PERSPECTIVE UPON EDUCATION

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Perspective upon Education

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IT IS one of the tragedies of human life that in the midst of battle men think they understand the issues for which they are fighting. An interesting book by Dr. Cabot was entitled *What Men Live By*. Some one should press further the observation of Antoine de Saint-Exupéry in *Wind, Sand and Stars* on what men die for. All too often men have laid down their lives for false issues, because the heat of battle generates its own issues and so confuses perspective that when the war is over, even a victorious war, the peace seldom conforms to the original objectives. It deals instead with new issues which have arisen out of the conflict itself. The longer the war is carried on, the more perspective is obscured. Victory becomes an end in itself instead of an instrument, and the cessation of fighting seems a good in itself rather than an opportunity so to organize our lives as to avoid fighting again. It is significant that we celebrate Armistice Day, but no one pays the slightest attention to the day when peace was proclaimed. Perhaps that is why the "peace" proved to be only an armistice after all.

Since the last World War there has been a stream of self-justifying memoirs published by those who held conspicuous, if not decisive, positions. They have some value, but almost inevitably they are egocentric and seek to create or to solidify some myth regarding a particular individual. When all such books have been read, one realizes that the actions of the authors in wartime are more revealing than their apologetics are convincing. There has been another stream of books of which Ernest Hemingway's *Farewell to Arms*, Remarque's *All Quiet on the Western Front*, Zweig's *The Case of Sergeant Grischa*, and Anderson and Stalling's *What Price Glory* are typical. These books are not explanations but denunciations, underlining the point that desperate as were the en-
counters, bloody and terrifying as was the fighting, so far as achieving the original objectives was concerned, it was a sham—not a sham in the movie sense, wherein men mowed down by machine guns leap up at the call of the director to be mowed down again in a better light, but sham in the sense that the war was actually about other things than those which precipitated it.

The current world situation makes this an appropriate moment to suggest that there is something to be learned from war experience in connection with our educational battles. As it is in the war with mechanized weapons, so is it also in the battles fought with those yet sharper instruments—words. As debate proceeds, one disputant often allows himself to be diverted in order to meet his opponent's arguments, even when they are bad. Slowly but almost inevitably each of the antagonists takes a new position, not in response to his own positive and constructive thought or even by conscious choice, but in the effort to defeat his adversary's reasoning. The new ground is frequently chosen upon negative considerations and without reference to any positive educational philosophy. Indeed, before they are through the verbal combatants not infrequently have exchanged positions.

Certainly educational factions have fought a war—at least in the headlines. The functionalist, the vocationalist, the instrumentalist, the pseudo-democrats who were regimented, the pseudo-liberals who would put us into a mold, and the pseudo-conservatives who are more radical than any others, have all made, not the nights alone, but the days, hideous with their outrages against each other in the public press. Reading these discussions might lead one to suppose that confusion in higher education is so hopeless that there are no generally accepted objectives at all.

It has always been clear that those who asserted, "We are the people, and wisdom will die with us," were able to show suspiciously small erosion of their thresholds. One highly publicized plan after another has thrived in the press and languished in the classroom. Sometimes, perhaps, it has
been because prophets are not without honor save in their own country; more often it has been simply the inevitable reaction to a false alarm—much running to the scene by the curious but a waning of interest when not even smoke was perceptible. The students who came to the well-advertised institution were not those described in the prospectus. One of the most widely discussed of the experimental colleges desired the ordinary student, or as the president expressed it, "the run of the mine." But its program appealed to the adventurous, and during its brief existence it never could capture enough "ordinary" students to validate its theory. Among all its revelations, the Pennsylvania Study showed one thing with perfect clarity. In some manner, the mechanics of which we do not understand, each college tends to get the kind of students it really wants and deserves—not necessarily those it describes. This suggests we should look behind the slogans and war cries for the realities in the educational world.

That is what I want to do tonight. Let us consider the implications of the testing movement; I believe it will reveal the relative unimportance of the clash of words in the educational battle, and it may indicate the substantial nature of our common educational objectives.

