The nation's interest in the success of the forestry movement is very great; the contribution of the nation through federal agencies should be correspondingly liberal. Let the federal government assume its full responsibilities of leadership, assistance and cooperation, and our forest problem will be on the way to certain solution.

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The Essentials of an Education[1]

The official recognition of the subject of mental hygiene by the International Congress on School Hygiene is an important event, indicating formal assent to the principle that thought and conduct can only be intelligently discussed when considered in relation to all other forms of human activity. After having been perpetuated for centuries by mechanical repetition, the phrase "a sound mind in a sound body" has suddenly acquired a vital meaning for our civilization.

Although the honor of presiding at this symposium upon mental hygiene is deeply appreciated by me, I am keenly alive to the fact that the force and set of the currents in this movement are already so strong that the question of merit in the selection of your chairman is almost a negligible factor.

The common elementary truths of daily life are frequently either ignored or forgotten. "We go to Switzerland," said Lowell, "to learn the sun rises and to Italy to find out the sky is blue." In considering what the aims and methods of obtaining an education should be, our attention is so often fixed upon remote unattainable ideals that the really essential factors in the problem are overlooked. The cause of idealism in education, as well as in other matters, is often best served by those who take a direct practical interest in the problems of everyday life. It is an exceedingly dangerous form of sophistry which has recently been promulgated that tends to cast suspicions upon any system of education reflecting either utility of purpose or immediate practicability of application. The value of ideals is commensurate with their practical usefulness, unless we assume with the Buddhist that the *summum bonum* of human existence is found in passive contemplation. Mr. Snedden, the Massachusetts commissioner of education, in his recent book[2] affirms that many of our academic studies are organized and presented too much with reference to their pure aspects —that is, without regard to their application in contemporary life and activity.

Clear ideas in regard to some of the chief characteristics of the educational process will be of material assistance in restating the entire problem of educational reform in terms that shall be favorable, and not antagonistic to a rational solution. The successful execution of this plan will ensure the perpetuation of popular government. A distinguished writer recently indicated the direction in which all our hopes for the improvement of political and social conditions lie by affirming "the most important problem of democracy is the education of the citizen."

No intelligent person would dissent from the view that the process of education is intended to direct or shape the activities of living beings. Unfortunately, the tendency of the human mind either to contemplate events in the past or to speculate about the future has hitherto left man little time or opportunity to study his own activities or

[1] Chairman's address, "Symposium on Mental Hygiene," Fourth International Congress on School Hygiene, Buffalo, August 25 to 30, 1913.

[2] "Education Readjustment," Houghton, Mifflin Co., 1913.

to think about his immediate needs. Even in our universities comparatively little interest is given to the study of man as he lives, moves and has his being to-day.

The process of education should prepare students for life and not convert them into receptacles for storing up miscellaneous forms of information. If we succeed in grasping the vital principle concerned in this distinction, we see that the discussion of such questions as whether science or the humanities have the greater educational value are as absurd and futile as Don Quixote's attacks upon the windmills. The problems of "living" can not be expressed in pedagogical phraseology. An intelligent discussion of the activities of living beings and the methods to be used in directing them is only possible in terms of biology.

Education or, as it has often been defined, the intelligent direction of human activities, is a process, the successful adaptation of which to human needs should be measured by the effects on the entire life of the individual, and not merely by results observed during the very restricted period beginning with the entrance into school and ending upon graduation from college.

When judged from this standpoint, education is the intelligent assistance given to an individual to estimate his own capacity to adjust life at the level within which he may live happily and successfully.

As a corollary to these premises, it becomes obvious that those deserving the title of educators should have some knowledge of the fundamental characteristics of living beings. Man, as we all know, is an exceedingly complex organism, made up of many different parts or organs adapted for special vital functions. The harmonious interaction of all these organs, and the contact of the individual with his environment, are established and maintained by the sense-organs, as well as the brain and nervous system. Interference with the function of a sense organ, the internal viscera, or the brain and nervous system, causes an imperfect adjustment of the individual's life and a condition called disease is the result.

The brain and nervous system are important parts in the mechanism of adjustment, but the trends given to our activities are largely determined by other organs. The distinctive mental qualities of men and women, as reflected in the personality, are therefore not only due to differences in the brain and nervous system, but depend upon the influence exerted upon the processes of adjustment by internal organs. This fact has recently received striking experimental confirmation. Without entering further into the discussion of this interesting question, we merely wish to emphasize the necessity of considering all questions relating to the education of the personality from the broad biological standpoint. The personality represents the focus of all our activities and therefore if we desire to study its genesis and to direct its development we should not restrict our view of education to a psychologic basis. It is one task, and a very important one, to attempt to analyze mental traits, but it is quite another to determine whether specific personal characteristics are not due to excessive secretion of the thyroid gland, a dilated heart, adenoids, defective vision, et cetera. The educator should be quick to avail himself of every advance made in psychology, but these facts must be supplemented by a still broader knowledge of living beings.

The biological conception of education simplifies nomenclature. We have only two conditions to consider: first, that of relatively perfect adjustment of the individual, or health, and defective adaptation, or disease. Incidentally this has a great advantage, as the word insanity at once drops out of use, and the problem of "mental defi-

ciency'' to which so much attention is now being directed is correctly valued, becoming merely one phase of the great problem of ''unsuccessful life-adjustments.''

