

## LETTERS

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### Auxiliary Languages

I was much interested in the issue of 12 July 1957, which editorially blessed the auxiliary language Interlingua [W. Davis, "Babel Resolved," *Science* 126, 55 (1957)] and displayed it in the *tremendamente* readable article by F. F. Cleveland, "Communication in le Scientia" (page 64).

The article contains a number of words on which I should like to comment in the light of the claims made for Interlingua in the editorial, which boil down to the notion that it "can be read at sight by all who can read any Western European language."

*Column 1, lines 11 and 12:* Who besides Cleveland, the International Auxiliary Language Association, and the divinely inspired is going to understand *placiamento*? Even the faintly suggested English *placement* would be incongruous here.

*Column 1, line 18:* *Jornales*, here evidently used in the sense of "magazines," would be taken to mean "diaries" or "newspapers" by speakers of Romance languages. Semantic slippage of this sort is a common feature of Interlingua.

*Column 1, line 22:* *Valorabile*, apparently intended to mean "valuable," seems to be floating etymologically on nothing more solid than air, unless it be the rare Spanish *valorable*. It is not in the *Interlingua-English Dictionary*; this fact does not condemn the word, but it suggests that the composer in Interlingua may have his moments of mental torture.

*Column 1 line 24:* In what West European language does *tunc* occur, or anything remotely resembling it? Here is one thing, at least, that needs to be "studied and learned." It is immaterial whether or not one drags in the fact that it is taken from Latin.

*Column 2, line 1:* Where does the word *amonta* come from? Can it be English *amount*, pseudo-Romancified and tossed in the basket with the Latin first-declension feminines?

*Column 2, line 7:* The expression *facilitate de lectura* might well be interpreted by some over-relaxed English speaker as meaning "facility in lecturing" instead of "facility in reading."

*Column 2, line 8:* The idiom in *addition a* is completely foreign to the Romance languages. Unless Cleveland footnotes his Anglicisms, his Latin readers will have some things to study and learn.

*Column 2, lines 11 and 12:* In the expression *pro passar le examination*, two things call for comment. First, what is this dreadful word *examination* which is found in no language except English and is not listed in the *Interlingua-English Dictionary*? If a distinguished scientist who has been editing an Interlingua magazine since 1952 can still be the victim of such English mirages over his Interlingua landscape, what chance have the rest of us? Secondly, the word *passar* is semantically shaky here: does the phrase mean "pass an examination" like the equivalent English and Italian expressions (compare the Italian *passar ad un esame*), or does it merely mean "take an examination," like the French *passer un examen*?

*Column 2, lines 34 and 35:* The glib doctrine that Interlingua reads and writes itself has here tripped the writer over the word *singule*. His expression in *un singule lingua international* is evidently intended to mean "in a single [that is, one only] international language." The trouble is that neither the Latin *singulus* nor its derivative in any Romance language means "single" in the sense we are dealing with here.

*Column 2, line 35:* Cleveland has misspelled the word *preferabilemente*. The *Interlingua-English Dictionary* gives *preferibilemente*, which is required by the Interlingua principles of etymology. Was the text form a slip of the pen, or could the English *preferable* have beguiled the devotee of this painless auxiliary language?

*Column 3, line 5:* Where does the verb *maestrar* ("to master"?) come from? The closest thing on the Continent is French *maîtriser*, which is differently formed. Again, English dressed up in Romance feathers.

*Column 3, line 10:* When Cleveland writes *si multo* instead of *tanto*, his Latin colleagues have had it. But who can blame him? Interlinguists believe their language can be read without difficulty; they never claimed it could be read without exasperation.

*Column 3, line 18:* *Ingagiate*, according to the Interlingua dictionary, means "engaged" only in the sense of "employed, hired." Perhaps I mistake the writer's meaning, but I assume it is "occupied, busy." If so, another case of creeping Anglicism—none of the Continental cognates of *engage* has this meaning.

*Column 3, line 22:* Who will know *parve* ("small") except the Spaniard and the Latin scholar? (The Esperantist, by the way, doesn't have to know it.)

