

Comments and Communications

Stress Indicators

IN THE third paragraph of their brief reply to my comments and those of Calkins (*Science*, 112, 476 [1950]), Dearborn, Johnston, and Carmichael miss the point I was making. That very *essence* of stress which they refer to is a matter of linguistic analysis. In English there happen to be four structurally significant levels of stress (four stress phonemes, as we say—though perhaps the term is too “elegant”!), four levels of pitch, and three ways of terminating phrases—i.e., three terminal junctures. In our work at the Foreign Service Institute training language-and-area specialists, we have found no difficulty in devising symbols to denote all these things, and in getting students to understand the symbols. Thus, we may write the sentence *How do they study?* in several ways:

- (1) *Hôw dô thèy ‘stúdy¹ #
 - (2) *Hôw dô ‘théy stúdy¹ #
 - (3) *Hôw ‘dô thèy stúdy¹ #
 - (4) *Hôw dô thèy stúdy¹ #
 - (5) *Hôw dô thèy stúdy||
 - (6) *Hôw ‘dô thèy stúdy||
 - (7) *Hôw dô thèy ‘stúdy¹ #
- etc. etc

(1) is the ordinary question: medial pitch /²/ at the beginning, extending through *they*, high pitch /³/ on the first syllable of *study*, falling to low pitch /¹/ and ending in silence /#/. *stu-* has the primary stress /¹/, *how* the secondary /²/, *they* tertiary /¹/ and *do* and *-dy* weak stress /¹/. In (2) the primary stress is shifted, and with it the high pitch, to *they*. In (3) *do* has primary stress and high pitch. In (4) it is *how* that has primary stress and high pitch. In (5) we have the echo question, all on high pitch, with a rise at the very end /||/. In (6) we have a way of asking the ordinary question that is usual in British speech; high pitch on *how*, but only secondary stress, while the rest of the sentence has medial pitch to the end, with a slight rise. In (7) we illustrate the first of a series of six repetitions of (1)–(6), but with highest pitch /⁴/ instead of high, as in excitement or for emphasis.

The symbols we use may not be the most practical for general use, but any system of punctuation, special type, etc., had better be based on such a controlled and tested analysis if it is to accomplish anything.

Of course, I agree with Dearborn *et al.* that Calkins is quite wrong in his objection to the use of indicative devices. Language is a system of communication, as they say. Writing (or printing) is a secondary symbol system based on language; the better we make the writing system, the better we communicate.

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Life Behind the Iron Curtain

THE letter from Nathaniel Kleitman in your October 20 issue interests me greatly because of a document recently received from the Charles University in Prague. This concerns the same question of academic freedom and the “Big Lie.” It is signed by the rectors of six Czechoslovakian universities and technical schools and is printed impressively in two colors. The text of the document follows:

We, the leading workers of the Czechoslovak universities and the representatives of the scientific and cultural life of our country, firmly convinced that work for peace and the fight to preserve it is one of the most basic duties of every true scientific and cultural worker who is conscious of his responsibility, express our deep indignation at the attack of American imperialism against Korea. This attack flagrantly violates the inalienable right of the Korean nation to self-determination and thus the principles of the Atlantic Charter.

It is a part of the policy of occupying and subjecting other nations of Asia and Europe, the countries of which are being changed into a springboard of the American armies in preparation for a new world war. This cynical violation of the principles and spirit of the Charter of the United Nations is hypocritically masked in the name of the United Nations Organisation, which is thus—under the pressure of dollar imperialism—estranged from its peace mission and turned into an aggressive bloc by its nonacceptance of the largest nation of the world—People’s Democratic China—and by its provocative boycott of all the constructive proposals of the greatest peace power, USSR, and the countries of the people’s democracies.

Therefore, together with all our people, who daily express their will for peace by their constructive work, and together with all the true friends of peace all over the world, we decisively condemn this criminal attack against the Korean nation and against world peace. We condemn the barbaric destruction of Korean towns and their flourishing cultural centres. We condemn most strongly the criminal intention to use the atomic bomb in Korea, which has been repudiated and condemned by world public opinion. We protest against the abuse of the United Nations Organisation and against its degradation, against the exclusion from its organs and its work of those very powers and countries that are the most reliable fighters for world peace. We demand the immediate cessation of the American intervention in Korea. We support (without reservation) the opinion of Generalissimo Stalin, expressed in his correspondence with Pandit Nehru, that the peaceful termination of the war in Korea and the solution of the Korean question are possible only through cooperation with People’s Democratic China and with the participation of the representatives of the Korean nation. We stand with all our sympathy on the side of the Korean nation and its people’s government, which by its policy has proved and is proving that it is the real and only representative of its nation, and which has given special care to the development of science and cultural life in its country.

