



November 1960

SEMANTOGRAPHY AND MACHINE TRANSLATION

Here is another sorry story how professional linguists are treating a new idea in language improvement. When electronic apparatuses were constructed to act as computers, they were falsely termed "electronic brains" by sensation-hungry scientists who wanted to see their names in the headlines and on the committees of highly paid advisers to the governments. Newspaper stories told of the electronic brains which can forecast election results and other things frightening to politicians who were then ready to part with the taxpayers money for financing all sorts of research, and all sorts of scientists. It wasn't long before the linguists too jumped on the electronic bandwagon.

Ten years ago I scoffed many of the ideas of the atomic scientists, and events have proved me right. I scoffed too the construction of computers which can faithfully translate the complex highbrow treatises of scientists on highly scientific matters like medicine, physics, chemistry and other subjects in which two different scientists may understand something entirely different by the same word. Today, ten years later, and after spending millions of dollars the electronic linguists have perfected translation machines which can indeed translate the everyday newspaper stories from Russian into English - but not more. And even this is a very limited affair with a very limited vocabulary. But the electronic linguists won't give up hope, as long as the millions come rolling in from Washington.

In 1951 Professor Dodd of the University of Washington, Seattle, got in touch with me. He is the inventor of Model English and Tilp, and naturally he felt that he has in me a related and compassionate soul. Naturally, he is not a professional linguist, but a sociologist, and therefore he calls himself an "amateur" in linguistics. He informed me that he got my name and address from Professor Reifler of the Far Eastern Institute of Settle University. I met Reifler in China where he taught Chinese to foreigners on the French Aurora University. When I showed him my "World Writing" as I called it in Shanghai (see S.S. No. 102,103,104) and begged him to give me some help with the university authorities, he flatly refused, and he told me that "scholars usually dont help other scholars." I was flabberghasted, and of course I did not believe him. Today 16 years later I know that Reifler is right, and he himself is proof of it. He too gave me no help whatever. The only thing he did was answering my letter and writing a letter to Prof. Rapoport of the University of Chicago and an active general semanticist. I too wrote to Rapoport, but he too proved Reifler right. He did not even answer (see S.S.116). Here are parts of my letter to Reifler (Excerpts only) Sydney 24th Dec.1951

Dear Professor Reifler,

"Dr. Dodd informed me that you are working on the fascinating idea of mechanical translation with electronic machines from one in any language. This is most interesting and I shall be glad to hear more about it. Surely the difficulties are great, and no doubt, some linguists may scoff at the idea. I feel sure that you will be interested in my linguistic achievement. I have worked out - what I told you in Shanghai: a completely modern and scientifically constructed picto-ideography. The leaflets sent to Prof. Dodd carry some samples."

"I believe that I could be of service to you, even if this service consists only in some suggestions. There are a number of words which can be translated easily into other languages - a horse is a horse, for instance. But there are many words which are difficult to translate, which even defy translation, at least with mechanical means. There are words with subtle shades of meaning, etc.etc. I believe now that the way I have found may be of value for the work which you are doing. Moreover, I have years of industrial experience in electronic work, and therefore could see the possibilities and difficulties of the task. If you are interested to hear about my work Semantography in connection with your problems, I suggest that you give me a practical problem to solve, something which bothers you. But I would need to know something of the work as far as it has progressed." Yours....

Reifler in his answer did not give me any problem to solve, though he could think up dozens of difficulties in word translations. Instead he wrote:

Dear Mr. Bliss

(excerpt only)

February 28, 1952

My work in mechanical translation is at present concerned with the difficult problem of mechanical determination of incident meaning to which I intend to devote the three months of the summer. I do not think I can at this early stage put any specific problems to you. The semantic problems in the mechanisation process have to be solved in a general way not for one set of two languages, but for many sets of two languages."

These lines did not disclose any method. On the contrary, they state only the problem. One thing however is interesting, and, writing these lines in 1960, that is eight years later, I have found that the problem is still where it was in 1952. The electronic linguists have resigned themselves to the task of working out sets of two languages which can be translated. For instance, it's Russian and English and vice versa for which a computer can be programmed. Another set would be for Ukrainian and Russian only, etc.etc. Whereas I claim that once a text is written in Semantography it can be translated in many languages, and even by electronic computers.