At the outset let us look at what is, in a sense, the keystone of the modern testing program, the scholastic aptitude test. Twenty years ago men had little hesitation in speaking of intelligence tests and intelligence quotients. Intelligence was regarded as a native endowment, subject to development or determination through biological and psychological forces largely beyond our control, but in any event not subject to profound change by the academic process. We were dealing with an abstraction which represented some reality which we could measure, if not directly, at least by reflection, just as one "sees" a proton by its path of condensate in a cloud chamber.

It is of the first importance that we are now using more widely tests which are called "scholastic aptitude tests." We hesitate to use a single number as an index of intelligence; such an oversimplified figure has been succeeded in practice
by a graph, or "profile." There is lively skepticism as to the fixed or established nature of intellectual potentialities and as to the nature of the influences by which their growth, if any, is controlled. Whether apparent growth is determined more by heredity and other biological factors, or more by experience and learning is yet to be finally demonstrated. However, everyone recognizes that the scholastic aptitude test provides, in the main, an index of achievements and habits rather than a measure of native and fixed endowment. Both achievement and habit are governed by factors so multifarious and so complex that they still defy full analysis. Nevertheless, among those factors the will to learn is exceedingly important, and the will appears not to be conditioned exclusively by biological or even by environmental influences, but by other forces both varied and powerful. If science is not in accord with the old theological doctrine of the free will, it is much closer to it than twenty years ago.

The important conclusion is that experience with intelligence testing has served to restore our faith in the educability of the individual. If a boy's intelligence were fixed and limited at (or almost from) birth, all the schools could do would be to train him. But if there is still plasticity and opportunity for growth and change by academic measures, then one may speak with more confidence of that which is broader and more subtle than training, education itself.

It is fair to say, therefore, that the war about "education" versus "training" was, in many respects, a sham battle. So generally is that now conceded that many former advocates of training are ardent proponents of general education. The change in front was hastened by the impact of technology which made men perhaps unduly conscious of the instability of employment for which specific training is available. It was facilitated by the overthrow of the presupposition of "peace in our time." Under such circumstances the student as a person capable of repeated "re-education," both as a worker and as a citizen in an age of transition, engages fresh attention. But central in the change in front is the fact that the
very sort of test which was once supposed to have limited the function of the schools to training is now seen to have refreshed our vision and expanded our opportunities for education.

The current phrase "general education" gives us a clue to a second sham battle in which many good men and true have been lost. Our grandfathers had no doubt whatever that a man could acquire a liberal education; he could gain an historical understanding of man's experiences, some philosophical grasp of their significance, and the power effectively to reason from those experiences in the solution of current problems. He could acquire a "frame of reference" and relate fresh experience to that, both the experience of his daily occupation, and also the broader experiences of art and music, of appreciation as well as thought. Any man who had acquired that understanding, that frame of reference, was a man of culture.

So firmly was this idea embedded in the American mind that it was long supposed to be the explanation of the skill with which amateurs in political philosophy framed the Constitution of the United States. That document was thought to be the product of reasoning from experience, both vicarious and personal, in an extraordinarily effective way. It was, in short, often used as an illustration of what cultivated men could achieve. Two major influences arose, however, and obscured for a time the whole concept of culture. First, Karl Marx gave currency to the theory of economic determinism; and many who did not accept all the Marxian consequences of that idea did accept an economic interpretation of history which denied man the spiritualized emotions and the idealistic drives with which culture and liberal education were associated.

A second factor, even more extraordinary, helped overthrow the concept that man is only a little lower than the angels. His very success in revealing the secrets of nature produced a negative reaction. Men were not only amazed, but dismayed, at the multiplication of knowledge. Reasoning
falsely from the triumphs of specialism in science, they insisted that every man must be a specialist. The concepts of universality or universal validity involved in the liberal point of view seemed too bold. It was argued that anything like universality in point of view, such as one finds in Aristotle or Bacon, was now impossible. As knowledge multiplied, it seemed obvious that each man could know less in proportion to the total body of knowledge. By a logical leap of amazing proportions, that simple equation was misread into a demonstration that man could not have a sense of proportion in what he could acquire and retain! We were offered many an educational argument unconsciously in praise of ignorance, implying that the more man knew, the less significance his knowledge could have! This defeatist point of view with reference to man in the presence of his own achievements joined with economic determinism to ruin the moral position of a liberal culture. Many educationists turned defensively toward specific training upon the one hand and its highbrow twin, intellectual specialism, upon the other.

