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Legibility Research Abstracts

To facilitate and stimulate international research into legibility problems, the Legibility Research Committee of the Association Typographique Internationale[1] will start publication in 1970 of *Legibility Research Abstracts*. Legibility research will be broadly interpreted to mean scientific research which has examined the effects of the physical characteristics of a visual message and of the reading conditions upon the response of the reader to the message.

Legibility Research Abstracts will report on nearly 100 journals published throughout the world on subjects ranging from physiology, psychology, and education to optics, printing technology, and graphic design. It will also report on legibility research sponsored by government departments or private firms and institutions. A short bibliography will list new books which add to knowledge of this subject.

The editor will be Jeremy J. Foster, who will welcome any suggestions for the operation of this service; letters should be sent to him at the School of Advanced Studies, Manchester College of Art and Design, All Saints, Manchester 15, England. Mr. Foster will work with a steering committee presided over by Bror Zachrisson, Stockholm, and comprising John Dreyfus, Herbert Spencer, and Alison Shaw, all of London, and Merald Wrolstad, Cleveland.

Initially, *Legibility Research Abstracts* will be circulated as a supplement to *The Journal of Typographic Research* without charge. Separate subscription arrangements will be introduced in 1971 for readers who wish to continue this service, and for new subscribers who do not take the Journal.

1. Creation of the ATYPI Legibility Research Committee was described in this Journal: II (July 1968), 271–278.

Comment: Voice, Print, and Culture

Walter J. Ong

Man communicates through all his senses, and in ways so complicated that even at this late day many, and perhaps most, of them have never been adequately described. But in some mysterious fashion, among all forms of communication—through touch, taste, smell, sight, or what have you—communication through sound is paramount. Words have a primacy over all other forms of communication. No matter how familiar we are with an object or a process, we do not feel that we have full mastery of it until we can verbalize it to others. And we do not enter into full communication with another person without speech.

Speech is essentially a spoken and heard phenomenon, a matter of voice and ear, an event in the world of sound. Words are sounds. Written words are substitutes for sound and are only marks on a surface until they are converted to sound again, either in the imagination or by actual vocalization.

We know this, but we find it almost impossible to grasp its full implications. The spoken word has become entangled with writing and print. When we talk about words, we are seldom sure whether we mean spoken words or written words or printed words or all of these simultaneously.

We have to make a supreme effort today to establish a sense of vocalization as such. And yet, if we lack this sense, we cannot understand the development of communications systems in any real depth. For this reason, to get to the roots of our condition today, we must indulge in a little history.

Communication leading to technological culture has passed through three more or less clearly defined stages in the media by which the word is transmitted. The first is the spoken or the voice-and-ear stage, when all verbal communication was simply oral. The second is the chirographic-typographic stage or script-and-print stage, which begins with writing, most particularly the alphabet, and reaches its fullest development with the invention of movable alphabetic type. The third is the electronic stage, in which we at present live.

If man has been on earth for 500,000 years—a pretty good working figure—he has been in the first or oral stage of the word for almost his entire existence. Writing is new: the first scripts date from only around 3,500 B.C., less than 6,000 years ago, and the alphabet (which was invented only once) from around 1500 B.C. Alphabetic type is about 500 years old. We entered the third or electronic age not much more than 100 years ago with the telegraph. These are tiny denominations in a 500,000-year history of mankind.

It is common to view these stages in terms of the accumulation and diffusion of knowledge. A purely verbal culture could not accumulate its experience effectively at the conscious level. Certain of the new inventions, most notably writing, print, and finally electronic computers, make it possible to record knowledge, to "save" it. These same inventions as well as others, too, have implemented diffusion. In this view, our communications system is different from that of primitive man and better than his because we have a greater quantity of knowledge and can convey it more easily to a larger number of persons.

This is true, but such a view provides only a superficial understanding of the development of communications media. We know now that when changes in the media take place, the psychological structures or personality structures in a culture also change. Oral cultures are traditional and tribal. In them, knowledge develops slowly. Oral cultures must invest their efforts not in development of new knowledge but in retaining what knowledge is had. Without written records, knowledge threatens constantly to slip away. Words are always thought of as fleeting, vanishing—Homer calls them "winged words"—for they are thought of only as sounds, which of course is what words really are.