In another letter, Prof. Dodd wrote to me:

"Mr. Warren Weaver of the Rockefeller Foundation is much interested in mechanical translation with electronic machines between different languages. It is possible that Semantography would stress some coding scheme that could be worked into this. At least you might send some material to Mr. Weaver and ask his advice on who in this country would be interested and competent in working with you along your lines."

It happened that in this year 1952 I had actively approached the Rockefeller Foundation and had an opportunity to speak to an official Mr. Fahs who visited Australia. My main letters and my exposition is laid down in S.S.no.84 which also contains a passionate letter to Mr. Fahs and Mr. Weaver not to let my approach founder. But they let it founder.

Here is one passage of my pleading letter to Mr. Weaver, dated 24th April 1952:

"I am writing to you hoping that you will be interested in my work semantography in connection with the problem of electronic translation. I believe I have some outstanding qualities which would enable me to make a real contribution to the solution of this problem. The first is that I am a linguist who has an original creative work in language planning to his credit.

Another personal quality is one which I do not believe to share with many a linguist. I am an industrial engineer with many years experience in the manufacture of electronic equipment. I shall find my way quickly in the most complicated blueprints on mechanical or electronic apparatuses.

I propose to you the following procedure: Give me an opportunity to show you how semantography can be applied to the problem. Give me a few sentences, easy, medium, and some knotty ones, and see how I go to work on them."

It was of course love's labour lost. Here is his answer

Dear Mr. Bliss,

May 12, 52

My own direct and personal interest in the subject of electronic translation is rather special in character, and is very strictly limited in extent by the fact that my duties as an officer of the Rockefeller Foundation do not permit me any particular time to devote to this subject. I am in no sense trained in linguistics and in the logical structure of grammars. I have had some experience on the computing side.

Thus I simply am not in a position to respond in any detailed way to your letter. I would suggest that you might possibly find it worthwhile to get into touch with Dr. Y. Bar-Hillel, who may be reached in care of the Research Laboratory of electronics M.I.T. Cambridge Mass. Dr. Bar-Hillel is carrying out some general studies in this field, and I feel sure that he would be entirely competent to comment on your ideas.

Yours Warren Weaver

There is one interesting fact in this letter, one which I have observed with many other scholars. Whenever I proposed to them to give me some passages to be translated into Semantography, they simply would not do it, though it would be the easiest thing to give me such a passage. Weaver could have taken out a highly scientific book on electronics, or medicine, or psychiatry and opening the book at random would tell his secretary to type out a paragraph. But he and the others never did just this. Instead they found a pretext not to be bothered with the whole thing, and of course, they gave me an address of someone else.

The reader may now ask whether I approached Dr. Bar-Hillel. The answer is No. I was again in the depths of despair and did not believe that anyone else will help my work along. But perhaps Bar-Hillel would have been just THAT man, the reader may say. Indeed, this is what my friends sometimes say: why don't you write to this man or that man? Perhaps he will be THE man."

During the years I have made many approaches to many men, and the pattern was the same. I have given much thought to this phenomenon which Reifler summed up by saying that scholars do not help each other. Why? Suppose I would have written to Bar-Hillel, and suppose my wildest dream would have come true. Let us imagine that Bar-Hillel's boss, or the president of the Massachusetts Institute of Technology would have seen my letter in Bar-Hillel's office, and would have said: "This is our man. We will engage Mr. Bliss to become a member of our research team." What would Bar-Hillel's reaction be to this? At present, when Weaver wrote to me, he carried out "general studies" in this field. My ideas would overthrow all the accepted ideas of the linguists. I would have made mincemeat of "general studies" and the like. I would have shown that Semantography can do the job in a new and totally different way. Suppose I would succeed, and would get all the credit. What would happen to Bar-Hillel and his "general studies". He may be down and out.

Yes, it is the general fear of the success of the other guy which keeps scholars working in the same field in envy and jealousy and hence in enmity. This is why Reifler had no intention to get my co-operation. Because, today in 1960 Reifler is still making a good living on studying machine translation, as the reader will learn from the last pages of this issue. And so are many more linguists in many more departments, indeed so many that another bunch of scholars and educational administrators have taken advantage of this and have started conference hopping. I refer to the Unesco band. Here is an excerpt from the Australian Unesco Circular, dated 1959

HIGHLIGHTS OF UNESCO CONFERENCE ON INFORMATION PROCESSING 1959 (excerpts only)

"Nearly 2000 electronic computer experts from 37 countries took part in the International Conference on Information Processing, organized by Unesco Paris from June 15 - 20, 1959 in Paris.