*Column 3, line 27:* *Recipientes* in the sense of English "recipients" will hardly do. The Interlingua dictionary, faithfully reflecting the usage of French, Italian, Spanish, and Portuguese, gives *recipiente* as a chemical term for a container and provides the distinct term *receptor* to represent the concept of a person receiving something.

It is hard to see how the writer in Interlingua can possibly keep faith with the spirit or the principles of the language. Having no firm rules of grammar or syntax, having no power to fix the meanings of words or to create new words, or to do anything apart from the welter and flux of the national languages—and, with all this, claiming to be a reliable and precise instrument for conveying scientific thought—Interlingua strikes me as a colossal rationalization. The notion that one does not have to *learn* a language, to master its disciplines, to bow to its caprices, seems to me an utter delusion. Perhaps one of these days we shall rediscover the solid virtues of a middle-ground auxiliary language such as Esperanto.

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For the past year I have been following with interest the spread of the use of Interlingua for summaries of papers in a growing number of journals in the medical field, and have wondered who might be promoting it among the publishers and editors—a rather ultraconservative group of individuals. It would be wonderful if the problem so succinctly restated by F. F. Cleveland [*Science* 126, 64 (1957)] could so easily be solved; I am not so sure it can.

Since I am by no means a linguist, I have no ready-made prejudices against a synthetic language, even such a bastard one as Interlingua. I should rather say that its justification lay in whether or not it really works—and at first glance Interlingua does seem to work, just as the advertisement on the editorial page promised it would. I have no doubt that any sampling of its readability among conventionally trained scientists would achieve a satisfyingly high score, at least in the presentation of summaries or news notes. I did not get the impression from Cleveland's account of his interesting experiment that the ultimate suitability of Interlingua as a precise, universal "scientific" language had been thoroughly demonstrated in connection with the actual texts of *technical papers*, but certainly his approach is a refreshing one.

But as I read his article, the heretical suspicion kept gnawing at me that if I had never had to sweat over my high-

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school Latin, if I had not majored in college German or had the minimum exposure to French with which to face the old-fashioned language requirements in graduate school, if I had not accidentally acquired a smattering of reading Spanish, and, most particularly, if my mother tongue were other than English, I could not have read more than a word or two here and there. I am quite sure this potential bias applies to Cleveland's entire test sample of scientific readers.

If, as has been suggested, scientific training programs should drop their language requirements, will not their future trainees have to "learn" Interlingua—less laboriously than they would learn French or German, perhaps, but learn it none the less—a language with no integral form, with a limited and makeshift vocabulary (apparently chosen simply as sops to half-a-dozen current languages), and with a basic syntax that actually requires a fair facility in English? If it should turn out that Swedish, Japanese, German, Russian, Hindi, or even English-speaking scientists require a basic facility in several languages in order to communicate precisely in Interlingua, then indeed we might have been hoaxed, and our energies might better have focused in the first place on the adoption, for international scientific use, of one of the modern languages—one in which precise communication *can* be effected and in which scientific literature can accurately be read by librarians, editors, and even laymen, as well as by scientists.

ALAN MATHER

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Watson Davis's article on "Babel Resolved" [*Science* 126, 55 (1957)] made interesting reading, even if not everybody would agree with every point of it. However, he touched only one out of four aspects of this problem.

For scientists, *babel* means difficulties (i) in reading foreign science abstracts; (ii) in reading foreign articles; (iii) in personal correspondence with foreign workers in the same field; and (iv) in oral discussions with foreigners at international conferences. International use of English has largely overcome some of these difficulties. We have, in Washington, services which translate abstracts directly into English without need for Interlingua. Most foreign scientists may not be expert in English but can at least write a decipherable letter in broken English. But at international conferences we keep meeting the Frenchman who does not understand your English question and who can answer it only in French after someone translates it for him, not to mention the American sci-

entist who feels ill at ease at a conference in Paris. Also, how many of us can read most of the foreign scientific literature easily enough to actually do so? Foreign articles and oral discussions in foreign languages are therefore our main problems.