The war upon the concept of culture, embodied in a liberal education, had its propaganda phase, the fury of which was no less than terrific. Liberal education was identified with the formal discipline, which was identified in turn with certain curricular subjects, rather than with habits, methods, and perspective. If the Institute of Propaganda Analysis had existed in those days, it could have written a book about the name calling and the glittering generalities which would make its recent analysis of a radio orator seem rather tame by comparison. "Transfer" likewise became involved in that propaganda, with, however, a reversed implication, and we were asked blandly, but with a malicious glint in the eye, what the knowledge of the date of the battle of Salamis had to do with growing potatoes, and how the declension of a Greek verb would pay the rent. Scientific studies were adduced to demonstrate that the subject matter contained no magic; other scientific studies proved that if there was magic it could not be transferred into any other field. It all ended in the
perfect demonstration that the subjects in question were without value in the modern world, that mastery of them did not tend to inculcate habits and attitudes valuable in other situations. It is not surprising, to return to our illustration, that the framing of the Constitution received a new interpretation. It was no longer described as the vindication of culture, but as an illustration of somewhat slavish borrowing in an effort to protect speculative investments.

As happens so often in war, the victorious combatants overran their objectives. While they were using science as an illustration that only specialism was possible, scientists engaged in startlingly brilliant achievements in generalization. Using no experimental methods, no calculating machines, none of the ordinary laboratory instruments, Einstein sought to combine and to correlate disparate data and superficially contradictory experiences into one correlated whole. It was an intimation, however imperfect his result, that the mind of man could grasp and deal with the larger and more conflicting elements of knowledge and experience. If a formula could express the unity of matter and motion, of time and space, it was conceivable that the mind of man could make a philosophic unity out of the sum of his apparently unrelated experiences. Einstein was only a symbol of the return of the theorist in science to a central position, and the theorist is simply one who by projecting the mind upon a maze reduces it from confusion to an orderly pattern. If the riddle of matter, motion, time, and space is reducible to order, the confusion of personal experience may well yield to a like effort.

I may remark parenthetically that the sweep of events in Europe made economic determinism look silly. Nothing could be more evident than that men are moved by many other kinds of motives.

Thus both the assaults upon the reality of the synthesis involved in a liberal culture broke down. It is a favorable moment to inquire what are the inferences properly to be drawn from the testing program regarding this question of
synthesis. Superficially one might suppose that it reflected a want of belief in synthesis since no test is designed directly to measure that power of the mind or the quality of achievement in that aspect of thought. On the other hand the entire program is built upon an assumption that knowledge cannot exist in the mind without synthesis—that something resembling philosophic unity is prerequisite to retention. The more full the knowledge, the more complete the availability of the factual possessions, the broader and more sound is the synthesis which holds them in significant relationship. As long as sixteen years ago this inference was summed up in a single sentence: "We could not neglect the measurement of facts without neglecting the measurement of the very fabric of thinking." The availability of data in the mind, that is to say, is the result of its logical arrangement in meaningful patterns.

The large number of factual questions, predicated upon the inference just referred to, reveals another false basis for warfare. We have passed through a period when men railed at "mere" memory, at the cramming of factual material. We have been urged, instead, to insist upon more "understanding." The acquisition of factual knowledge was acutely caricatured in the Spoon River Anthology by the epitaph of Frank Drummer, who felt

A high and urgent purpose in my soul
Which drove me on trying to memorize
The Encyclopedia Britannica!