Yet, all these experts crowding into the conference rooms were only a tiny fraction of the tens of thousands now engaged in universities, special institutes and commercial corporations in the theory and practice of "thinking machines."

The purpose of the conference was to bring the experts together to share their knowledge and experience but it was clear from the first day that Unesco had called it none too soon.

Here they were discussing machines which can control other machines, predict the weather, memorize all the knowledge of the world, compose music, translate languages, send rockets into space and solve, in a few seconds, problems on which mathematicians could spend a whole lifetime. Even the possibility of machines which could form judgements could not be ruled out."

Here I wish to stop typing the text and state my anger about these sensational statements, many of which we have read in the papers, and which are utterly false. The computers ten years ago, and even the computers now, are nothing but calculating machines, and file storage machines. They can calculate very fast, but only what the mathematician wants to have calculate. They are nothing but glorified electronic calculation machines which have no brain of their own, which cannot make any decision, which cannot predict the weather, which cannot memorize knowledge and which cannot form judgements. They can only do what the scientist wants the machine do. They can punch or print data on tape or drums and they can scan this data very quickly. They can print in this way all the words of the Encyclopedia Britannica, but their storage tape and drums would contain also all the false theories and all the false knowledge of the scholars. It is this kind of scientific sensationalism which make the average newspaper reader gape in wonder, and which make the average ignorant politician part readily with millions of the average taxpayers money. And one of the worst of those sensation-hungry scientists is Prof. Teller, the so-called "Father of the Hydrogen Bomb." This does not mean that he has perfected and actually made the bomb. I personally am very critical on all the exaggerated claims about those bombs, and I have enlarged on this elsewhere. I was therefore not surprised to see that my friend Teller was among them who hitched a free ride to Paris. I continue now the excerpt.

"The electronic computer has developed to a point at which Dr. Teller of the University of California could claim at the Paris Conference that not only could it count and memorize but that it could become teachable, acquire experience,

form judgements, develop emotions and take initiative. (The hell it can, I say)

This prospect was not at all reassuring to some electronic experts. Mr. Bernard Benson, an American designer and manufacturer, warned the conference that the machine only has as much integrity and honesty as the information that is put into it by human beings. People were not only fallible but sometimes deliberately so. This was exceedingly dangerous because the gigantic memories which they were discussing would contain a great deal information and much of it would be about people. He called upon his colleagues to recognize the vast social implications of their technology.

One of the objects discussed at the seminar was that of machine translation. The aim is to be able to present a text in, say, English and to have it read and re-typed in say, Russian-translation at sight, or, more ambitiously, to have the spoken word automatically translated. That is still in the future, but by transferring a text to a punched tape in the original language, and passing it into a computer, the mechanical memory of which has been supplied with a dictionary, the machines already produce passable translations. Science papers can be translated in a form which is at least intelligible to the experts in the particular branch of science.

More controversial was the question of a "Common Language for Computers." Here the experts were confronted with their own "Babel" which they have built in 12 years. Each machine, by the nature of its electric circuits has to have its own private language. It has to be specially "programmed" - its instructions translated into a code. In a "family" of computers, new machines may have "auto-codes" built in to help them comprehend their forerunners. But, beyond that, there is no common language. One "Algol" was proposed which would have a universal application, for limited mathematical purposes, but it was heavily debated and arguments were still going on in the corridors of Unesco House after the conference closed. (end of excerpt)

In other words, nothing has been decided which could bring an innovation into the field. But, of course, Unesco conferences always carry a decision - and that is "to call a new conference" and this is indeed what happened.

One of the participants to this and similar conferences was (and probably still is) Professor Eric de Grolier, Directeur Centre Francais d'Exchange du Documentation Technique. He heard of my work and wrote to me, even ordered the 3 books and within the next few weeks wrote to me a letter in semantography. This convinced me again of the simplicity and easiness of my system. But this professor is a philosopher and he insisted that I symbolize for him philosophical terms. I told him that it is easy to make a symbol for any meaning, no matter how vague and ambiguous, but then arguments about the vague meaning of this vague symbol will still be going on. But he insisted and he gave me a number of highly philosophical terms about which most probably not two philosophers will ever agree. For instance, he asked me to symbolize the meaning of "solipsism" a term of metaphysical reasoning that the only reality is the "self". I answered that I can indeed make a symbol for this, but I refuse, because it would be as controversial as the meaning in alphabetical letters is. He got very angry at me when I refused the symbolization of certain philosophical meanings. This special letter is found in S.S. 193 which deals with the philosophers and semantography. The reader is kindly asked to look it up there. Prof. de Grolier found my system highly applicable to machine translation, but he was very much annoyed about me, and he informed me that he is now developing a language for computers. This he would have done anyway. For me, however, another hope went down the sink.