In an oral culture, there is no way to look up anything, when any-

one was born or died, when a battle was fought, who won the battle, who is descended from whom. All one can do is ask someone, and if he does not know, someone else. Knowledge would go out of existence if bards did not constantly sing about it and if the people did not constantly pass around by word of mouth what they know. Proverbs and memory formulas are used by everyone. Thinking means speaking and listening to others speak. The result is a certain kind of personality structure, highly communal, externalized in a way, and conservative. Oral cultures have few if any original thinkers or discoverers. Everyone's thought must develop more or less with that of others. No one can get ahead of the tribe.

Writing, and particularly alphabetic writing, alters all this. Writing gradually changes man from a traditionalist, dominated by communal forces, to a more interiorly driven, reflective, and analytic individual. In an oral culture, the only way to "study" was to listen to someone who could talk. In a chirographic or writing culture, a manuscript culture, one could study all alone without any sound at all, with only a book. In this setting, individuals began to "think for themselves," and eventually original discoverers were developed—Aristotle, Duns Scotus, Galileo, Einstein, and all the others who learned by reading as well as by hearing.

But change was slow. Oral habits lingered long after the invention of writing. The ancient Greeks and Romans wrote a good deal, but they retained as their cultural ideal the orator or public speaker. Cicero spoke his orations first and wrote them afterwards. Into the Middle Ages, reading was commonly done aloud, even when one was reading to oneself. Although medieval universities used a great deal of writing in taking notes and preparing lectures, they did not use writing to test knowledge. Testing was done in an oral disputation or other oral trial. But if they were strongly oral still, the Middle Ages were also far more chirographic than classical antiquity, for their educational system had become largely a commentary on written books.

The aloneness of reading withdrew man from the world of sound into a world of silent space. Words remained indirectly sounds—one had to imagine what the words sounded like to understand reading but, deployed on the written page, writing itself made no noise. Withdrawal into the world of silent space was reinforced by the most

remarkable writing system of all, the alphabet, the strange script which was so hard to invent that it was invented only once. There are many different non-alphabetic systems of writing, or scripts, often of independent origin. But there is only one alphabet. All the alphabets in the world are in fact adaptations of the original alphabet which appeared among the Semitic peoples around 1500 B.C. The alphabet undertakes to convert sound into space. Sound itself is not only perishable but always actually perishing. Sound exists only when it is going out of existence. When I pronounce the word "existence," by the time I get to the "-tence" the "exis-" is gone, and has to be gone. I can not stop a sound and still have a sound, as I might stop a moving picture projector and have a still picture on the screen. If I stop sound, all I have is its opposite, silence. The alphabet pretends that things are otherwise, that a word is present all at once. It pretends that a word can be chopped up into little pieces maneuverable in space. The letters in a word can even be written backwards and pronounced forwards. The alphabet seems to make sound independent of the one-directional movement of time.

The invention of the alphabet letterpress printing in mid-fifteenth century Europe is simply an extension or intensification of the invention of the alphabet itself. Alphabetic type commits the word to space even more than writing does. Writing makes words by creating marks on surfaces. Alphabetic print makes words out of pre-existing things—types, which are stored like nails or bricks in boxes—and made up into forms as bricks are made into houses.

The emergence of alphabetic typography was associated with a great intensification of spatial awareness in the European culture where alphabetic typography developed. The fifteenth and subsequent centuries mark the age of full linear perspective in painting, of maps and the concomitant sense of the earth's surface as a spatial expanse to be covered by exploration, of Copernican cosmology and Newtonian physics, which plotted the universe with charts more than ever before and reduced the old nature philosophy in the physical sciences to ineffectiveness. It was the age which made an issue of observation—that is, of the application of sight, exalting this one sense above all the others.

After the development of print in the mid-1400's, it took several hundred years for the invention to have its full effect in deadening the

original sound world where the word has its natural habitat. By the mid-1800's, the effect of typography was at its maximum. The old verbal culture had been highly personal, non-analytic, dramatic, oratorical, full of hostilities, some natural and others cultivated. The newer chirographic culture, matured by typography, and at long last relatively victorious, to a significant degree depersonalized the world, made "objectivity" an unquestionable ideal.

