

Please note that these pages are typed without a draft. Kindly excuse all the shortcomings, all typing errors, awkward expressions, etc. etc.

"PHYSICS, SEMANTICS, AND SEMANTOGRAPHY"

A Lunch-Hour Address

to be given to

The PHYSICAL SOCIETY of the UNIVERSITY of SYDNEY

on Tuesday, July 31st, 1951 at 1.10 p.m., Physics Building
by C.K. Bliss, Author of "Semantography"

Note: The reader is asked kindly to study first the introductory quotations by Sir Richard Paget, Gottfried Wilhelm Leibnitz, and Bertrand Russell, on the attached invitation.

Mr. President, Ladies and Gentlemen,

Firstly, let me tender my thanks to the President and the Officers of the Physical Society for their kind invitation to address you. I appreciate honour and the obligation involved. Secondly, let me give my thanks to all of you, who are here. Will you kindly forgive all my shortcomings as a speaker.

I want to justify your trust and give a spirited and interesting lecture. But co-operation is necessary. Everyone who has performed in public as a speaker or artist knows that a certain telepathic contact is necessary between the performer and the audience. If you will sit here with furrowed brows, determined not to be taken in and not to be convinced by this new-fangled idea - well I shall not be able to convince you. But if you would open up your hearts and say to yourself: "Well, I am going to give that guy a chance for the next half hour. May be, he has something to tell!" - I shall feel your response and give a spirited lecture. And if my talk should fall flat, well you will know who is to be blamed.

I have only half an hour time, very little; therefore I am going to tell you what I am able to tell you in so short a time:

- 5 minutes for the difficulties of scientific research with regard to scientific publications.
- 5 minutes for the outline of a simple up-to-date scientific abstract, which even students could afford.
- 10 minutes to show, that Semantography can be a practical medium for such an international abstract with regard to physical research
- 10 minutes for Semantics, the Theory of Meaning, and the Semantics of Semantography.

I am afraid, this is very little time to convince you. I beg therefore to refer to the words of praise which Bertrand Russell, Prof. Lancelot Hogben (author of "Science for the Citizen"), Prof. Patrick Meredith, Prof. Carleton Washburne, and a number of other scientists have bestowed upon Semantography. Please ask for the presiding leaflets, pamphlets, brochures, etc.

I don't need to tell you of the great difficulties which scientific researchers face with regard to scientific publications. There is a Babel of scientific publications, printed in too many different languages. And there is a Deluge of scientific publications.

If I would give you a paper written in Norwegian, or Portuguese, it will be a mental impossibility for you to read it. But even if I would give you scientific publications written in English, let us say the output of Australian Universities alone, it would be a physical impossibility for you to read

them all. There is simply no time available. Now, you may think, that there should be a big library with all the books and all the periodicals and a huge card index to find what you are looking for. But it is a financial impossibility, even for the richest University to buy all the books and all the periodicals of all the countries in all the languages.

Now, if you start on a certain research work, it is imperative for you to know what has been done in this field up to the present day. Nothing is more tragic for a scientist than to work for years, only to find that the result has been published by another scientist some years before in a small journal of a small country.

I have done scientific library research for quite a number of years, and I am a factory man, well trained in working out practical schemes. And here is my proposal for a science abstract, simple and so cheap that every scientist could afford it, and of course every institution. No need to have publishers and printers. A few determined and enthusiastic students in 3 or 4 Universities, here, Great Britain, the United States can start it, and practically without money, that is, let us say £ 50 will do for the beginning.

And let us forget Semantography and other languages. Let us think that the whole world speaks English only. We will come to this difficulty later.

We assume now, that say 10 students of the University of Sydney, Dept. of Physics, and another 10 students of the University of Melbourne, of the University of Birmingham and Toronto decide to issue half yearly science abstracts about the Physical Research going on in their University. Naturally only those research results will be reported which are free for publication.

These abstracts would be typed on an ordinary typewriter and duplicated on a duplicator (Gestetner, Roneo etc.) and would be of exactly the same size, let us say 8-1/4 by 4-1/4 (1/3 of a foolscap paper). In the left upper corner there would be a few classification words. In the right upper corner a number referring to the Dewey Library Decimal Classification System for easy filing.