A year later a new hope dawned with a letter by a German computer engineer, Mr. Bruno Owe Fahlke of West Berlin, an employee of the electronic firm of Lorentz. This man has lived in the Far East, and he could write Chinese. No wonder that he realized the practicability of my system. I sent him a number of issues of the series and I was delighted to receive from him a long letter in which he proved that my system is indeed usable for machine translation, because the symbol compounds are put together in a logical way and therefore can be scanned and translated into other languages by the computer. One paragraph fascinated me most. Fahlke wrote:

"The electronic cyberneticists have buried already one dream, namely that it could be possible to translate with one programming from one language word by word or sign by sign into many other languages. It will only be possible to use one memory tape or drum or any other data fixing device for the translation of one language into another one only, because a word for word translation is impossible with languages having different syntax, etc." (for more paragraphs of Fahlke's letter see later on)

Fahlke's letter gave me new hope. Having read that the American Forces are spending many millions on computers, I sent out the text below as a

C I R C U L A R L E T T E R T O A L L A M E R I C A N C O M P U T E R
A N D T E L E V I S I O N M A N U F A C T U R E R S

IF YOUR FIRM (or your subsidiary) are working on (or intend to obtain) defence contracts involving electronic computers, TV circuits, or logistical problems in general, READ THIS, or pass it on to the right department, or your subsidiary.

Gentlemen,

Kindly excuse this mimeographed enquiry. It will be replaced by personal letters should you be interested in the matter presented. Here is the story.

The United States is trying to rally the countries of the free world in defence organisations like NATO, SEATO, ANZUS, the Pan American organisation, etc.etc. However, a formidable obstacle to communication and coordination of many millions of people has arisen: language.

Consider squadrons of the Nato forces flying on a mission. How can American pilots and those who understand only French, Dutch, Danish, Norwegian, Spanish, Portuguese, etc.etc. communicate over the intercom? The answer is: they can't.

Consider this peacetime calamity. An American pilot blunders through fog into communist territory. A Russian fighter appears who hears, but cannot understand, the pilot's plea: "Don't shoot! I lost my way. I give myself up. Lead me to a landing field!" The Russian understands only Russian and the language of his Russian guns. And he let them speak. A world war can be started by such incidents.

Consider the coordination of armies of various countries. Millions of tons of supplies, ammunition, arms, vehicles, etc.etc. as well as millions of men have to be shipped with proper directives. Millions of papers have to be typed, translated and duplicated. Wouldn't it be a boon if such directives can be read in all or any language - without translators? Yes, but it seems impossible!

Lastly, consider the vast amount of scientific information which pours out from many universities of many countries in many languages. How can a quick translation be obtained - without translators? The answer is: it can't.

Alas, the hopes of the new crop of electronic machine linguists have been dimmed to despair. Languages are written in various word order, various grammar,

Note for the reader of this issue: The circular above was duplicated on quarto paper and is therefore continued on the next page. Here I wish to mention that in the meantime I have learned that the Armed Forces actually advertised for a system of interlinguistic words and/or signs to be used in the communication with army personnel who speak another language but English. I therefore added a sticker to this circular, giving details of this advertisement in the Washington periodical "INVENTIONS WANTED BY THE ARMED FORCES".

The story of this and my approach to the U.S. Armed Forces is told in S.S.No.190 which see.

various idiomatic expressions and semantic interpretation. The very same statement can be expressed in the very same language in a variety of ways, in fact in so many different forms that misunderstanding or even nonsense may result when translated by electronic computers.

An entirely new idea in communication across all languages is needed - not Esperanto or Basic English or a new international language which some machine linguists are now trying to evolve. All these languages are "foreign languages" to the many millions of men who make up the armies of the world. They all stick to their mothertongue - even in the United States or Canada, or Australia where they go on speaking French, or German, or Italian for centuries. Units of the Canadian army have to be commanded in French, they don't understand English. In the first world war recruiting posters in the U.S.A. had to be printed in 26 different languages. People stick to their mother tongue from the cradle to the grave.