But twentieth-century man has to a degree left the "objective" world of space once more for new ventures in sound. Electronic communication has realigned the worlds of sound and sight and has brought the former into new prominence. Communication by letter and print is now supplemented and in many areas overwhelmed by the telegraph, telephone, radio, and television, which give sound a new ascendancy. We even catch fish by sonar. Significantly, the physical operations central to all these media, the movements of electrons, lie outside the range of sight.

The new electronic media have changed psychological structures once more. We are living not merely with more information but with information in a different state. Unlike earlier man, we are in constant touch with what is going on everywhere. We live in a world of global happenings. Books give access to what has already happened or else to abstractions and fixed truths. They do not give access to what is going on. Electronic media do. The man in touch with actuality today has constantly running through his head current happenings in Washington, Paris, Moscow, Rome, St. Louis, and any number of other places. All cultures are present within us today simultaneously—if they are not, we are to that extent today unrealized human beings. But our attention is caught not merely in all corners of space . . . it is likewise focused through time in ways unknown to earlier man. We know more history than any earlier age. We are still interiorized by writing. But in the interiorized consciousness of each one of us now, the whole world is jumping. Under such conditions, psychological structures have changed again.

A good deal of talk about the successive stages in the history of communications media suggests that each new stage wipes out the preceding ones. Nothing could be farther from the truth. In fact, a new stage often reinforces preceding ones at the very time it changes their significance by interacting with them. When man began to

write, he did not stop speaking. Writing developed first in urban centers, where more talking was doubtless going on than in rural areas. By facilitating communication, writing doubtless further encouraged talking, for the classical addiction to oratory developed after writing in these same urban centers. But if speech was reinforced, at the same time it was no longer what it had been because, first, it no longer monopolized the field of verbal communication and, secondly, because it was now able to achieve a new kind of permanence in script. Gradually, speech began to be colored by modes of expression which could be worked out at first only in writing. The new medium did not wipe out the old but reinforced it and altered it at the same time.

Similarly, the invention of typography reinforced and altered writing. It reinforced writing by making universal literacy urgent as it had never been in a purely chirographic culture. It altered writing because writing no longer monopolized the field of visually stored verbal expression and because the new kind of commitment to space made indexing and other visual means of retrieval feasible on a scale which changed the sort of things being written about. Tabulation and "fact" finding and storage, for example, are favored by print. Writing and thinking for print produces different styles from writing and thinking for chirographic reproduction.

Now that we have entered the age of secondary electronic orality we can observe a certain reinforcement and transformation of print. First it is becoming increasingly imperative that a person be able to typewrite—that is to do a special kind of printing. Secondly, all of the products of our electronic age are not oral, for electronics have already given quite new forms to printing itself: one of the most typical products of the computer is, in fact, called a print-out. And those in touch with present developments assure us that ordinary typography is about to enter upon a new age more electronically controlled than ever before.

Nevertheless, there is some reason for the urge to overstate the effects of new media of communication by pretending that the new media simply wipe out those preceding them. The reason is that most persons consider a new medium to be simply added to the old, vastly underestimating the transformation of old media which the new bring about. Each of the successive new media discussed here inter-

acts so vigorously with what went before that the effects of the earlier media are drastically reconstituted. When new media change psychological structures, the older media themselves operate in new ways.

Much of the malaise in society today, both in the developing countries and in more fully technologized ones, is due to the unfamiliar pressures set up by the new psychological structures. Our problem is understanding these pressures. This means that we must direct massive scholarly effort not only to the present but also to the past, for the problems of modern man are the problems of adjusting the past which is within him with the present which is also there and with the future which promises to be.

Walter J. Ong, S.J., professor of English at Saint Louis University (St. Louis, Mo. 63103), is known as a scholar in both the renaissance field and the field of contemporary culture. His latest book, *The Presence of the Word*, is an historical study of the development of verbal communication from oral cultures through writing and print to electronics. Dr. Ong has lectured widely and is the author of numerous articles in literary and scholarly periodicals.

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