The title of the abstract should, if possible (and it is usually possible) contain the story, for instance, CONCENTRATION OF HEAVY WATER BY MEANS OF A CATALYTIC EXCHANGE REACTION BETWEEN HYDROGEN GAS AND LIQUID WATER. A researcher who gets this abstract need only to read the title in order to know whether the subject is interesting for him or not. If not, in the file it goes. If yes, he will read the story underneath the title. This story should contain not more than 100 words. If the researcher is interested to hear more about it, he will write to the man who did the research at the University which issued the abstract, and he will get from him a detailed report typewritten and duplicated. Thus, a most fruitful correspondence and cooperation may start.

Now, how many individual research projects are going on in the University? Let us say, 50. Therefore, about 200 of such abstracts will be issued by the students of those 4 Universities. These issues may be half yearly, reporting on the progress of the various projects. But, some abstracts may be issued in between the half year period.

How much would a copy of each of these 200 different abstracts cost, if we consider that the students will get some payment for the typing and duplicating? Considering that a fairly large number would be interested in these abstracts the price might be, say 6/- for a copy of all 200 abstracts. What does this mean? And what will happen?

As soon as all the other Universities, Institutions, Libraries and individual researchers will realise that they can get for 6/- the research reports of all the Physical Research which is going on in the 4 Universities mentioned, they will scramble for it. They will gladly send the 6/- plus mailing fee. Money would come in, which in turn would mean that some students would be able to pay their way ^{through} University by typing, duplicating and mailing of these abstracts. What's going to happen then?

Some determined and enthusiastic students of the other Departments of other Universities will start doing the very same thing and soon we will have such inexpensive Research Abstracts from all Universities and Institutions. For individual researchers the abstracts will be on thin paper (such as this paper), for Libraries of Universities and Institutions it will

be on strong cardboard for protection against wear and tear. What's going to happen then?

Then the Universities, the Scientific Foundations and the Government will be forthcoming and provide money so that these Abstract cards should be even cheaper, or in fact gratis for students recommended by their Professors. Universities and Institutions would exchange their Abstracts in much the same way as Patent Offices of the various countries exchange today their patent specifications.

Doctors and engineers, hospitals and industries would subscribe to abstract cards containing the research results from those fields which interest them most and would build up an index file. Now, you might be interested only in the problems concerning gases dissolved in liquids. But your friend might be interested in quite another field, let us say in the ionisation of atmospheric layers.

Considering the latter field, how many individual research projects are going on in the whole world with regard to the ionisation of atmospheric layers? 500 would be a big figure, but you, being interested in this field could get for a few bob all the research reports on such index cards of all the research projects going on in the whole world.

Let us now suppose that you are not doing research in this particular field but you have a hunch. Let me tell you that every experiment and every theory is preceded by a hunch. And now you want very badly to tell all researchers working in this field about your hunch. So you go to the Science Abstract Committee and ask them to issue an Abstract Card.

Let us now assume that this abstract business has grown to such proportions that the inevitable has set in - bureau-cracy. And that bloke in charge will decline your request ^{saying} that the Committee can't spend money on every hunch and the subscribers won't pay for it. What are you going to do?

You will go into town to a Professional Copying Service specialised in this business, and there will be a door with the words on it SCIENCE ABSTRACT SERVICE. Inside there will be a man who makes a living ^{out} of this, or a student for whom it is a part time job. "I want an abstract duplicated. I have a hunch only," you would say. "Hunches," would the man say, "must be printed on pink paper, to be recognised immediately as such. Rosy hopes, you know." "Alright", you would answer, "here is the title, here is the story in 100 words. Please correct it and simplify it. It's about ionisation of atmospheric layers. How many subscribers are in this field?"

The man would take out the international catalogue from the International Science Abstract Distribution Centre and would find that for this particular subject there are 1,250 subscribers. "Alright", you would say, "print 1,250 copies for distribution, how much would this cost?" "Three quid", would the man say, and after a few days you would get your parcel. You will bring it to the Science Abstract Committee at the University, pay the mailing fee and they are duty-bound to send it to the International Distribution Centre. There the copies will be distributed into the various pigeon holes for the next despatch.

Within two months every researcher working in this field in any part of the world would know about your hunch and one may perhaps have the very answer to it, or your hunch might be the very answer for the results of his experiments. Why, anything can happen and you might become a very famous man. Before we go any further, will you please realise, that the fantastic aspects I have outlined here, is today utterly impossible with our present-day expensive publications, which reach only a few.

