	46½	40½	40½	-4½
36¾	21	Philco .25g	522	32⅝	30⅛	31	-⅜
73	65	Philco pf 3.75....z	60	68	66	66	-2
65½	54	Philip Mor 3.60	60	63	61¼	62	-1½
84½	77⅛	Phil Mor pf 4....z	30	79	78¼	78¼	-1½
82	74⅜	Phil Mor pf 3.90..z	30	76	75½	76	+1⅜
52¾	41	Phill Pet 1.70 xd	359	45¾	44¼	44¼	-⅜
16½	11⅛	Phil VanH .50t	24	15⅛	14⅝	14⅝	-⅜
49¾	34	Pillsbury 1.40	84	39½	37¾	38⅜	+⅞
53¾	20¼	Piper Airc 1b	32	49⅞	45½	45½	-4
45⅜	32	Pitney Bow .60	76	36½	33¾	34	-2
26⅞	21⅜	Pit Coke & C 1	35	24	23½	23¾	-⅝
94	83	Pit Coke pf 5.....z	10	87	87	87	..
19¼	14½	Pit Forg .60	24	16⅜	15½	15¾	-⅝
145	124½	Pit Ft W pf 7....z	170	127	125½	126	-1
42	24½	Pit Metallu 1.37g	62	34	32¼	32⅝	-1⅞
91½	71⅞	Pit Plate G 2.20b	162	75¼	71⅞	73¼	-2½
28¾	19⅝	Pit Steel	114	20⅝	19¾	20⅛	-½
82½	68	Pit Stl pf A 5	2	71	71	71	+1
86	74½	Pit Stl pr pf 5.50	5	75½	74¾	75½	+½
23⅛	16	Pit & W Va	6	17	16⅝	16¾	-¼
81½	62¼	Pittston Co 1.20b	24	69¾	65¼	65¾	-3
125	100¾	Pittston pf 3.50..z	190	112	111	111	-1
56⅝	34¼	Plough .90	26	51¼	49	49	-2¾
31⅜	21¾	Plym Oil 1.20b	33	22½	21⅞	22	-¼
188½	96¼	Polaroid .20	220	180½	168	168	-9⅛
28¼	22	Poor & Co 1.50	27	24⅝	24	24⅜	-⅜
96	88	Porter pf 5.50....z	90	93	92½	93	..
29½	25½	Potom El Pw 1.32	30	27⅜	27	27⅛	-⅛
90¾	73¼	Proct & G 2.60	116	86	82	82	-3¼
58¾	47¾	Pub Sv Colo 1.90b	29	53¾	52¾	53	..
43⅞	35¾	Pub Sv E & G 1.80	167	37⅜	36⅝	36¾	-⅜
106½	98	PSE & G pf 5.05 .z	90	100	99	99	-1
93	83	PSE & G pf 4.30 ..z	10	86	86	86	+2½
91½	78½	PSE & G pf 4.08..z	300	81	78½	81	+2½
33½	26⅞	PSE & G pf 1.40	27	27¾	27⅛	27⅜	-⅛
48⅝	40⅝	Pub Sv Ind 2.10	79	43⅞	43½	43⅞	+⅜
117½	104	PS In pf 4.80....z	400	109½	108	109½	+1½
[illegible]	65	PS In pf 3.50	50	67¾	67¼	67¾	..