This particular aspect of the verbal warfare was not usually dealt with in such plain and homely phrases. Often the combatants resorted to laying down smoke screens. Impenetrable phrases were set as barriers between the observer and his possible objective. Take, for example, "mnemonic residues." This impresses me as the ultimate in the proliferation of polysyllabic vocables for the obfuscation of the obvious. Has discussion become so trivial that it must disguise its mean-
ing in order to appear significant? If in penetrating the fog of vowels and consonants we perceive the memory as the object of this description, the phrase is a bad one, for a mnemonic might perhaps fairly be described as an intrinsically meaningless concatenation of symbolic references designed as an adventitious aid to the recall of something quite different. And a residue is what is left when some of the valuable part has been withdrawn. If we must talk about teaching and learning in terms that require translation, if it is all so esoteric that only one skilled in the jargon can discuss it, then the discussion is hopeless. In these days of resentment at having to learn foreign languages, why devise a new one for our further confusion? The plain fact is that the assaults on the memory as a significant intellectual process had so little substance that only by a process of verbal inflation could they be promoted at all. Likewise the concept of understanding as a thing apart from facts and concepts was so shallow that it had to be concealed behind a screen of phrases lest its triviality be too obvious.

The testing movement, I repeat, has shown the falsity of this warfare. While the battle raged about "mere" memory, the implications of asking two thousand questions of a single student in six hours are that memory is not "mere," and consequently unimportant. Things remembered must be part of an intellectual construct which can well be described by the word "understanding" or by the adjective "coherent." So firmly is this embedded in the testing program that it has been held, not a better exercise of the understanding, but a better test or measure of understanding than the usual hasty essay type of question.

There are those who have sought to fight one of these desperate sham battles over that issue. They have seen in the new type of examination an enemy to good writing, to clear and forceful expression. It would be tragic indeed if anyone were deceived into so futile a warfare. As an exercise in understanding, as an enterprise in synthesis, as an effort
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at individuality of expression, the essay finds no competition from the modern style of examination. One learns to write by writing, and students should write early and often. But that does not affect the validity of the short form examination as a measure of understanding. The analysis of the needs of the student rests upon measures as nearly objective as possible, and upon judgments, unashamedly subjective, by competent and experienced teachers. Neither, without the other, can do the job.

It is one of the most pathetic characteristics of warfare that it is often inconsistent; its objectives in one area of conflict do not accord at all with those in another. The western front represents one set of objectives, and the eastern a different set, which are inconsistent. That analogy is sound when applied to the warfare among educators. On the western front, the liberal redoubts were under attack because they insisted upon philosophic coherence. But over on the eastern front, the war was in favor of understanding as against facts. On the western front, it was insisted that you could not form a coherent pattern because there was too much to know; and on the eastern front, you were to understand it by knowing less and selecting among the possibilities of knowledge the useful ones. On the western front, you had to acquire information in a specialty because no one could know it all; on the eastern front, the less you knew the more clearly you would understand it.

This difference between the various educational fronts was simply another illustration of how men at war are persistently illogical. Of course the disputants never went so far as to deny that students had to have facts. Instead facts were classified; there were "useless" facts and "useful" facts. The useless facts were those which were unknown to the person making the argument, and the useful facts were those with which he was familiar, or thought he ought to be. Sometimes they were classified on a different basis—not quite so egocentric—namely, those which the student would "use" again and
those which he would not use again. What was meant by using them was never clear, and how one could deal with a whole class, with all the differences in tastes, aptitudes, interests, and experiences, and peering into the future by astrological means, tell which facts would be useful to all of them, or any of them, was never made clear.

Negatively, it was held to be obvious, for example, that since world peace had become an established fact, it was useless to learn about battles and wars which had gone out with kings and tyrants, and which the triumphant democratic principle would banish from the earth. Had we not “outlawed” war? Napoleon was dead. He represented a peculiar interlude in history which would never have any counterpart in modern experience. He represented an individualistic manifestation rather than a social movement, and for that and many other reasons, knowledge about him obviously belonged in the useless category. What applied to him naturally applied in double form to such antiques as Charlemagne, or Caesar, or Alexander. But the outlawry of war has had the fate of prohibition, and the temperance movement in the use of arms has failed. Napoleon walks again, his swift campaigns startle Europe with their brilliance and terror, and England stands once more with her back to the wall.