Now so far, we have talked as if English would be the only language on this planet. But unfortunately, there are others - a host of others. Well, you might say, that more than 50% of all scientific publications are printed in English. Let the others learn English.

But I tell you, they won't. Just as your proficiency in scientific French or scientific German is very low, so will be theirs in scientific English. Esperanto? Nobody wants to learn it. It's a foreign language, and the people of this planet won't learn foreign languages.

But we have international symbols. $1 + 2 = 3$ can be readily understood in all languages and now we have the symbols of Semantography. They are not arbitrary like the mathematical symbols, they are actually a picture writing. Look:



These symbols can be easily understood in all languages and they can be used in the science abstracts mentioned before. These abstracts would look like this:

First line: The symbols of Semantography

Second line: The corresponding English words under each Symbol.

Danish Universities would have their abstracts written in the symbols and Danish words underneath. French Universities would have the French words underneath. But the students of Danish Universities may soon add a third line in English. This would have the great advantage for Danish students to learn the corresponding English words to the Danish words they know. For the other subscribers the advantage would be this: Those who understand Danish or English will read the Danish or English lines and won't bother about the symbols. Those who only have a smattering of English will read the symbols and improve on their English. And those who don't know a word of Danish or English would read the symbols in their own language, be it Portuguese, Hindustani or Bantu, or any other language.

True enough, the grammar of various languages differs, and putting the corresponding words under the symbols might result in some awkward sentences of Danish or English. But this would not matter. What matters will be, that the reader will understand what he reads and will always be able to check up on the symbols whether he understood the word or not.

Now I have to prove it that the pictographs of Semantography can do it, and I have exactly 10 minutes time for it. Very little. So again I beg to appeal to you to believe what scientists have said who have examined Semantography and found it a practical tool. I beg also to refer to my lecture at the Wallace Theatre where I have shown over 50 slides, photographed from pages of my work on Semantography.

For the last 9 years I am hopelessly moonstruck with this idea. It took me 7 years to make Semantography what it is. The last 3 years I devoted to writing it down. I realised that I have to prove the practicability of Semantography for a number of sciences, for industry, for commerce, banking, traffic, etc. etc. The work grew in volume, and I realised that I would have difficulty to find a publisher for such a huge manuscript on such an novel and quite outlandish idea. I therefore decided to write all down on wax stencils and to make duplicated copies. I typed it myself (over 500,000 words). I made all the drawings (over 20,000) and I printed it myself on a duplicator. Now this huge work in 3 volumes is bought by University and Public Libraries and even by private patrons of the arts, who consider that these books have a unique bibliographic value, being the work of one man.

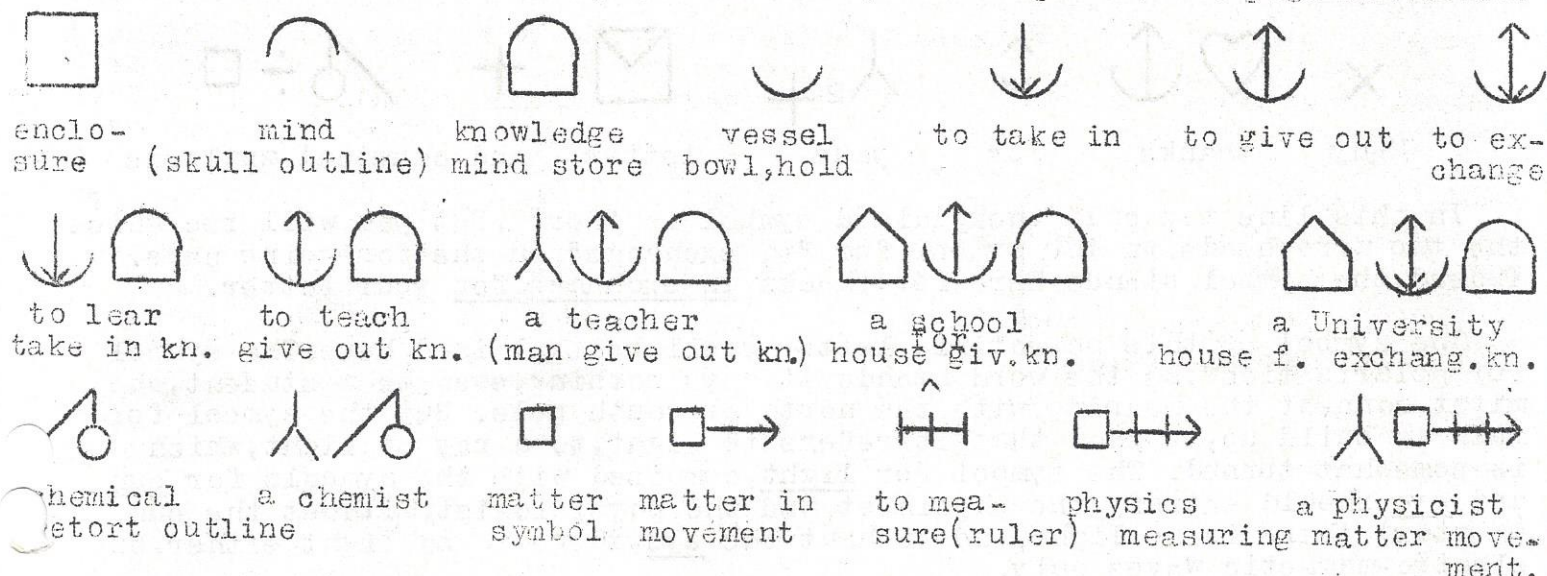
In the following paragraphs I shall refer to the pages from which the slides have been made. Naturally I can show in this written excerpt only a few symbols, and I refer the reader to the pages in my books.

