

COMMENCEMENT ADDRESS AT HUNTER COLLEGE: 25 JANUARY 1970

Computer-Assisted Instruction in the Humanities

Mr. President, Ladies and Gentlemen:

It is a great honor and a real pleasure for me to be here today to speak to the January 1970 graduates of Hunter College, to their Faculty and Administrators, their parents, and their friends. What gives the occasion particular poignancy to me, and I am sure to all friends of Hunter, is the fact that this Commencement falls in the year in which Hunter is celebrating its centennial. I regard with some satisfaction the circumstance that I was actively engaged here at Hunter for more than a third--for 35/100, to be exact--of the century which separates 1870 from 1970.

Hunter College has been devoted, for the greater part of that century, to two main lines of endeavor--to the advancement and dissemination of the liberal arts; this goal involves all its students; and to fostering advancement in the art of teaching for many, if not most of them. I have therefore chosen to speak on the application of new methods of learning and of teaching to a sector of the liberal arts which is in danger of lagging behind the sciences and the social sciences as Hunter College goes forward into its second century.

I refer, as you have seen from the title of this address, to the study and teaching of the humanities.



By the term "humanities" I mean the results of literary and artistic creation which have survived the passing centuries and have come down to us as an acknowledged part of our cultural heritage. Now if you are expecting from me any laudation of the value of the humanities in our education, you are doomed to disappointment. Nothing can be more tiresome than to hear a classicist, his very eyeglasses, as Stephen Leacock says, glittering with excitement, hold forth with scarcely less glittering generalities on the value of the humanities. Leacock tells of a bishop who came to McGill to orate on this topic. He concluded, "I think I may say, gentlemen, that the study of the Classics has made me the man I am today." Leacock remarks, "We thought so too, but we should have been too polite to mention it!" No; I shall take the value of the Classics, as of the humanities in general, for granted, and go on to speak of the transition through which the humanities have gone in the last <sup>half</sup> ~~century~~ of Hunter's century.

This transition is a change from a situation in which the humanities were the universally-accepted core of education for all those who went beyond the most elementary stages of learning, to one in which the humanities must compete for the student's attention with complex and varied bodies of thought and knowledge in the fields of natural and social science.

Now when the humanities were central to the curriculum in the Western world's secondary and higher education, by that very fact they provided a basis for communication and common understanding for educated men throughout the Western lands. They provided a frame of reference which could be used, and was used, with sureness, and with the certainty of



understanding, by the relatively small number of men in previous centuries who had occasion to communicate on intellectual and abstract subjects.

**No man in his right mind would, on an occasion such as this,**

waste his own or his hearers' time in fruitless nostalgia for a bygone substructure of communication, however civilizing and useful it may have been. What he will try to do instead is two things: (1) he will look toward the means of conserving and communicating the values of the humanities for the participants in our present-day culture, and (2) he will address himself to the task of preserving, and, to the extent possible, of strengthening, existing modes of intellectual and abstract communication in a manner that is practicable and suitable for our own times. **He will attempt to use contemporary techniques in an effort to innovate.**

**Now it is obvious that** no innovation<sup>is</sup> involved in the basic idea of conserving and communicating the values of the humanities in the setting of each succeeding generation. That is what the teachers of literature have done since the Greeks began to learn Homer as their basic text. Each generation of teachers of the humanities must itself learn the heritage of the past. This of necessity involves a close study of language: either of a foreign language, as the Romans learned Greek, the Italians Greek and Latin, or of an earlier stage of one's own language, as the Greeks of Plato's time learned the language of Homer, or as our teachers of English learn the language of Chaucer, of Spenser, of Shakespeare.