We appeal to the scientific and cultural workers of all

countries to rise up with us in the defence of the independence of the Korean nation and in the defence of peace, which is gravely threatened by this American aggression. Only through the energetic and united action of all honest people—and among them in the first place belong all people of science and culture—is it possible to stop this criminal intervention, to restore to the United Nations Organisation its peace mission, and to safeguard world peace and the cooperation of nations.

DONE at Prague, this twenty-fifth day of July, one thousand nine hundred and fifty.

(Signed, with seals)

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DR. LADISLAV STOLL
Rector, Vysoke Skoly Politickych
a Hospodarskych ved
P. SMETANA¹
Rector, Academy of Applied Arts

DR. STARY
Rector, Czech Technical University
DR. H. U. BROUSIL¹
Rector, Academie Musickych Umeni
K. GRONOVÍ (?)¹
Rector, Academy of Fine Arts

¹ The signatures are hard to read.

It would be interesting to learn the extent to which this document has been circulated among American scientific institutions and universities. It is clearly part of the same campaign to strengthen this particular Big Lie by putting behind it all the prestige of institutions of learning that have had fine reputations for many years. It is noteworthy that, in the 1947 edition of the *World of Learning*, the rectors of these institutions were all different from those who now head them. Presumably they have been replaced by men who are willing to put their names to manifestoes that the wisdom of the Politburo considers expedient.

Among the signers of the document quoted by Dr. Kleitman are such people as Oparin and Lysenko, who have, through bigotry or cynicism, adopted a point of view wholly at variance with Western objective science. It also bears the names of Varga and Orbelli. Here are two men who have attempted, at considerable personal risk, to combat the extreme position of the "Marxist scientists," whose doctrine of arriving at scientific hypotheses by political dicta is notorious. One would hazard a guess that such signatures are inspired by nothing more profound than the well-known instinct of self-preservation. Under the circumstances it is well not to be too critical of those who probably can see little hope that martyrdom would advance by one iota the pursuit of truth beyond the Iron Curtain.

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THE recent outburst of several Soviet scientists (*Science*, 112, 475 [1950]) is another illustration of the complete subjugation of free speech in the USSR. It is easy to be misled into thinking that these men

sincerely believe in what they are forced to say. Anyone who has lived even a short time in a totalitarian state, however, will have more insight and will not blame the scientists who signed the letter. Recently I witnessed a jingoistic discourtesy staged by the Russians at an international scientific gathering. Later one of them said to me privately, ". . . but if we don't do something like that, we shall have to answer for our 'political inactivity.'" During the last war, even the famous Max Planck was unable to communicate to the outside world that his supposed support of the Nazi official philosophy was a complete misrepresentation.

Let us have more charity toward people behind bars with pistols pressed to their backs.

FORMER RUSSIAN SCIENTIST
(Name withheld by request)

NATHANIEL KLEITMAN in his letter "*The Big Lie*" (*Science*, 112, 475 [1950]) thinks that the "protest" of prominent Soviet scientists against American "intervention" in Korea is made because of "anticipated hysteria that seems to have gripped all classes of people behind the totalitarian curtain."

I only recently ran away from the Soviet Ukraine, where I lived the whole of my life, and where I was professor in one of the medical institutes. I would like to inform Mr. Kleitman and all other scientists about the "technique" of writing of such "protests."

The text of the "protest" is composed in the headquarters of the Communist Party without any participation of scientists. The latter are asked to sign the prepared "protest," being summoned to headquarters or being visited by some responsible Communist. One must have immense courage and audacity to refuse to sign, because every scientist knows very well that after refusing he risks being included in the category of American sympathizers or even in the category of "people's enemies," with all possible consequences for himself and members of his family. Therefore every scientist requested to sign would not hesitate one minute.

I think he is not afraid of misleading public opinion abroad with his signature, because he has a very high opinion of the mentality of foreign scientists, and he has no doubt that the truth will not be hidden from them.