Page 57. This page should give heart to all those who hope that such an international symbol writing will come about. You see here a number of symbols which have been introduced in mathematics, geometry, astronomy, biology, botany, physics, electricity, radio, meteorology, chemistry, commerce, writing, music, traffic, ship flags, signals, etc. etc. There was a time when these symbols did not exist. They were introduced by farsighted men, and today they are recognised all over the world, and they have the same meaning in all the languages.

Page 9 This slide shows the key arrangement of the semantographic typewriter. As you see, it is the ordinary typewriter as we use it all over the world. The small letters, the numbers, the symbols like " \$ % & ' () / = + ? ! : ; " are left standing. We can use the typewriter to write names or even whole letters and pages, in ordinary writing using the small letters only.

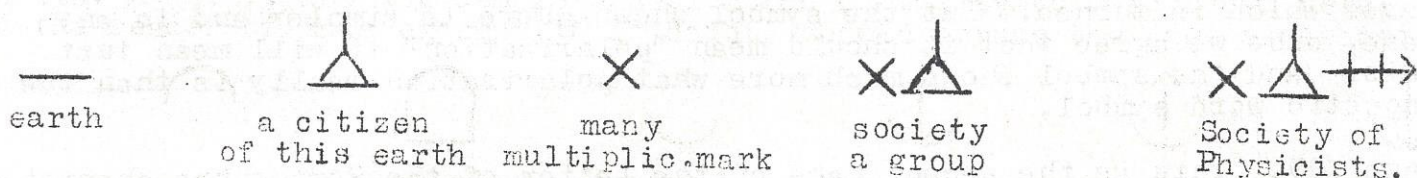
But the capital letters are removed. We don't need them anyway. Instead we have line elements for the typing of the symbols. Underwood Corporation of New York has agreed to adjust an ordinary typewriter for Semantography.

Page 242 On this page I have shown the derivation of the symbols for the meaning of knowledge, to learn, to teach, learner, teacher, school, university, learned society and finally herebelow I shall show you my symbol for Physical Society. However, not the complete derivation of the symbols is shown here, and the reader of this excerpt, if in doubt, should peruse the page mentioned.



If you are a "wave mechanic" and deny the corpuscular theory of matter, then leave the matter symbol out. Indeed, we can easily leave it out, and retain only the arrow with the measuring lines. This indicates: measuring forces.

Now to the symbol for society. A Society is a group of men and women. Instead of depicting man and woman, we can add the symbol for earth and get a citizen of this earth. Adding the multiplication mark we get a multitude of citizens, a group, club, society. And adding the symbol for physics, gives us the symbol for Physical Society. As you see, the symbol includes men and women.



You are now asked to realise that the symbols shown here are greatly exaggerated in comparison with the alphabetic letters. To get the real comparison of both, the phonetic and the semantographic symbols, we should write them in the same size.