The new idea is Blissymbolics, also called Semantography. The basic idea is simple. These symbols $1 + 2 = 3$ can be read and understood in all languages - without translation. This symbol $\curvearrowright$ means a CURVE TO THE RIGHT in all languages. And these Blissymbols $50 \wedge$ mean "fifty men" in all languages - without translation. You can almost see the outline of a man $\wedge$. It's self-explanatory.

Professor Oliver L. Reiser of the University of Pittsburgh read a paper on Bliss Symbols (Semantography) to the American Association for the Advancement of Science. In another paper on "Logic, Cybernetics and Semantics" he dealt with some problems of the electronic "brains." Both papers have been published by the Semantography Publishing Co, Sydney (\$ 2.00), as well as all books on Semantography by C.K.Bliss (see Library of Congress Catalog Card No. 55-65550 and 55-14351, also the libraries of important American universities, etc.)

The analytical simplicity of the system is astonishing, almost unbelievable. Less than 100 symbol elements are needed to express even scientific information. They can be accommodated on an ordinary typewriter by removing the capital letters etc. leaving the small letters for typing in ordinary language. What's more, the logic and semantics of Bliss Symbols demask any doubtful directive, expressed in vague and ambiguous words. The commander is simply forced to give precise information.

Any logistic document, any directive, order, even any letter typed in these almost self-explanatory symbols can be scanned by an electronic computer and copies in the various languages can be churned out at once. On closed TV circuits in the trenches, the tanks, the airplanes, anywhere, any message can be read at once in all languages - without translation. Professor Reiser in his recent book THE INTEGRATION OF HUMAN KNOWLEDGE (Porter Sargent, Boston \$ 8.00) prophesies projection onto clouds or TV relay through satellites or balloons onto millions of TV screens in the homes of millions of people all over the world.

Some agencies of the United States Armed Forces have shown interest, have bought the books, but so far, the matter rests somewhere in a pigeonhole in the Pentagon. An enterprising firm is needed to present a pilot model and solicit orders. The idea is well protected in the U.S.A. giving the pioneering firm a controlling interest. If you are interested please write to us.

Yours very truly

Secretary
BLISS INSTITUTE

End of Circular

I looked through a number of issues of SCIENTIFIC AMERICAN and noted the addresses of all American firms which could be interested in my work, because they work in the computer and/or television field. Altogether I sent out over 90 such circulars. Some of the more important firms have factories in various places of the USA. I was careful to send two and more circulars to these firms. To some of them I wrote personal letters. It would have been impossible for me to type personal letters to all of them. I reasoned, that if a firm is really interested, they will react to a circular in much the same way as to a personally typed letter. But I was not prepared for the result.

Of over 90 letters sent out, only 5 enquiries came back. Of these the most important was from the president of the Radio Corporation of America, David Sarnoff, to whom I and Prof. Reiser have written personal letters. I have heard of Sarnoff way back in Vienna, more than 30 years ago. I was told that he is a Jew, whose father came from Russia. As it happened I worked in Vienna for a Jewish engineer who came from Russia too. And I myself, though born within Austria near the Russian frontier belong to the same stock of Eastern European Jewry. Since 1942 when I started on my semantography I always dreamed of approaching David Sarnoff. Had I lived in New York I would have gate-crashed my way into his office long ago. When a biographical article on Sarnoff appeared in the Readers Digest in 1954 I drafted innumerable letters to him, though thinking all the time on how to convince his secretary that my letter is worthy to be shown to the big boss. But my unhappy experiences with other big bosses in the typewriter industry made me reluctant to approach Sarnoff; the more so, as I was in 1954 in another abyss of depression brought on by the illness of my wife and the failures of all my approaches.

But it happened in 1959 that Reiser sent me the November issue of The Bacon which contained a revue of his book The Integration of human Knowledge (see S.S.No.185) This issue also contained an article by Sarnoff titled A FAITH FOR TOMORROW. In one paragraph Sarnoff predicts the new developments which will take place in electronic inventions. And one sentence reads:

"And the beginnings will be made in instantenous translation of languages so people will finally understand each other across the barriers of Babel."

The rest of the article is highly philosophical, even religious. He quotes Oersted the physicist who discovered the relationship between electricity and magnetism and who said:

"The universe is a manifestation of an infinite reason and the laws of nature are the thoughts of God."