In the light of unreal arguments about useful and useless facts, it is significant that questions on the broad cultural experience of the race are so important an element in the testing program. Their use reflects the re-emergence of the word “culture” after twenty-five years on the black list. Giving this type of test reveals the fact, which is the central thesis of this argument, that while the sham battle raged, even those who expressed the greatest skepticism about the educative process, nonetheless belied their words by their activities. Their use of tests showed an unspoken faith in the possibility of significances that are not obvious. All the facts of human experience are useful, there being no predictability as to which will be utilized by any individual mind. Each mind inevitably
must make its own selection, and the use made of the fact depends upon that choice.

A comprehensive testing program does not play favorites in reflecting our objectives; it shows the weak spots as well as those which are strong. It shows, for example, that this revived faith in culture is not yet complete. Culture tends to appear as a definite content—as an awareness of certain facts without direct vocational utility, which may therefore be presumed to be incorporated into one's body of knowledge as instruments of certain values. Unhappily it is not clear that culture is not a quantity but an attitude, a method, or a way of perceiving reality. At its best, culture represents a way of refining standards of value—and that no test can measure.

Another sham battle has been fought regarding language. It is a paradox more puzzling than any other so far, that as long as the United States was really isolated, with a minimum of international trade, no cables, no telephones, no radios, no steamships, no airplanes, no motion pictures, and relatively few immigrants who did not speak English, every well-educated man was trained in the foreign languages. Now, with twenty million daily radio listeners, with ten million more in daily contact with foreign languages, with all the modes of present-day contact, many disputants insist that foreign languages are not important. They are taught grudgingly, therefore poorly, and then it is declared that the results do not justify them. The cold fact, stripped of all wishful thinking, is that the "common man" has more direct contact with foreign languages today than ever before in history.

Verbal aptitude tests, artificial language tests, and other aspects of the testing program indicate that there is still a basic realization that language is the most useful means of communication between humans, and that the mastery of more languages than our own is an essential of life in a world where other languages crowd us more closely than ever before. We have heard it argued that "naturally people in Europe should know more languages because so many linguistic stocks are..."
crowded so closely together." Yet the population of those nations tends to be relatively so immobile that they actually come into contact with foreign languages less than do Americans, who not only travel more freely than others, but who own and use radios more widely and more actively than any other people in the world.

In this list of evidences that beneath the roar of battle are some important concealed realities, one word should be said about the whipping boy of modern education, mathematics. It is an extraordinary fact in the history of education, that the center of mathematical knowledge and research should have shifted to the United States at the very moment when, in educational discussion, mathematics has its worst press. Most of mathematics has been denounced as useless—quadratic equations as merely instruments of intellectual torture, geometry as an irrelevant mode of abuse, and calculus as simply ridiculous except for the specialist. A vote taken among the high school principals in the region of the North Central Association a few years ago showed that 80 per cent of them would drop algebra and geometry but for the tyrannous insistence of the colleges upon this useless and irrelevant matter. It is saddled upon the schools by those who labor under "the shackles of traditionalism," who are "blind to the new day" in which we are living, and who would protect their "vested interests at the sacrifice of the youth of America." I cannot give even a very good imitation of their fervor, for I do not share it.

The point I would stress is that one aspect of the testing program is predicated upon the assumption that one of the best tests of reasoning power is mathematics. Certainly no rounded program of testing omits mathematics. It may come as a shock to some to realize the implications of that procedure. But it should not, for reasoning in mathematical terms is fundamentally removed from all questions of personal interest; it is free of all economic determinisms; it escapes all the daily issues which tend to confuse; and it is a process where
opinion as opposed to precision can play a very slight part. As long as the testing program reveals this presupposition regarding mathematics, it is much more significant than any Gallup poll among the high school principals, who, like all the rest of us, gladly shift responsibility for what is sometimes unpalatable.

The most important of all the implications of the program of modern testing I have kept for the last. The testing movement returns our attention to the student as an individual. More than any other factor, the testing program is responsible for the new emphasis upon individuality; it is both the best measure of that quality and the best guide for its development. Individual differences have long been discussed, but we have been confronted with the irrational situation of discussing them at a time when the curriculum, almost by definition hostile to individual differences, has been the primary field of faculty action.