PHYSICAL SOCIETY



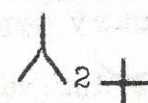
Thus compared, the symbols take up less space, and we could even be generous and print them in larger size. Moreover, the two words Physical Society need 15 typings on an ordinary typewriter, whereas the symbol formula would take not more than 8 typings. If this comparison should not convince you, please realise that the symbols are most unfamiliar to you, whereas the alphabetic symbols are taken for granted. Realise furthermore, that the word Physical is quite ambiguous. Many people might believe that a Physical Society is a group of people interested in physical culture. The symbols tell anyone who has a little training in Semantography, that they refer to a multitude of citizen, measuring movements. Then of course, he would have to be told that this is the business of a physicist.

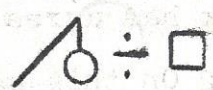
Page 386 shows a number of physico-chemical tables and engineering tables. Books containing such tables are in extensive use by every scientist and every engineer. As you see, almost 95% of the whole table is taken up by the international symbols of mathematics, chemistry, physics, etc. What is now needed to make the table readable in all languages, is to print a line in symbols beneath the text at the head of the table. This text explains what the table is about, and to what entity the figures in the different columns refer. Such books printed in America, Great Britain, Australia, would carry the symbols and the English words, whereas French books would carry the symbols and French.

Page 389 This shows a letter written by a Portuguese chemist to his Danish colleague. In the first line he thanks him for the letter and the analysis. The possessive pronoun your is indicated by the addition of a plus indicating an ownership: your letter. Thanks is symbolised by the "heart" as the seat of emotions, a colloquial expression found in all languages. As you see thanks means "giving out from the bottom of your heart". Analysis is clearly symbolised by "chemical (retort) division of matter"







Many thanks for your letter and chemical analysis

In this line the only unexplained symbol is "for". But you will recognise the two arrowheads in the symbol for "to exchange" on the foregoing page. Indeed, the symbol stands here for: thanks in exchange for your letter.

One symbol of this scientific letter shall be explained here. The symbol for "polarisation". As the word stands, it says nothing, even to a student, who might connect the meaning with the north or south pole. But the symbol formula is build up, to show that it refers to light, to a ray of light, which is somewhat turned. The symbol for light, composed with the symbols for sun and eye, should satisfy the physicist and the physiologist. Without the sun (a star) there is no light, and without the eye, there is no light either, but electro-magnetic waves only.





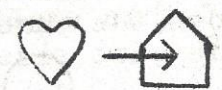



sun eye light light ray turn polarisation
(turn of light ray)

In the original letter on page 389 I have shown an even more elaborate symbol adding a waving line to indicate that it is a plane of the light waves which is turned. But the symbol shown above is simpler and in any case, once we agree that it should mean "polarisation" it will mean just this. And the symbol shows much more what polarisation really is than the phonetic word symbol.

Page 390. This is the second page of the letter of the Portuguese chemist to his Danish colleague. After the scientific business is transacted, he turns to social matters and invites him to come to Lisbon.



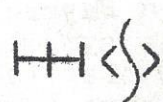



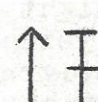
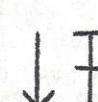
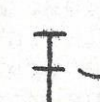
Please (accept (take in) my hospitality

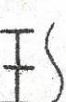
The symbol for hospitality shows you the heart inviting you to come into the house, surely an appealing symbol.

Page 377. Here are a few meanings symbolised, pertaining to physics and chemistry. And again I must ask you to excuse me rushing you through this and explaining only those symbols which you can grasp right away. I have only a few minutes time.







fire heat measuring heat thermo- rising falling boiling point kindling
(flame)(radiation) scale, p.p.5 meter temperature (water up) point

Page 384. Here you can see how I can symbolise a complete formula, the natural law found by Robert Boyle. This law is usually expressed with arbitrary symbols $V V' P P'$. But we can write the same formula in a picture writing and this would help the student to grasp the law much easier. If we put the action indicator on top of the symbol for big and small we get to make big (to increase) and to make small (to decrease). The symbol for pressure is easily understood. The symbol for gas is a picture of gas bubbles going up in a liquid. The symbol for volume is already international. And the two arrows going both ways indicate clearly the relationship;

I I $\uparrow$ $\hat{I}$ $\rightarrow \square$ $>$ $\uparrow$ $\rightleftharpoons$ $\hat{I}$ $\square^3$ $<$ $\uparrow$
 big small gas Increase- pressure of gas is follo- decrea- volume of gas.
 sing(make big) we by and sing
 vice versa