Now it is in the learning of foreign languages that a wide field for innovation opens before us. It was my personal privilege to be involved, some twenty-~~two~~<sup>five</sup> years ago, in the innovative efforts of American linguists in the area of language learning. As a student in the Military Intelligence Chinese Language School at Yale, I experienced at first hand what was then a startling innovation, but has now become fairly commonplace: the substitution of pattern-practice, based upon structural linguistic analysis, for the centuries-old grammar-translation method of teaching and learning languages. Sound-scribers and wire-recorders--for the tape-recorder had yet to become common--were the hardware for our lessons; software was a set of new text-books with pattern-practice in the structure of the target language. Both hardware and software were, in retrospect, primitive, so far have we advanced in ~~less than~~ a quarter-century. But they worked surprisingly well. Some of us, who applied ourselves with diligence and energy, learned more Chinese in four months of intensive work than we had learned French in eight years of conventional courses.

That, I say, was a mere beginning. The fairly recent introduction of systematic programming for the former almost random efforts at assessment and correction, and, what is more important, the use of computer-assisted instruction for aiding, evaluating, and encouraging the individual progress of each student, bid fair to result in as much improvement over the work of the forties and the fifties as these represented an advance over the long centuries which preceded.



Well, then, there is the innovative aspect of the learning of foreign languages, which I merely report, and to which I judge that I have nothing to add. I am less certain

about

the application of these innovative methods to the learning of the earlier stages of one's own language. I should like to find out to what extent our own advanced students of Chaucer, of Spenser, or even of Shakespeare are learning the language-patterns of these great authors in the manner I have described for foreign languages. You will not be at all shocked by my mention of Chaucer and Spenser--but Shakespeare? Does the student of Shakespeare need pattern-practice? Perhaps not to understand the general gist (whatever that is) of what the Bard had to say--but for a deep, thorough grasp of Shakespeare's meaning, I warmly suggest that a course in Elizabethan English would be a tremendous help, both for vocabulary, and more importantly, for language structure. And wherever there is to be a course in language, I hold firm to the conviction that a programmed course, based on structural linguistic analysis and facilitated by computer-assisted instruction, is a promising method for rapid and thorough learning.

So much, for the moment, for language, though we shall return to it in the second section of my address. But language, however much it may be the medium of literature, is not, I insist, the substance of it. Here

**I know I am in conflict with my former colleague at Fordham, Professor Marshall McLuhan. For I**



distinguish most clearly between the medium and the message--even between the medium and the message, if we accept his half-jesting physio-therapeutic analogy.

He who would communicate to the young the messages of our humanistic heritage must of course first receive them himself, from senders who in turn have been the recipients of transmittals in the generation before them. To put it more prosaically, our teachers of English literature, of modern foreign or of classical literature, whether, as far as the two latter are concerned, in the original or in translations, must themselves have learned two important things: the place of a given masterpiece in the culture from which it sprung, and its pertinence to the culture of the present.

Let us take the first of these first. The communicator of the humanities must learn to understand them in the context of their own culture. Hence our specialized courses in literature for those who are to teach it.

What about innovation here, in the non-linguistic aspect of literary studies? Can anything about literature be programmed and computerized? Can a feeling for Keats's Ode on a Grecian Urn be reduced to a pre-determined set of questions and answers, with a computer ready to administer the carrot of approval or the stick of rejection to the advancing neophyte? I think not, and I am not even suggesting that it be tried. What I do



think can be done and should be done is to reduce to a program all the peripheral facts about the authors and masterpieces of our humanistic heritage, and to have the student learn and converse about these with a computer, in his own time and at his own speed. The historical facts about Shakespeare's age, the size, shape, and location of the Globe Theater, our scanty knowledge and scholars' plentiful conjectures about Shakespeare's parentage, profession, love-life, earnings, and the like, should probably be known if one is to appreciate his comedies and tragedies to the fullest extent; surely they must be known by one who is to teach the plays. So must the well-worn and accepted lines of Shakespearean criticism, if only so that the scholar-teacher may be conscious of what he is doing when he departs from them. But does this mean that these items must take up precious minutes of students' and teachers' time when class and instructor are in direct, living contact? I think not.

