would be possible to adjust training of teachers to the replacement needs of the state. The state could go far on funds now being expended towards setting up an adequate supervisory program. Both special and general instructional supervision on a regional basis could be provided to an extent that is an impossibility for many local divisions. The present situation that shows a wide gap and lack of understanding between public schools and teacher training institutions would be corrected.

In closing, I wish to make two comments:

(1) The present state program of curriculum revision cannot realize its purpose in full, unless intensive supervision of teaching is provided after the new curriculum is adopted. I think no one who knows the present situation will take issue with that statement.

(2) I would not extend the time required for graduation from a teacher training institution. I *would* extend the time for certification to require a year of intensely supervised practice under actual working conditions.

E. E. WINDES

TEACHERS have struggled through generations to obtain what little recognition they now have. The very nature of their positions as exponents of idealism, altruism, and service without stint, has placed inhibitions upon their efforts to better their own lot in life. Handicapped by the idealism that has grown up about them, and that really belongs about them, they have had a hard time indeed in even partially coming into their own.—*Durango Herald Democrat, Colorado.*

There are 130,000 independent school systems in the United States. There are 247,000 schoolhouses. Of these, 29,930 are partially or entirely devoted to high schools. There are 1,450 colleges and universities.

IMPLICATIONS OF THE AIMS OF EDUCATION IN VIRGINIA FOR TEACHER TRAINING

MUCH of the confusion that exists in education is due to lack of direction. The State Department of Education has provided Virginia with a way out of educational uncertainty by initiating and carrying on the present state-wide curriculum program. This program was initiated and is proceeding under the conviction that education in Virginia should have a charter for its direction in the form of an adequate set of aims. John Dewey supports this position in the concluding statement of his Inglis lecture at Harvard in 1931:

"For confusion is due ultimately to aimlessness, as much of the conflict is due to the attempt to follow tradition and yet introduce radically new material and interests into it—the attempt to superimpose the new on the old. The simile of new wines in old bottles is trite. Yet no other is so apt. We use leathern bottles in an age of steel and glass. The bottles leak and sag. The new wine spills and sours. No prohibitory holds against the attempt to make a new wine of culture and to provide new containers. Only new aims can inspire educational effort for clarity and unity. They alone can reduce confusion; if they do not terminate conflict they will, at least, render it intelligent and profitable."[1]

The task of formulating new aims of education for Virginia, that, in the language of Dewey, "can inspire educational effort for clarity and unity" was assigned to the Chairman of the Aims Committee of the

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EDITOR'S NOTE:—In another form this paper was presented on November 24, 1932, at the Teacher Training Section of the Virginia Education Association, and later in the December issue of the *Virginia Journal of Education.*

[1]Dewey, John: *The Inglis Lecture, 1931:* "The Way Out of Educational Confusion." Cambridge: Harvard University Press.

Virginia Curriculum Program. The work was done in the Curriculum Laboratory at George Peabody College for Teachers during the summer of 1932. The resulting list of aims appears in the Bulletin of the State Board of Education, Vol. XV, No. 1, July 1932, "Procedures for Virginia State Curriculum Program."

The challenge that gave direction to the undertaking is delivered by Counts in the following statement from his notable book, *The American Road to Culture:*[2]

"American education today, like American society at large, is in need of a conception of life suited to the new civilization. Most of the ideal terminology which students of education currently employ, if it is positive in quality, is the heritage from the earlier society. Since this terminology, however, is a product of a social order that has passed away, it ordinarily lacks both color and substance. Much is said in American educational circles today about democracy, citizenship, and ethical character, but nowhere can be found bold and creative efforts to put real content into these terms. In a word, the educational and social implications of the machine culture have not been thought through. And until the leaders of educational thought in America go beyond the gathering of educational statistics and the prosecution of scientific inquiry, however valuable and necessary these undertakings may be, and grapple courageously with this task of analysis and synthesis, the system of education will lack direction and the theory of education will but reflect the drift of the social order."

This dynamic point of view led to the problem of selecting the sources from which could be derived aims that, when realized in our educational products, would preserve the desirable traits of the existing society and lead to the building of a new social order.

[2]Counts, George S.: *The American Road to Culture.* New York: The John Day Co. 1930.

Sources of Aims

Accordingly, aims were collected from the following sources:

1. The aims expressed or implied in the writing of frontier thinkers in economics, political science, sociology, natural and physical science, art, citizenship, religion, and morals.
2. The aims stated and implied in the writings of educational leaders and thinkers.
3. The aims from research investigations in school subjects.
4. The aims stated in the yearbooks of the National Society for the Study of Education and the yearbooks of the Department of Superintendence of the National Education Association.
5. Special research on aims.
6. Current educational practice.