Page 373 & 374. I am showing you these slides only to prove that I have really tried my hardest to invent practical symbols even for the latest research in atomic physics. And here is my proposal for improved symbols for the chemical elements. They are alright for ordinary chemistry, but they are out of date if we try to write down formulas with isotopes. I propose that we should abandon the phonetic letters as H for hydrogen, O for oxygen, etc. Instead, we should write the atomic number within a circle, or if we use an ordinary typewriter within brackets. Instead of H we should write (1), and instead of O we should write (8). Actually I don't like the makeshift bracket and I prefer 2 lines. These lines should contain - if we contemplate isotopes - three figures. Top figure the number of electrons. In the centre the number of protons which is equal to the atomic number. Bottom figure should show the number of neutrons. Then we can add up the last two figures to get the mass number. If we take away the electrons we get the nucleus only.

$\begin{pmatrix} 1 \\ 1 \\ 0 \end{pmatrix}$	$\begin{pmatrix} 8 \\ 8 \\ 0 \end{pmatrix}$	$\begin{pmatrix} 2 \\ 2 \\ 0 \end{pmatrix}$	$[2]$	$\begin{pmatrix} 2 \\ 2 \\ 2 \end{pmatrix}$	$\begin{pmatrix} 2 \\ 2 \\ 2 \end{pmatrix}$	$\begin{pmatrix} 1 \\ 1 \\ 0 \end{pmatrix}$	$\begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}$	$\begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}$
Hydro- gen	Oxy- gen	Helium	Helium (simpli- fied)	Helium 4 mass number	Helium (simplified)	Hydro- gen	Deuter- ium heavy	Deuteron (nucleus) heavy Hydrogen

We can now write down a chemical equation, for instance Rutherford's first splitting of the atom (1919). You can see that any student should find it very easy to add up the three rows of figures on both sides of the equation. The reader is kindly asked to peruse p.373 of the book.

The slide which shows part of page 374 gives you the equation of atomic fission in Uranium, showing the production of Neptunium 239 and Plutonium 239. I must refer the reader of this excerpt to the book itself with regard to this elaborate equation. The few symbols shown above should convince you that we can easily depict any meaning used in physics and chemistry and my large chapter shows you a few hundred meanings.

THE SEMANTICS OF SEMANTOGRAPHY. I am now coming to the last part of my talk. The word semantics is derived from the Greek word semantikos significant meaning. And the word semantics means the theory of the meaning of words. As usual, this scientific discipline was confined to a few scholars in a few Universities. But in the late thirties the world witnessed a terrifying spectacle. We saw how a great nation, the Germans, intelligent, literate, industrious were completely taken in by a propaganda which worked with vague, ambiguous, and even fallacious words which meant different things to different people. We know the terrible result.

Today we are witnessing an even more terrifying spectacle. Again, a propaganda, using vague, ambiguous and fallacious words is unleashed, not against one nation only, but against the people of all nations. And we see already a rift opening up within almost every family, every community every nation. And soon bombs may fall again and the Third World War may start. This war - if we don't prevent it, will be an "ideo-logical" war. We will kill each other because of confused ideas, in confused minds, expressed in confused language.

And we are now faced with this terrible alternative: EITHER WE FIND A METHOD, A VERY SIMPLE METHOD FOR TEACHING THE PEOPLES OF THIS PLANET HOW TO RECOGNISE VAGUE AND AMBIGUOUS WORDS - OR WE SHALL PERISH THROUGH OUR OWN MUDDLED WAY OF SPEECH AND THOUGHT.

It is obvious that Semantography can be of help, because it is a picture writing. Vague and ambiguous meanings are unpicturable. But we do not need Semantography. I have worked out a simple gadget, which is based on a principle of Semantography and which everyone can learn to operate. I visualise a time, when such a little gadget will stand on every breakfast

table, on every office table, on every lecture table, and on every conference table. I hope you will give me a discussion evening in which I will show you that this little gadget can be used to analyse any statement. And I hope to convince you that this gadget might help to stop useless debates which are now going on everywhere, debates which convince nobody, which lead nowhere, and which tend only to break up cooperation between the human beings.

Before I explain this gadget, let us consider this; If we write down the phonetic letters w,a,t,e,r, we realise that these geometric symbols are symbols for sounds which we can produce with our larynx, and if we add up these phonetic symbols and write it down water, we have now got another sound. But now, this sound and this letter conglomeration stands for a real entity in our physical world, a liquid which we all drink and use. What conclusion should we draw?