Forrest F. Cleveland [*Science* 126, 64 (1957)] rightly says that translation of articles is not a satisfactory solution, if it is practicable at all. Where would we find all the translators it would require? A solution will be found only if and when we scientists all write originally in one and the same chosen language, and do the writing ourselves.

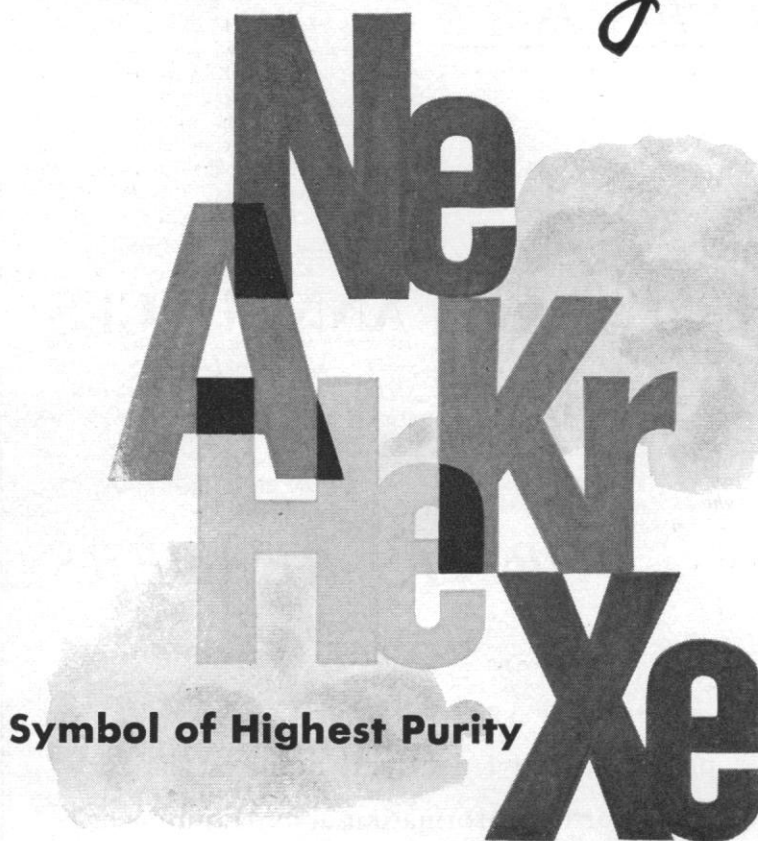
I agree with Watson Davis that if one knows enough other languages, then one can usually *guess* the meaning of a sentence in Interlingua or Esperanto after reading it two, three, or four times. The question of readability at sight, however, is rather irrelevant. Any language with an international vocabulary (there are several) is more or less easy to decipher. The main difficulty is not in the reading but in the writing, the speaking, the understanding of the spoken word. The greater regularity of Esperanto over Interlingua makes Esperanto greatly preferable. The confusion created by Interlingua's so-called "natural" accentuation of syllables (whatever that means) is sufficient to make a person understand why, at conferences, Interlingua (though admitted for written abstracts) has never found oral use even as a secondary language, contrary to the situation with respect to Esperanto, which is used every year by thousands at international congresses in which it is the only congressional language.

Esperantists don't claim that texts in Esperanto would be completely understandable to persons too lazy to learn even the simplest elements of the language (though, if you try it out for yourself, you may find Esperanto just about as easy as Interlingua). But we do claim that it is some five times easier to learn it for active use than it is to learn any national language. I was able to translate *into* it, faultlessly, from the daily newspaper after 18 hours of pleasantly easy study. (Since I already knew a couple of other languages, learned in highschool, some may be a bit slower.) To learn to *read* Esperanto requires much less time.

I admit that if right now we could make Esperanto internationally a required subject for all sixth-grade school children, it would yet take many years before they would start using it generally for international communication. But at that time they would like to find abstracts of older papers published in Esperanto rather than in Interlingua.

There was a time when German was *the* international language for physics and for some other branches of science.