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NATHANIEL KLEITMAN's communication (*Science*, 112, 475 [1950]) about the statement of the Russian scientists on the Korean war seems to demonstrate a phenomenon that is not limited to the Soviet Union but is found in any modern society.

My own unscientific sampling has convinced me that higher education—particularly technical education—and professional, economic, or business status are no

guarantee of immunity to the prevailing myths that govern a society. Indeed, it appears to me that such people are even more susceptible than those of lower economic, educational, or social status. It would be a valuable, if exceedingly difficult, task for a good sociologist to study the correlation, if any, between status and the ability to view one's culture with detachment.

Some evidence is already available. The Lynds, in their study of Middletown, listed a great many myths (which had little relation to objectively observed facts) that were held by the business class as tenets of faith even more important to their lives than the professed doctrines of their churches. Gunnar Myrdal showed how the myths of race varied with classes in the South, but the myths of the upper classes seemed no closer to reality as Myrdal saw it than those of the lower classes. The recent election, fought from both sides in large measure on substantially false issues, might be adduced as supporting data.

Thurman Arnold, no trained sociologist but an astute observer, pointed out in *The Folklore of Capitalism* how, without any thought of compulsion or expediency, the sound, well-thought-of, respected people in any community are particularly enmeshed in the current mythology and the institutional *status quo*, and are unable, even when the need is obvious, to take part in changing it.

The statement of the Soviet Academy would be ludicrous were not the subject so serious. But is it not an acute case of a disease that afflicts us all?

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Separation of Organic and Inorganic Compounds

THE paper of McDonald, Urbin, and Williamson (*Science*, 112, 227 [1950]) is so very interesting that it will undoubtedly attract considerable attention. It is therefore worth while to comment critically upon their final paragraph, in which they contemplate experiments on the movement of ions on a filter paper under the influence of both an electric and a magnetic field. "In effect, this system would be equivalent to a mass spectrograph applicable to charged particles in solution." The implication appears to be that the masses of charged particles in solution could be measured by this method.

In the mass spectrograph, the ions are moving freely in a vacuum, and any force exerted upon them, electrical or magnetic, will result in an acceleration, depending upon the ionic properties of charge and mass. The mass spectrograph is merely a mechanism for converting the variable response of the particles to the forces from a linear effect, which would be very difficult to observe, to a transverse effect easily recorded on a photographic surface.

In the case of ions in solution there are two

essential differences. In the first place, the ions are not moving freely, they do not accelerate continuously but reach a constant velocity in an extremely short time, and this velocity, which is measurable, is dependent upon the ionic properties of charge and size, not mass. Second, with ions in solution it has been possible to devise methods of investigating the "linear" effect—that is, the varying movements of ions traveling along a straight line—so that there is no real need to convert to the transverse effect in order to observe them. The introduction of the magnetic field would give no more information on the mass or size of the ion than do present electrical methods.

I hope that this comment will do more to draw attention to this interesting paper pioneering this new research method than to detract in any way by criticism.

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Indonesian Place Names

SOME biologists who, like myself, have only occasional contact with workers in the East Indies may not fully realize the nature of recent changes in place names. I am indebted to D. A. Hooijer, a vertebrate zoologist of the Leiden Museum, who is temporarily in the United States, and who has spent much of his life in the Dutch East Indies, for clarifying this subject. With the change from Dutch administration to native control there has been a substitution of native Indonesian names for names of Dutch sponsorship, which in most cases are those we have been accustomed to see and use. Thus, the Zoölogisch Museum, where such well-known entomologists as M. A. Lieftinck (Odonata) and A. Diakonoff (Micro-lepidoptera) have been working, has not moved, but the original Indonesian name Bogor has replaced Buitenzorg. In the same way Batavia has been replaced by Djakarta (sometimes appearing in newspapers in the U. S. as Jakarta). Dr. Hooijer tells me that the use of the Indonesian names is highly important in addressing mail, as that bearing Dutch place names is likely not to be delivered, because of the present attitude of postal authorities in the Republik Indonesia Serikat (R.I.S.) ("United Indonesian Republic").

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Erratum

In reference to paper by Bacchus and Toompas, "The Influence of Ascorbic Acid on the Leukocyte Response of Rats Submitted to Stress" (*Science*, 113, 269 [1951]), in order to bring the numbering of groups on page 269 in accord with that on page 270, Group I (one) should be regarded as *saline pretreated*, and Group II (two) as *ascorbic acid pretreated*.

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