The testing program has demonstrated the wisdom of the penetrating remark of one of the leaders of the testing movement that what leaves the mouth of the professor is not necessarily what enters the mind of the student. The impact of the curriculum on different minds has been shown to be so various that the authority of the curriculum as the basis of education has been destroyed. The growth of the student's mind, the breadth of his information, and the significance of his insights are the real elements. Instead of trying to fit plastic youth into a hard curricular mold, the curriculum itself should be fluid in order to fill to overflowing intellectual vessels of various capacities and forms.

Such a result cannot be achieved under the course credit procedure, which was designed for the convenience of the registrar, rather than for the student. That system was based upon a false analogy from industrial production and is not an historical part of the college procedure. In this respect the old college catalogs are deceptive to the modern eye and the modern mind. To a casual reader they look as though
course credits had always existed. There were courses, indeed; but they were not the standardized, interchangeable academic parts of today. They represented an orderly progression of ideas and dealt consecutively with them. Prerequisites related to mastery rather than prior credits. Many a man who gave evidence of having achieved substantive mastery was excused from formal performance. That was much more common even thirty years ago than it has been in the last decade. The proportion of persons who graduated in three years was probably larger a century ago than those who receive degrees in less than four years under the Chicago plan. The testing program retires the registrar in favor of the student. Its assumption is that it is essential to afford the student opportunity from time to time to review his own status and to have the consciousness of achievement, based upon the considered criticism and judgment of his teachers and the objective evidence of his examinations.

Once that point of view is adopted, it puts an end to the sham battles over summer "credits." I have sat through many discussions of credit for work done in the summer and can report after twenty-five years of observation that there is a deep-seated suspicion of anything learned in hot weather. Somehow we have come to assume that the summer is necessarily a period of intellectual stagnation, and unless our own institution gets the fees for it, anything a student does in the summer time must not appear in the great book of remembrance in the registrar's safe.

In the abstract we all recognize that travel is broadening, but we have done our best to conceal that fact by withholding credit from anything learned while in a mobile condition. Perhaps that is why we speak of our institutions as "seats" of learning. For some strange reason the situs of the instruction has been regarded as more significant than the circumstance that the student has learned. The testing program shows that the mind may function even in a region of relatively high humidity and that things learned outside the gates—even far-
ther from the gates than the tutoring schools—may nonetheless enter into the structure of the mind. An awareness on the part of the student of these facts takes away the premium upon idleness and intellectual sterility.

There is an element of irony in the fact that the newest revelation of the difference between intellectual equipment and the college record of it should have come through the desire of graduate schools to know what the students brought with them. It might have been expected that undergraduate institutions would be first in seeking to give the student a more realistic picture of his own achievements. The Graduate Record Examination was given first in 1937 to the entering graduate students at Harvard, Yale, Princeton, and Columbia. It has been given in each succeeding year, being modified with experience. The result has been to shed new light upon the individual, showing how inadequate are the college registrar's records in mirroring intellectual progress.

As it became clear that the registrar's records by themselves were not a satisfactory description of the attainments of beginning graduate students, the conclusion was inescapable that the test belonged in the college rather than in the graduate school. Consequently it was given to seniors in a few institutions, and the results of that experiment were so extraordinary that there was no conceivable excuse for not making it available to underclassmen. They were ready to take the test on their own initiative, without scholastic credit, with no reward except a clearer knowledge of their own intellectual status. This definitely revealed what had been denied both in word and in practice; namely, that the student is vastly more interested in his progress than is the registrar. It supplied another illustration of the fact that the whole system of unit courses and unit credits is bankrupt and is simply being operated in receivership pending a solvent reorganization. That reorganization may find its underlying principle in the application of uniform, complete, repeated, and revealing inventories of the student's knowledge. Already the test has furnished many
useful aids to the organization of the student's work—but
they fall outside the scope of this discussion.

I do not contend the testing program has made an end of
the educational war; the sham battles will go on, and we shall
be diverted and confused by the energies expended in endless
strife. Nevertheless, it is heartening to realize that beneath
the slaughter of terms there is a solid, substantial set of objec-
tives at which most of us are aiming. Important as the testing
program is in many other ways, I suggest that it is exceedingly
important in one of the areas in which its friends have made
few claims; it provides an indication that an effective educa-
tional policy does exist.