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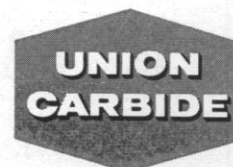
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## SEE PAGE 550 OF THIS ISSUE

Since 1933, English has taken its place. In this world nothing lasts forever. The present position of English will last an even shorter time if no funds and no legislation are available to get high-school children interested in science, as might be achieved if instruction were given by people who, by acquiring an M.S. or Ph.D. degree in the subject they teach, had shown that they are interested themselves and have, as background, an understanding of the epoch-making progress in science that is being made, to a degree not likely on the basis of undergraduate courses alone. If it is utopian to expect this, then I keep my fingers crossed for our English-speaking descendants and hope that the next change of international language will be a switch to Esperanto rather than to German, Russian, or what else. To achieve this in time, however, the Esperanto movement needs solid support now.

F. J. BELINFANTE

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Significantly, the "spread in the use of Interlingua" in scientific publications has been largely spontaneous. Many editors have felt a need for such a means of increasing the number of readers of their journals and of thus facilitating the advancement of their field of science. Upon seeing a sample of Interlingua, they have been impressed with its readability, have investigated its suitability for use in their journal, and have decided finally to use it for summaries or otherwise.

The contents of *Spectroscopia Molecular* have included not only "summaries" and "news notes" but also short technical articles and three technical monographs published in serial form before being collected into book form. Copies of the first monograph have been sold in 25 states of the United States and in 19 other countries, while the second has been sold in 15 states and in 9 other countries—despite the fact that the material was already available in the journal. It seems quite certain that this demand for the monographs, and for the quite technical issues of the journal, would not have existed unless the buyers had felt that Interlingua was a "precise, universal, and 'scientific' language."

Most persons, including scientists, will (and should) continue to have some knowledge of European languages as a part of their general educational and cultural background. The greater this knowledge the easier it will be to use Interlingua. But even if scientists must learn Interlingua from the very beginning, they will find that this requires less time than is needed to learn one of the national languages. Besides, it seems

quite improbable that any national language will approach universal usage. Much material is now published in English, but many cannot read English. For example, the recent UNESCO report [*Scientific and Technical Translating and Other Aspects of the Language Problem*, J. E. Holmstrom, Ed. (Columbia Univ. Press, New York, 1957), p. 13] says: "Nearly two-thirds of engineering literature appears in English, but more than two-thirds of the world's professional engineers cannot read English and a still larger proportion of English-reading engineers cannot read scientific literature in other languages. In other words, leaving qualitative differences aside, the greater part of what is published is inaccessible to most of those who could otherwise benefit from it."

The average scientist can probably read Interlingua at sight with 80 percent comprehension. Thus, material written in Interlingua is immediately useful to him, since much of his reading consists in scanning articles to see if they contain material of importance for his work. For articles which require 100 percent comprehension, or for writing in Interlingua, use of the dictionary and grammar will of course be necessary. [To test whether Esperanto would be equally readable and useful, the reader may compare the parallel texts in Interlingua and Esperanto in the *American Journal of Physics* [21, 471 (1953)] or in the UNESCO report (p. 200)].

To speak for myself, if a scientist who is by no means a linguist could first see a sample of Interlingua in February and begin editing and publishing a periodical the first issue of which appeared in May of the same year, despite a concurrent heavy schedule of teaching and research, it certainly cannot be too hard to learn to write in Interlingua.

The scientist is a busy person. If he has to take the time to study a new language, however simple, before it begins to be of use to him, he probably will not do it. But if there begins to appear literature of importance to him in a language he can largely comprehend at sight, he will probably scan it. And if by such scanning, and by use of the dictionary and grammar for careful reading of those articles that are of importance for his work, he is able gradually to perfect his comprehension while obtaining information that is of use to him, then it is possible that he may begin to appreciate the advantages of this common language. He may even finally begin to write and speak it in order to carry his ideas and results to a wider audience. Let us hope so. For if this were universally done, the gain to science would be substantial.

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Institute of Technology, Chicago

7 MARCH 1958



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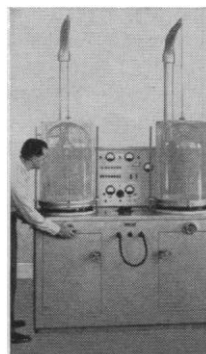
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