The words of our language, of all languages, are phonetic symbols which stand for the realities of our physical world. These words are used to describe the phenomena of our physical world. And consequently language and linguistics, logic and semantics should be a branch of physics or the natural sciences. And this was indeed the case. The father of logic, the father of semantics, the father of grammar study was Aristotle, one of the greatest physicist, chemist etc. And he knew very well that the study of words cannot be divorced from the study of the physical phenomena of our world.

But unfortunately this divorce has taken place with deplorable results. In trying, now to find the real meaning of the words we use, we must get back to the physical realities of our world, and the little gadget described below will help us to do just this.



The lowest symbol, indicating a square should stand for all words which refer to material things. I have chosen the square in order to indicate that the structure of matter is not chaotic. On the contrary, we see a harmonious, geometrical built-up of molecules, crystals, etc.

The second symbol looks like an A and stands for the Latin word ACTUS, a doing, an Action. If you have imagination it might indicate for you one of the primeval actions which happened on our earth, the throwing up of volcano cones, the thrusting up of mountains.

(wooden stand)

These two symbols stand for the two aspects of nature, MATTER and ENERGY. And there are many thousands of words which fall in these two groups. For instance, these are all material things: stone, table, house, man, woman, boy, horse, etc. And these are physical actions: going, walking, eating, writing, riding, etc, etc. With regard to these words we could quickly find agreement. Then we have words which fall in both groups, for instance, a plumber is a man who does certain physical actions with certain material thing.

But there is a third aspect of nature, an aspect which is there, but which does not show up in any chemical or physical formula. We may call it the Life Force, or Mind Force. It is this agent which makes the molecules multiply, which make them gather together in complex living organisms, which can repair their own tissue, which, in the mind of man, can think up poems and symphonies and great ideas. This force is there, indeed is a driving force in this universe of ours, and the fact that it does not show up in Einstein's mass energy equation can be explained by the fact that we know next to nothing, or rather nothing about it.

We have not the slightest idea how a single thought comes about in the molecules and cells of our brain tissue. We have noticed certain electrical brain impulses, but what they mean we don't know. We know much more what is going on on the moon than what is going on in our own brain. Consequently, all those words which refer to brain activities are vague on account of our ignorance. I have termed words pertaining to sense and mind reactions, human EVALUATIONS. We evaluate the phenomena of our world and use words to express these evaluations. Consequently, I have indicated these VALUE words (Latin Valore) with a symbol which looks like V and which you can see as the third, the top symbol.

A thousand years ago, our ignorance about matter was very great and consequently, charlatans roamed in this field and promised the kings and the people gold, the stone of wisdom, the elixier of youth etc. Today, thanks to centuries of research we can easily find out the crooks. So the charlatans have turned to the third field, in which our ignorance is rampant, and they befuddle the peoples with vague, ambiguous and fallacious words in order to foster their own aims.

I shall show now how this gadget can be operated. My time being short, I shall use a simple example. Let us suppose that a man would say to another man: "I think the way from here to Central Station is rather long". And the other man would reply: "Long? That's silly! I consider it short.. You are just lazy!"

And I would say: "Gentlemen! Let's get away from the vague and ambiguous evaluation words long and short, silly and lazy. Let's get down to the real thing. Let's measure the ground!" And if we do this and find that the ground from here to Central Station measures 1 mile, there will be agreement all round and in this process the evaluation words long and short, silly and lazy have completely disappeared.

You know what this means. It means nothing else than the application of the scientific method: OBSERVE THE REAL THINGS AND THEIR ACTIONS, WEIGH AND MEASURE AND GET AWAY FROM THE VAGUE AND AMBIGUOUS WORDS.

This of course is a very simple example, but I am ready to prove that this gadget works even with elaborate statements. As you see, it is not necessary to know the symbols of Semantography in order to operate this gadget, (except the three shown on the gadget). But if you know the symbols of Semantography especially those for the EVALUATION words, you will know much more. In order to explain what I mean I shall refer to the chemical symbols.

H₂O means water in all the languages. Now I am a chemist, and it is no mere coincidence that a chemist has invented Semantography, because we chemists have already our chemical Semantography. We are not interested in the incidental advantage that our chemical symbols have the same meanings in all the languages. What interests us is the fact that the symbols of our chemical semantography tells us the real meaning of water, a composition of hydrogen and oxygen.