I felt elated by all this, and realized that now is the time to approach Sarnoff. And so, after discarding many a draft I finally sent off the following letter

David Sarnoff, Esq.,
Chairman
Radio Corporation of America
Camden, New Jersey, U.S.A.

Sydney 26 March 1960

Dear Mr. Sarnoff,

Only a miracle will bring this letter to your personal attention - the miracle being a secretary who knows that only Mr. Sarnoff has recognised new ideas in electronic communication long before his engineers have done so.

My friend Prof. Oliver L. Reiser of the University of Pittsburgh sent me a communication which contained your article A FAITH FOR TOMORROW. You begin saying that your scientists first denied your faith in new ideas, and you tell of your new faith in a new idea with these words:

"Beginnings will be made in instantenous translation of languages, so people will finally understand each other across the barrier of Babel."

The United States Armed Forces are crying out for just this idea. They are worried how the soldiers, airmen and sailors of the free countries can integrate their actions across the barrier of Babel. For ten years the orthodox linguists have worked on electronic translation without result. The differences and complexities of languages are unsurmountable with orthodox ideas of language. A new idea is needed and a Sarnoff to recognize it.

Prof. Reiser read a paper on my work to the American Association for the Advancement of Science. I approached many linguists and even men of the IBM. The linguists working for the United States Air Force at Rome Air Research and Development Centre, New York have bought two sets of all my papers. I sent out the attached circular to all American firms working in the electronic computer field. But I am in far-away Australia and my idea is too new, too unorthodox. It needs a Sarnoff to get things going.

Soviet scientists have tried time and again to get my papers. "Out of print" I wrote. Then they succeeded via a London bookseller who informed me too late of their destination. Shall we wait until the Soviets will score another "first" in military matters? From the attached letter to American electronic firms you will learn that my system works with logical symbols. Boole's symbolic logic is already used in

in electronic computers. But my symbols go further. They demask the demagogy in dictatorial pronouncements, making people realize the inherent falsehood. My symbols go even as far as your own words on divine reason in your FAITH FOR TOMORROW. Bertrand Russell, Oliver L. Reiser and other eminent authorities on symbolic logic said that supporting my work means "performing an important service to mankind." What mankind needs now is a David Sarnoff to perform this service.

"Who is David Sarnoff?" I asked 30 years ago when I heard of you, as I worked as an electronics engineer for the General Electric and a radio firm in Vienna, owned by a great Jewish engineer from Russia John Kremenezky. "David Sarnoff", I was told, "is one of our people, and a mighty man in electronics." "I hope to meet him one day," I said wistfully. I rose to an executive position at Joh. Kremenezky A.G. and fought many patent battles with Philips, Telefunken, and other firms. Then Adolf Hitler took over and transferred me to Dachau and Buchenwald. Later, as a refugee in China, the Japanese forced me into their Shanghai Ghetto. Now I am in Australia, of advanced age, and deprived of all influence in the industrial field. I can only hope of a miracle - that this letter will get onto your desk and into your mind.

If this miracle will happen, the RCA will be able to score another "first" and as an engineer who always devised practical things I can say that the RCA will be able to get a big contract from the Pentagon. My idea is well protected in the U.S.A. giving the RCA a pioneering interest.

Anyway I have faith in tomorrow, otherwise I would not work on new ideas and would not write to you who always recognized new ideas long before they materialized in a practical working model. I can prove that it will work. In this hope I close my letter

Enclosed copy of circular letter to American firms
Copy to Professor O.L.Reiser, University of Pittsburgh Pa.

Yours sincerely

C.K.Bliss

Well, the miracle did not happen. After such a letter, I think that a line or two signed by Sarnoff himself would have been appropriate. Instead I received a letter from the executive vice president that they will check in Washington, then a letter from the patent department of the RCA to sign a paper which does not commit the RCA to any financial arrangement when they examine my idea. I signed it and sent them all I possibly could think of so that they can get a proper idea about my work. I sent them also the memorandum for Washington.

The result was a short letter, saying that they were not interested. The General Electric Co. who asked me to sign a similar paper answered in the same vain, and all the other firms did not answer at all, except three who asked for information, but then failed even to acknowledge it. I intended to write a letter to Sarnoff and the president of General Electric, but not now. I feel too bitter about it, to give my letter the proper detachment and objectivity.