It was necessary to adopt a philosophy as a basis for the production of a set of aims capable of "putting real content into the concepts of democracy, citizenship, and ethical character" and sufficiently dynamic to give direction to individual and social growth. The process of classifying and evaluating the aims derived from the sources enumerated above and of selecting the "Tentative Aims of Education in Virginia" was guided by this philosophy an outline of which may be stated as follows:

The Philosophy

1. Nature and society are in a constant state of change.
2. As the present social order is not fixed and permanent, the school is responsible for the constant and continuous rebuilding and redirection of the new society. The school then has three obligations to a democratic society:
   a. The school should discover and define the ideals of a democratic society.

b. The school should provide for the continuous redefinition and reinterpretation of the social ideals in light of economic, political, and social changes.

c. The school should provide experiences for boys and girls which make possible their greatest contribution to the realization of the social ideals.[3]

3. The development of ability on the part of the learner to use the method of thinking of the artist as well as that of the scientist should be a goal of education.

4. The aims of education should be derived from the stated or implied ideals of society and not from the conventionalized subjects as they appear in the schools today.

5. The aims should suggest content to the teacher.

6. The interests of children should suggest method and the sequences of content.

7. Aims should lead to the co-operation of individuals within groups, and to co-operation of groups with other groups.

8. Aims should be capable of modification to meet changing conditions as they arise.

9. The acquiring of skills and information to which the schools of today mainly devote themselves is only a small part of education.

10. Education is not something already made, or stored, to be absorbed piecemeal by the learner. The learner is not a recording phonograph or one who stands at the end of a pipe line receiving material conducted from a reservoir of learning. Education is a way of behaving. The learner educates himself by remaking his own experience as he goes along, through changing the synaptic connections of his nervous system.

[3]Adapted from an unpublished manuscript by Dr. H. L. Caswell.

The Rôle of Virginia Teacher-Training in Realizing the Aims

One of the most significant implications of the aims for teacher training grew out of the concept that is amplified in section ten of the outline of our accepted philosophy. If learning takes place through the remaking of experience, of what does achievement consist? Achievement is made up of a few types of abilities which may be designated as understandings, attitudes, appreciations, and automatic responses. These abilities determine the ways in which individuals think, feel, live, and act.

This classification of learning products is used for the purpose of aiding the thinking of the teacher and curriculum maker. It is a simple and convenient analysis of the characteristics of the integrated personality. It implies no "piece-by-piece" way of looking at things and no stratification of the learning process. The acts of the individual are symptoms of a total situation. Understandings, attitudes, appreciations, and automatic responses function together simultaneously in every response and decision the individual makes.

When the individual reaches the stage of growth in which desirable understandings, attitudes, appreciations, and automatic responses functioning in unity constitute his total personality, he will be the integrated personality, the socially adaptable person, the cultured man capable of living the good life. The aims of education in Virginia, therefore, are stated in terms of understandings, attitudes, appreciations, and automatic responses. This is departure from traditional practice.

There is sufficient evidence to show that the attempts of our schools to cause individuals to learn for retention and use isolated and unrelated items of information are

futile. It is nothing short of tragic that the schools devote the major portion of their time and effort to this wasteful and abortive task. This point is one of the few on which our authorities in education and psychology are agreed.

Hear Dewey's comment: "No thought, no idea, can possibly be conveyed as an idea from one person to another."[4]

Thorndike and Gates say: "The fact is that you do not *know* even the alphabet. You can merely repeat some of the reactions to this letter series that you have previously made frequently. Similarly, you do not *know* the face of your best friend. It is not an entity that you have absorbed into your mind and with which you can do anything. If you recall that face as clearly as you can you will find yourself unable to describe exactly all sorts of facts about it, such as the exact shape of the nose and mouth, the distance between the eyes, the particular contours and colors. All that you can do is to revive some of the reactions, with certain omissions and distortions, which you have previously made to the face. And so, in general, one does not absorb, master, or learn any objective thing or fact or subject matter."[5]

In characterictic language Judd says: "The various types of subject matter and the social opportunities provided by the school constitute the sources of experiences, but the way in which experiences are arranged in a pupil's thinking depend on the nature of the pupil's mind. . . . The evil practice of dividing intellectual units to fit the accidents of a school program which allots forty-five minutes to a recitation has brought into high school training many undesirable consequences. Pupils think of learning as a matter of committing to memory short collections of items rather than as a matter of acquiring coherent views of the subjects which they study. They learn assignments and retain them long enough to recite them; they do not understand that true learning consists in viewing each item from many points of view and mastering all its relations."[6]

This mass of evidence reminds us of the trite but sound saying, namely: "We should teach children and not subjects." The outstanding conclusion is that the aims of education should not be set up in terms of conventional subjects as they now exist in their multiplicity and stratification; that it is futile to set them up in terms of isolated items of information. Subject aims have no place in modern education.