I shall show now in one example how I have built up the formula for one word which we find in all languages, the little word "if". To what does it refer? Matter? No. Action? No. Then it falls into the third group, it refers to a mind activity and indeed we use this word when contemplating the relationship between two and more entities.

As the word "if" does not refer to any real thing in nature, it is unpicturable. I had to think on those occasions when we use this word. And as said before we use it when considering the relationship between phenomena. For instance I would say: If I consider this, then I must consider that. I looked around to find whether we use already an international symbol to indicate the relationship between two entities and I found this: $a > b$. This symbol is taught to boys and girls and they know that it means: If we consider the relationship between a and b, then a is bigger than b.

Of course this formula is very simple if you apply it to mathematical numbers only, as for instance $4 > 2$. But if we apply this formula to our physical world, and say that a and b should mean temperatures, or volumes, or gas pressures, then a host of other relationships are cropping up, and we have to take them all into account.

Now let us apply this little formula $a > b$ to the situation in Korea. What's going to happen in Korea? Well, we'll have to consider a host of relationships. If we say that a should mean Truman, and b should mean Stalin, we have the relationship: Truman $>$ Stalin. But there are other relationships: Stalin $>$ Molotov, and Molotov $>$ Mao Tsatsung, and Mao Tsatsung $>$ General Ching Chang Chong, and this General $>$ General Ridgeway, and Ridgeway $>$ Acheson, and Acheson $>$ and some Senators in Washington etc, etc, etc.

But these are not the only relationships to be considered. There are others. For instance: the coming winter weather > the muddy roads. The muddy roads > the trucks. The trucks > the supply. The supply > etc. etc. etc.

Is there any human being in the whole world whose mind can really take all these relationships into account, weigh and measure them properly and then predict, what is going to happen in Korea? No! Nobody can do it. Therefore the only sensible thing we can do, is to add to the symbol of relation the symbol of our ignorance, the question mark. And this gives us the semantographic symbol for the little word "if".

>	?	?>
relation	question mark	if

We are teaching boys and girls all kind of mathematical, chemical and physical symbols. What would happen if we would teach them this little symbol for "if"? Would it have any beneficial result when they have grown up? To answer this, let us put on an act. Let us consider 3 men, discussing politics as they do it nowadays. All 3 men are literate, have been to school, can speak and write grammatically correct. And here goes:

1st Man: "Now, I am going to tell you what's going to happen in Korea. And I think I am right. IF President Truman bla, bla, bla, bla, bla,

2nd Man: (jumping up) "How could you say such nonsense? You are perfectly wrong. I will tell you the right thing. IF General MacArthur bla, bla, bla, bla, bla,

3rd Man: (almost choked with rage) "How can two grown-up persons talk such rot? You are absolutely wrong! I say this: IF Stalin bla, bla, bla,

And all the time, these 3 men don't know, that the moment they say IF, all what follows may be very questionable. They don't know this little semantographic symbol for "if".

In this month's issue of Readers Digest, there is a beautiful quotation from Bertrand Russell. He said: The trouble of this world is that the stupid are cocksure and the intelligent full of doubt.

Teaching the stupid such symbols would make them less cocksure, in fact would make them behave like intelligent people, would make them intelligent

What should we do? Should we abandon the little word "if"? Of course not. But we should teach the people to use this word in the same way as a scientist uses it. He studies all the relationships which he can observe. He tries to weigh and measure them, and then he realises that whatever he says, whatever his conclusions, whatever his hypothesis, whatever his theory - he is always aware that the question mark is looming behind all his sayings. He knows that he may be wrong.

And so you see that Semantography might be of help, not only for science abstracts, not only for international, inter-linguistic scientific correspondence, not only for bridging the language barriers in all dealings with other people - Semantography may be of help in teaching the peoples of this planet the scientific method.

Now, this is a lunch-hour address, and I am supposed to be the luncheon speaker (although I must confess I am still hungry). I think therefore, that it would be the proper fashion to wind up with a kind of toast. So here goes:

Ladies and Gentlemen! For a better future of mankind - I give you -
THE SCIENTIFIC METHOD.

follows questions and discussion

Just 4 points before we part:

- (1) Thanks for your response.
- (2) Interest your colleagues of the other departments, so that I might be invited to demonstrate the application of Semantography for their Science.
- (3) Send a copy of this excerpt to a friend abroad.
- (4) Help me getting rid of this idea, by interesting publishers and men of wealth to print inexpensive booklets on Semantography. Thank you!