In the flurry of hope which filled my heart when sending out all those circular letters, I wrote also to the man who was the first one to tell me of machine translation, Prof. Stuart C. Dodd, a sociologist of Seattle University. He told me of Prof. Reifler who is engaged in machine translation at the same university (see page 1 and 2 of this issue). I was delighted to receive from him the photostat of a chapter in the book Machine Translation of Languages by Locke and Booth, in which chapter Dodd has outlined the use of his Model English for machine translation. This chapter is reprinted in Semantography Series No. 183, titled Prof. Stuart C. Dodd's Model English and Tilp. I shall herebelow reprint the relevant passage of Dodd's letter to me, and also passages of my answer

Dear Mr. Bliss

(excerpts only)

Seattle March 22, 1960

I was delighted to get your full letter and its two following notes and to hear from you after a long silence....

You may be interested to know that machine translation is very far from being a hopeless proposition. Professor Erwin Reifler in our university here has pretty well solved the scientific problems and has considerable appropriation and staff working on the engineering and commercializing problems with the electronic computer people. They can already translate by machine simple texts with limited vocabularies from Russian into English. My "Model English" is the basis for part of this translation work at it means the clerk can punch into the machine from the newspaper copy, say, a regularized version such as "I did go" instead of "I went" which the machine can then handle with ease. So I am not as hopeless as you are about these reforms being actually adopted in the future, although it may be decades off in large part.

My "Model English", in its early form called "Ruly English" (in contrast to the "unruly" English we ordinarily use), has been adopted by the U.S. Patent Office for reorganizing their entire classificatory and filing and search system to put it on an electronic basis. I anticipate that future reforms in language will come in the engineering and mathematical and scientific fields first, where their utility is most obvious and resistance least, and will gradually percolate across into wider uses and finally into folk usage in perhaps a century or so. As you say the conservative academies will be the last to officially endorse any changes in their beloved and sacrosanct language, whether it is French or any other national language...

I hope you will not become discouraged on the slowness with which society accepts new ideas such as yours. The more far-reaching innovations they are, the longer the lag in adopting them, very often. Keep up the effort to propagate it and let the evolutionary situation of survival of the fittest in the long run determine what will be selected for man's use in the future.

Most sincerely

Stuart C. Dodd

Sydney 3 July 60

Dear Professor Dodd, (excerpts only)

Now to your kind explanation of the progress made in machine translation. I enclose an article from the Sydney Herald which might interest you. In order to understand the coming remarks to all that and machine translation, you ought to know that for a number of years, when I was a director of the patent department of a large electronic firm in Europe, my main business was to fight patent litigations in the highest courts of Europe. The judges, being ignorants in electronics, had to appoint professors and scholars for expertises. Every scholarly opinion which opposed my stand had to be opposed, and believe me, I found enough scholarly arguments and enough scholars to voice them in court - until I had acquired a training which enables me to guess in any scholarly opinion the vague guesses, the words which tell more than the rest about the fallacies to be found. My semantography is the outcome, a system which enables the student to find relevant meanings.

(In the following paragraphs I tell Prof. Dodd about all the exaggerations made by physicists about atomic energy, much of which has already been found to be nothing more but exaggerations. I also referred to the exaggerations about the atomic weapons, which are so far only partly exposed as such).

And so, after this introduction let me tell you what I think about machine translation. Perhaps a joke will leaven my bitter sarcasm which I dare to write to you, but not to any linguist, because he would not forgive me. This joke tells about two men in Moscow asking each other about their jobs. I heard this joke about 15 years ago, but it is still timely, and will be so for decades to come. Said the man: "My job is to sit in the outlook of the Kremlin's highest tower and watch out for the coming world revolution. As soon as it arrives, all I have to do is to flourish just one blast through my trumpet. And then this will be the end of my occupation." Said the other man "But is this not a short-term job?" "On the contrary", said the first man, "it's a position for life!"

And the same can be said for the linguists who get government money and plenty of it to work on machine translation. It's a position for life. And if any proof is needed for this, here are your own words as you wrote "it may be decades off in large part" when referring to Professor Reifler's work. You said that he has solved all the scientific problems and is already able "to translate by machine with limited vocabulary from Russian into English." The relevant words are "limited vocabulary." Seven years ago I read about a machine being developed by the IBM which can translate texts from Russian into English with a "limited vocabulary." I wish you and me a long life, so that we shall be able to read in the decades to come of the new machines which can translate English with a "limited vocabulary."