On the positive side there is an even greater mass of evidence showing that the reactions of individuals, by which their thoughts and actions are controlled, which teachers call learning products, may be stated in terms of understandings, attitudes, appreciations, and automatic responses. As Judd so trenchantly points out, true learning consists in viewing every situation from many points of view and mastering all its relations. This is generalizing, and the aims provide for the process through the understandings which are large generalizations. This point of view is further strengthened by the Gestalt theory of configuration which holds that the meaning of elements is determined by relationships in the whole.

Issues in learning immediately become clarified when the nature of thinking is understood. The individual uses two types of thinking:

1. Analytical, scientific, or problem solving thinking which functions mainly through his central nervous system.
2. Artistic thinking, which functions mainly through the autonomic nervous system.

The understandings involve analytical

[4]Dewey: *Democracy and Education,* page 188.

[5]Thorndike and Gates: *Elementary Principles of Education,* page 86.

[6]Judd: *Psychology of Secondary Education,* pp. 486 and 500.

thinking and are the means by which one interprets his natural and social environments, adjusts himself to them, and increases his control over them. The understandings are the adaptive controls of conduct.

The attitudes call for a combination of analytical and artistic thinking and are the drives to action or controls of conduct. They are strongly influenced by the emotions.

The appreciations are the outcomes of true artistic thinking. They are based mainly on emotional reactions, but are influenced by analytical thinking. The attitudes and appreciations may be called general patterns of conduct.

The automatic responses result from the use of the primary laws of learning and provide for the desirable habits and skills needed by the competent citizen. Language, number, and other social inventions necessary for automatic use are learned through exercise with satisfaction. Some authorities designate the automatic responses as fixed controls of conduct.

The application of the concept amplified above means that the conventional subject lines will be modified. The few larger fields or subjects that obtain will be instruments of learning and not ends in themselves. The value of a field will be determined by the extent of its contribution to the understandings, attitudes, appreciations, and automatic responses of the learner. As Ostwald implies: Knowledge will perform the function of enabling its possessor to look into the future, to predict. It will not be regarded solely as stored information.

It is patent, then, that the teacher cannot enable his pupils to gain generalizations and understandings fundamental to the social order unless he, the teacher, has an adequate understanding of the social order. It is clear also that the teacher cannot cause his pupils to develop attitudes, appreciation, and automatic responses necessary for social progress, unless he possesses these appreciations, attitudes, and automatic responses and has mastery of the psychology and philosophy on which they are based.

As consequences of this conclusion, three theses of vital importance to the teacher-training institution emerge:

1. The curriculum consists of everything that the child does in school.
2. Regardless of elaborate plans of administration and supervision, of textbooks, and even of courses of study handed down from above, the child and the teacher make the curriculum in the classroom from day to day.
3. If the teacher is responsible for the preservation of the desirable institutions of our democratic society, and for rebuilding the social order, the state should see to it that her teachers are educated as architects and engineers rather than trained as artisans and mechanics.

One's degree of culture is determined by the number, variety, and depth of his interests. This concept implies that the teacher should have a broad, and an organic view of life, embracing the relationships of all aspects of living. His point of view should include that of the artist as well as that of the problem solver. How can a prospective teacher who knows little beyond his limited field, and who is innocent of the wide reaches of learning and scholarship, increase, diversify, and deepen his interests?

In summary, the implications of the aims of education in Virginia for teacher education are:

1. The aims of education suggest a broadened content of the curriculum of the teacher training institution.
2. The aims imply the modification of courses in methods of teaching the various isolated subjects, such as the teach-

ing of mathematics, methods in history, etc. These courses should be replaced by courses in the technique of developing, in the individual, the controls and patterns of conduct listed as aims of education in terms of understandings, attitudes, appreciations, and automatic responses.

3. The aims imply that no teacher should be graduated and licensed to teach in Virginia under a minimum period of four years in study beyond high school graduation, with an additional year of cadetship in a progressive school system affiliated with the teachers college. He should not then receive a diploma or certificate without the approval of both the teachers college and the authorities of the school system.
4. The aims imply that laboratory school facilities be so extended that the prospective teacher can observe and work almost continuously during the four year period with children so that he may know child nature from first hand observation and practice.