"What songs the Sirens sang," says Sir Thomas Browne in his Urn Burial, "or what name Achilles assumed when he hid himself among women, though puzzling questions..." and, one may add, the sort of literary trivialities that desecrate the air-waves for the College Bowl contests, do not belong to the main effort of the humanistic learning process, whatever other merit they may have. This main effort should be devoted to the fresh understanding of the masterpieces, first in their own terms, and then with relevance to the present. All this means, to put a "second" to my



"first" of a few moments ago, that the communicator of the humanities must himself be aware of the world in which his students live, so that he may relate the masterpieces of the past to the interests and problems of the present. This means a good grounding for the humanist in social studies. I, for one, approached this by a most non-computerized route, by marriage to an anthropologist: **an anthropologist who, I may add, is a Hunter graduate.** I cannot, if I am to be severely practical, recommend this as a general practice: there simply aren't enough **Hunter** anthropologists to go 'round. To what extent innovation is appropriate to the learning of social studies is a question which is as far removed from my professorial competence as it is from the topic of my talk, and I shall let it drop here.

I have spoken of innovations in the learning processes of the communicators of our humanistic heritage. What I have said can, perhaps to a lesser extent, be applied to the process of communication itself. All that our high-school and beginning college students need to learn about literature--as distinguished from the intrinsic meaning and values of literature itself--should, in my view, be reduced to programs and administered by computers. Thus the teacher would be free to stimulate and to respond to the thoughts of his students in face-to-face contact, once the print-out of the computers had assured him that the young people know that Boswell was Sam Johnson's biographer, not Ben Jonson's, that Balboa and not Cortez first viewed the Pacific with a wild surmise, that Keats greatly admired Chapman's Homer, but that his enthusiasm is not shared by modern critics, and the like. In addition, the tools, as contrasted



with the fabric, of literary criticism, can be programmed, I am sure. ✓  
Any self-respecting computer can be taught to distinguish between a metaphor and a simile, to applaud the student who has also learned to do so, and to chide the one who has not, while encouraging the faltering steps of the learner who is on his way to internalizing this crucial distinction. With the technicalities really out of the way, a truly sensitive discussion of the effect of one or the other of these figures of speech in a fine poem can be meaningful and rewarding to learner and teacher alike. Otherwise, in a pedagogical analog to Gresham's Law, the base coinage of the factual, the technical, the readily examinable, will drive out of circulation the pure gold of thought, of imagination, of creation on both sides of the desk. The great innovation which we call the Industrial Revolution has transferred to machines much of what, until its advent, men thought had to be done by man alone; what we are here discussing is an extension of that memorable revolution.

These are my thoughts on what innovations can be made in the learning and teaching of the humanities.

You will perhaps recall that I set a second innovative task for the forward-looking humanist--the task of preserving, and to the extent



possible, of strengthening existing modes of intellectual and abstract communication in a manner that is practicable and suitable for our times. I refer now to communication in our own native tongue, English. Now every native speaker of English who is of normal intelligence, by the time he is in his teens, if not long before, has learned to communicate and to receive communications well enough at the practical level of every-day affairs. This is not to say that every young person who can participate in communication satisfactorily at the every-day level can function acceptably on the level of more formal standard English. The phenomenon of the poor reader, the poor writer, the poor speaker at the formal level who is entirely able to communicate in colloquial speech is too well known to all of us to require more than mere mention here. Of students of this type, H. A. Gleason, Jr., in his Linguistics and English Grammar (Holt, Rinehart, and Winston, 1965), has this to say (this is a book to which, I gratefully acknowledge, I am deeply indebted): "We have . . . very largely failed to cope adequately with the reading [and, I should add, with the speaking and writing] difficulties of the group not poor enough to warrant remedial work . . . . Their language abilities are rooted in colloquial speech where patterns are comparatively simple, language redundancy is high and generally supplemented by situational redundancy. A rather crude order of skill is sufficient to find meanings with adequate accuracy."