Browsing through the book on Machine Translation, which you quoted, has convinced me that the professional linguists, who have a holy respect for all the intricacies and idiocies of all the irregularities of all the languages, will never perfect a translation machine. It will be a job for a life-time, with idiots in the governments ready to spend the money, used up for idle contemplations of the vagaries of conventional language theories.

Take that article on language translation TURNING ONE LANGUAGE INTO ANOTHER from the Sydney Herald which I attach. In order to convince the layman what has been accomplished already, the author gives a sample machine translation which in part runs:

"process releasing peoples many countries during the period of centuries former colonies imperialistic state. In international ratio obsolete method "cold war" replace peaceful..."

These disjointed words will be understood by any newspaper reader simply

simply because they constitute slogans he has heard and read thousands of times. But how about the translation of a medical text, which (by the disastrous craving of the highbrow scholar) consists of overlong sentences of overlong words where simple words are at hand? In this case, the pre-editor and the post-editor will be needed in order to prevent the machine babbling utter nonsense. And both the pre-editor and the post-editor will have to be perfect in English and Russian, and would have to be perfect physicians in this particular field of medicine, otherwise nonsense will again be produced. Just think what would happen to your article on the Reiteration Rule when translated by a machine.

Of course, I realize that bitter frustration dictates all these sarcastic words, bitter disappointment that all my efforts to have my work only examined (nothing more) by the linguistic departments of universities have failed miserably. I could go on trying to show you how a text edited in Semantography for machine translation (which means drastically simplified) could thus be translated into any language - without a machine. But this would mean for me writing many more pages which may weary you, and surely will weary me. And so I close. I thank you for giving me enough confidence to write all this to you, knowing that you will bear me no grudge.

Yours sincerely

C.K.Bliss

I do not subscribe to scientific publications, but read only the Sydney Herald, and other Sydney papers, and TIME magazine. Yet, hardly a week passes by without a short note or a long article on the work being done in America on language translation. Many millions of dollars must be spent yearly by the government departments and eager linguists and eager computer manufacturers are only too obliging to pick up the millions on a cost plus basis, the surest thing for a manufacturer to make money without being held to an estimate before the work starts. Apparently the work never stops in many a laboratory, in many a government department and in many a computer workshop. The reader will find some references in S.S.No. 190 on Semantography and the U.S.Armed Forces. And here is an excerpt from the Sunday Herald October 30, just one week ago, titled THE ROBOTS ARE AMONG US and written by NEWSWEEK science editors. I quote from the paragraphs on translation machines:

"Mark I - This experimental IBM machine can translate Russian into English at 1800 words a minute. A typist, ^{ignorant in Russian} types the document to be translated word by word onto tape. The tape converts the Russian letters into punch holes and the holes are in turn converted into electric signals. All in all, Mark I does a remarkable job, though it badly needs a set of rules of syntax to prevent it producing pidgin English. The problem seems fairly well in hand, thanks to the work of Mrs. Ida Rhodes, a dynamic lady of 60 who is director of the mechanical translation group of the National Bureau of Standards. Occasionally she runs across a stickler, like the one she calls the "water goat" problem. This phrase kept cropping up in the translation of a Russian engineering paper until it was discovered that the words were the translation of the phrase "hydraulic ram." Until the machine can be taught semantics - how to derive meanings from the association of ideas in a word - water goatism will prevail." (underlining done by me).

Imagine the idiocy told in the first sentences. A typist, who does not need to know Russian, has nevertheless to type the Russian words in Russian letters into the punching machine. How many mistakes are this typist going to make in typing strange letters? Just find out by yourself and type say a German text in the Latin alphabetical letters you know so well. You will make many mistakes in every line. Then give these false words to a machine to translate - Brother!

I shall use the space left to continue the passages which my friend Mr. Fahlke wrote and which I began to quote on page 4 last paragraph of this issue: ...because a word for word translation is impossible with languages having different syntax, etc. At present, the cyberneticists think of using a "mediator language" perhaps English or better Esperanto with Chinese grammar. All the writings in the world must be translated or originally written in that mediator language and this then fed into the computers. And just for this purpose your Semantography could be used, first because your system forces the writer to terse logical description and second, because all the languages have their roots in the various cultures, be they European, Asian, African, etc. Esperanto, or Interlingua, or other auxiliary languages based on Greek-Latin word roots will not be acceptable to the people of other cultural environments, like the Chinese for instance. But all of them could accept your pictorial symbols..."

"One thing is sure: your symbol system is extremely thrifty in meanings, and this is important as otherwise the size of the computers will grow more and more