Implication number one dealing with content points to the elimination of the conventional multiplicity, and segregation of subjects and stratification within fields of knowledge. This implication replaces detailed subject specialization as an end with the focusing of all subject matter and materials upon the products of learning as they are stated in terms of understandings, attitudes, appreciations, and automatic responses. Application of this concept would reorganize knowledge into a comparatively few fields constituting a synthesis of relationships.

The curricula in the teachers colleges would be reduced to two in place of the existing variation of four to eight. Instead of training teachers as technicians in a single subject or for a single grade, the aims imply that teachers should be trained for one of two careers, namely, as elementary teachers or as secondary teachers. The elementary teacher's training would be so thorough that he could teach anywhere in the elementary school. The teacher trained for the secondary school should be trained for teaching through the use of at least one large field of knowledge with an adequate knowledge of the relationship of his field to the whole process of education.

All of the training of the teacher should be professionalized to the extent that the prospective teacher can see immediately the relationship to his career of the work that the institution requires him to do.

Every graduate of the teacher training institution should have mastery of a core curriculum, on the college level, required of all, consisting of the major fields of human knowledge.

The interests of children direct the teacher to method and sequence of content. Interests have educational value when they are compatible with the aims of education. Method is thinking. Any organization of subject matter is the result of the use of the processes of thinking in rearranging items of the social heritage. Method and subject matter, therefore, cannot be separated.

As already indicated, thinking is either analytical or artistic or a combination of the two. The problem of teacher education on the side of method resolves itself into the task of enabling prospective teachers to gain a mastery of the processes and application of the psychology of both analytical and artistic or emotional thinking. The aims provide for the functioning of all procedures and processes of learning through understandings, attitudes, appreciations, and automatic responses. They state in detail the contributing generalizations, characteristics, and habits and skills necessary for the integrated personality and socially intelligent person. Subject matter then becomes instrumental. There are no subject aims. The teaching situation resolves itself into

the question: What can a given field contribute to the aims of education?

It is the responsibility of the teachers college to cause the teacher to gain a usable knowledge and mastery of the biology, physiology, and psychology of the processes necessary to produce in the individual any outcomes listed as aims. This cannot be done through a study of isolated courses and subjects in these fields. All of the contributing factors from each field must be synthesized into a course that functions directly in securing this end.

The professional education in the teachers college should not be allowed to get out of balance through the espousal of any single school of thought and thereby to follow a narrow and one-sided procedure that later turns out to be fad. There is no panacea in the process of learning. The teacher education institution should maintain its perspective and synthesize the best contributions of all schools of educational theory.

The execution of this program may involve the selection of the superior types of high school graduates as prospective teachers, as a means of realizing these implications. If the function of the school is to rebuild the social order and to redirect the movements of society, surely the best brains of our civilization should be at the helm.

FRED M. ALEXANDER

WORK—THE SOLVENT

By the time you have devised a test that discriminates your laziness from actual fatigue, you are well on the way to being a mental hygienist. If driving into hard work dispels your indifference, you were lazy; if it continues to irk you, lie down; you're really tired.—WILLIAM MCANDREW.

In the last decade enrolment in high school has increased 99.9 per cent. The number of additional recruits equals the population of Chicago.

BOOKS—TOOLS OF THE SCHOOLROOM

THINK back to the days of childhood. Nearly all of us can remember at least one teacher who was superior and who made a lasting impression upon us. Some of us were so fortunate as to have two such teachers, some three, and perhaps a few, four. Outside of that group, however, what was the source from which we got such educational advantages as our schooling gave us? Careful thinking will bring almost everyone to the conclusion that except for such work as we did under a few such superior teachers the good which we got from our schooling came from our individual study of the books which we had.

What was true then is true today, though perhaps to a somewhat lesser degree. Owing to the superior training which our teachers' colleges give today, it is probable that there is a somewhat greater proportion of really superior teachers who are able to do that kind of work which does leave its mark on the children and which will remain with them as long as they live. Even those teachers, though, are greatly assisted in their work if they have an adequate supply of books suited to their purpose. No quicker method can be found of determining that fact than to interrogate those very teachers.

The public in the United States has been quick to recognize the advantages of education. This realization started early and bore fruit early, and the conviction has grown steadily from those early days to the present time, when in practically every hamlet of the United States the school buildings and the school equipment generally are the things to which the public points with the greatest pride. For some reason the public has been less generous in its equipment of school textbooks than in its equipment of almost any other thing connected with the schools. The reason is not difficult to find.