I should like to supplement what Gleason says by adding a conjecture of my own--that the sales-promotional patterns of the mass media have led to a greater expectation of simplicity of construction, of redundancy, and of repetition, than existed before their enormous spread. They have therefore led to a greater dependence on simplicity, redundancy, and repetition, and to a greater sense of unease when these are lacking. The other day, during a commercial which interrupted a news-broadcast, I heard the interesting intelligence that "Bobo's Floor Wax can be washed with detergents." This was repeated twice, each time visually illustrated by a veritable Noah's flood of detergents inundating the Bobo-shining floor. Then a woman was seen and heard to proclaim this evangel to her neighbor: "Bobo's Floor Wax can be washed with detergents!" The neighbor, visibly torn between shocked incredulity and a dawning sense of euphoria, repeated in a different intonation: "Bobo's Floor Wax can be washed with detergents?" To her immense relief, the Billy Graham of the bubbles replied, firmly and joyously, "Bobo's Floor Wax can be washed with detergents!" And again the deluge of suds poured over the shining pavement. Thus was redundancy supplemented by inundation.

What of all of this? It is a fact of life, and, as far as I can see, an irreversible one. The maintenance of our gross national product and of full employment apparently require promotion of this sort. But we must be



prepared to cope with the consequences of the process. The receivers of these countless messages come to believe that if anyone wants to transmit anything to him, he must do it simply, briefly, and repetitively, with dialogue if possible. Anything else is tricky, is complicated, is incomprehensible double-talk. I speak here not theoretically, but from experience. **Three years ago, the City University, of which Hunter is a part, where I was serving** <sup>^</sup> as Vice-Chancellor, had made some rather special arrangements for transferring a group of students who, because of emergency conditions, had had to spend the first year of their college careers in temporary City University College Centers. The better students were to go to our senior colleges, the others to the community colleges, unless they were dropped for poor scholarship. The Chancellor and I had drawn up a statement, which seemed to us clear and unambiguous, of the conditions under which students would be transferred to the one or the other type of college. Our office was inundated--another Noah's flood--with inquiries from student groups as to the exact meaning of our pronouncement. Finally, it seemed best for me to call a meeting of student representatives from each of the five centers. We hammered out, in a two-and-a-half-hour session, a veritable catechism of questions and answers to clarify in suitably simple, redundant, and repetitious terms each separate aspect of the projected procedure. There was no doubt in my mind or in the minds of the members of the staff who sat with me during this talkathon, that the students were entirely sincere in their



puzzlement. They were simply unable to derive from the terse, non-redundant, rather formal style of our announcement the assurances that were contained therein.

My wife informs me that she has similar difficulties in phrasing directions for the answering of examination questions in her college courses in Anthropology in such a way that their meaning will be clear and unquestionable in the minds of the students. "Answer three questions from each of two groups selected from among those given below" is too spare for the comprehension of many of them, college sophomores and juniors though they be.

To quote Gleason again, as he deals with modern formal prose: "The central parts of the grammatical system are much the same as those the student already knows well. Trouble stems from structural intricacies involving more elaborate combinations of familiar patterns, from more frequent use of patterns rare in speech, and from additional patterns which are probably unfamiliar."

The usual manner in which our schools have tried to cope with the situation which Gleason describes is through the teaching of grammar. Rules of grammar, often, to be sure, illustrated by copious examples, are taught, and exercises are built around them. But except for the fact that we are here dealing, not with a foreign language, but with a separate stratum of the student's native tongue, this procedure dif-



fers little from the grammar-translation method now happily on its way out in our teaching of foreign languages. There, the newer methods stress the learning of patterns through practice in transformations, in filling blanks, in answering in the target language questions based on comprehension of sentences employing the patterns under study, and the like--techniques well-adapted to programming and to computer-assisted instruction. This is all going on in the teaching of foreign languages--of modern tongues, and surprisingly enough, of Latin. But what of English? Alfred S. Hayes, Director of the Center for Applied Linguistics in Washington, D. C., a friend to whose advice on this topic I am deeply indebted, is quite caustic on the subject. He writes: "The teaching of English to native Americans is still largely based upon medieval notions. We want it to be well taught, but the subject matter has not been sharply defined, there are therefore widely divergent views on how it should be taught. . . . By and large, we have let the teaching of English fall far behind the times, as if we were to tolerate the teaching of alchemy and astrology in our schools instead of modern chemistry and astronomy." If we are to believe Mr. Hayes, and he is a great expert in this field, here is surely a fertile ground for innovation.

It is perhaps clear by now what the nature of my proposal for innovation will be. I suggest that we employ pattern-practice, based upon structural linguistic analysis of formal English, as a method of



teaching that level of English just as if it were (as it almost is to some native speakers of English), a foreign language, or at least a second language.

Let us return to Gleason. I must make it clear that neither he nor Hayes puts forth the suggestion I have just made, though Gleason, like Hayes, does <sup>most</sup> ~~not~~ decidedly recognize the existence and pressing nature of the problem with which my proposed innovation is intended to deal.

Gleason says, and I expect no one here to disagree, "The grammar taught in school has been of very little help in these problems." He goes on, "It deals almost exclusively with patterns with which the student will have little trouble." In a footnote he adds, "There are, of course, some students who do have trouble with some of the central patterns normally included in the grammar syllabus. The majority do not have any RECEPTIVE difficulty, though they may not use these patterns actively." In the main text he continues: "To be useful, it [the new grammar] must be extended outward from the central features of the system to the constructions over which the student has inadequate receptive control. What is needed, then, is a grammar that penetrates more deeply into its traditional subject matter, the structure of sentences, so that it can be helpful with the more unusual patterns." To summarize the rest of his presentation: He calls attention to the importance of transitions used in the tight structure



of high quality prose, and to the difference between the transitions used in good literary English and those common in good colloquial English. To quote again, finally, "Readers not accustomed to this kind of language have real and troublesome problems here, and this is a place where they need help."

Help in the form of a painstaking analysis of English structure Gleason does indeed give, and his bibliography calls attention to other analyses that have been made recently. This is, of course, only the groundwork for the kind of innovation I have proposed this morning.

If the idea I have proposed in this latter part of my talk should be deemed worthy of action,

then an enormously difficult, complex, and time-consuming task lies ahead. A group of scholars (for this would have to be a joint effort) would have to agree upon a structural analysis of formal English prose as a basis. Then they would have to select the patterns to be stressed in instruction at various grade levels. These scholars would have to use models selected--an unenviable task--from the vast corpus of contemporary English writings. The arrangement of all this material so that it could be programmed, and made the basis of computer-assisted instruction, would be another Herculean labor--but the way of the innovator is hard!

If some such system as that which I suggest could indeed be put into practice, we might conceivably see a reversal of the trend which



makes the teaching of college Freshman Composition unconstitutional, in the sense that our fundamental code of laws forbids the infliction of "cruel and unusual punishments." That "Freshman Comp." falls into this category for a vast number of college instructors of English is known to all their colleagues, nor do the students dissent from this stern judgment. The reason for the torture is clear: The instructors know the patterns of expository and narrative English prose; the students, by and large, do not. The instructors have learned these patterns over years of close study and practice, being by self-selection devoted to these matters; the students have diverse and varied interests, and only a small number of them include among these interests a mastery of the features of formal English prose style. But if a course of instruction beginning in the elementary school, as does the FLES program now for foreign languages, were to lead them by slow and graded stages to a real mastery of that second language which forms a separate stratum of their native tongue, the need for a separate course in expository English composition might effectually be eliminated, and the energies now consumed in the correction of basic grammatical and stylistic errors might be turned to higher and to better things.

I have treated my two proposals as separate; in a sense the two are complementary. If students could be brought, by an innovative treatment of the patterns of formal English prose, to a point of greater



receptivity of formal, stylized language in general, they could perhaps more easily be led to an understanding both of masterpieces originally written in English, and of those translated into English from foreign languages. If, by the full use of newly-developed methods, students were to come into closer and more meaningful contact with the masterpieces of the humanistic tradition, their resistance to the learning of the patterns of formal English prose might be lessened. Thus, in this period of transition, we might see a new and widespread renaissance of humanistic studies, joining linguistic with literary interests, as was done by our predecessors in that other great period of transition, that is, by the men of the European Renaissance.

I know of no place more suitable for the introduction of such innovations than Hunter College as it enters upon its second century, and I commend my thought, to the Faculty and to those graduates who, continuing their education, will be concerned <sup>with</sup> ~~in~~ changes in the traditional modes of study.

Thank you.