It would be impossible, within reasonable limits, to discuss all the factors which determine successful or unsuccessful adjustment, and we shall at once dismiss from consideration those commonly designated as hereditary, but we can not refrain from expressing the hope that the discussions upon this important point should not be expressed in terms of such apodictic certitude as to lead a more or less credulous public to believe it is futile to attempt to make the lives of those whose ancestry has not received eugenic sanction happier and more effective.

Successful adjustment in life depends upon the character of the habit-reactions. The formation of good habits predicates the existence of a sound mind and sound body. If an individual does not possess the latter, it is the duty of the educator to give assistance in the effort made to compensate for defective reactions, the result of physical deformities, by compensatory mechanisms. Our sympathy is quickly aroused and we readily give assistance to the cripple who tries to cross a crowded thoroughfare, but how little effort do we take to prevent the tragedies occurring as the result of the encouragement given to the motley throngs driven helter-skelter through schools, colleges and universities, stimulated by false hopes and ambitions to adjust their activities at levels which are sure to precipitate disaster.

A recent writer in the *Atlantic Monthly* has called attention to the enormous waste of time and energy, as well as of money, due to sentimentality. A large part of the present educational curriculum shows plainly the dangers to our national life and the economic loss entailed by the perpetuation of a curriculum in schools and colleges which is an expression of sentiment rather than of reason. Ignorance, as well as pride in our creations have led us to count the successes and to disregard the failures of the system. In round numbers there are 187,000 patients in hospitals for the insane and 183,000 students in colleges and universities. It is known that there are a large number in every community suffering from well-marked psychoses. In the state of New York the estimate has been made that at least 1,800 or 2,000 patients afflicted with alienation should, if provisions existed, be brought under supervision in hospitals.

In other states the proportion of those in need of hospital treatment is greater, so that if adequate provision existed throughout the country the numbers of this army would be increased probably to 250,000. The patients in institutions, as a rule, represent the severe or later stages of imperfect life-adjustments. If we add to this number the list of those suffering from nervous and mental breakdowns in incipient stages, the so-called ''failures'' in life, and the imperfect adjustments grouped together in the criminal classes, it is evident the successes of our present educational system, as compared with its failures, represent relatively a very small number. In general, we recognize the principle that those are the best guardians of the body in health who have some understanding of the nature of disease. One of the chief aims of the educator should be to assist students in their efforts to become the possessors of sound minds, in sound bodies, and therefore a comprehensive understanding of the biological laws determining human thought and behavior is necessary for every teacher.

Progress in educational, as in all other reforms, is necessarily slow, but the program may be made a practical one from which definite results shall be expected.

1. In the first place it is desirable that the public should be accustomed to the discussion of educational problems in terms adapted to the description of the activities of human beings. With the more general acceptance of the biological view of the subject and the consequent elevation of the teacher from pedagogue to become an adviser and director in all questions relating to the art of living successfully, there would be increased appreciation of the honor and dignity of this profession, and greater possibility of obtaining financial recompense in proportion to the value of service rendered to the community.

2. There should be as rapid an extension as possible of special classes and schools for those whose capacity to adjust at the higher levels of activity is impaired. Provision should also be made, not only for the cases of imperfect intellectual adaptation, but for those in whom the emotional life abnormally dominates reason.

3. The insistence in schools, as well as in the higher institutions of learning, upon the cardinal principle that the acquisition of good habits, and not of information, should be the final test of a successful education. Think of the remarkable gain to our civilization if children were taught fewer subjects, but were given assistance in acquiring good postural habits, were taught to breathe deeply, to speak without a nasal twang, to eat slowly, and were not allowed to imitate the nervous habits of parents or teachers, or to crystallize into permanent form the undesirable reactions induced by fatigue or protracted study in poorly ventilated rooms. Good as well as bad habits are generally cumulative. Training the eye to see, the ear to hear, and the hands to perform the coordinated movements essential in the manual arts will lead to the formation of many of the mental mechanisms characteristic of the man of culture. Greater freedom from prejudice of creed and race, more rapid progress in the search for truth, would result if care were taken in the homes and schools to prevent the formation of those habit-reactions which give an abnormal degree of fixity to ideas and produces a state of mind described as stereophronesis.[3] The prophylactic treatment consists in an avoidance of intense emotional reactions, the cultivation of sense-perceptions, and the capacity to obey the three cardinal impulses essential for genuine temperance reform, "Stop, Look, Listen."

If attention should be placed upon the importance of habit-formation and directed away from futile academic discussion relating to the introduction of this or that variation in the curriculum of study, a great saving of time to students and teachers, and of money to the nation, would be the result. The American university to-day, in certain aspects, suggests a hospital to which students are sent in large numbers with the double purpose of correcting the bad mental habits acquired in homes or schools and of inoculating the undergraduates with the germs of culture.

The task is an impossible one and entails an enormous annual sacrifice of the best brains of the nation. Habits of work and the mental trends leading to the development of intellectual interests are formed during the school period and not later. If students were trained at home and at school to acquire good habits of work, they should pass directly from the high school to real university work, so that much work of the college could be readily eliminated. This change would at once set free the men now in our universities who, under the present archaic system, have become slaves to teach-

[3] This term was suggested by Professor Edward Capps as descriptive of the mechanisms underlying the "idée fixe."

ing, to prosecute research and to add to the store of our knowledge. The present tendency to ruthlessly sacrifice sums of money, as well as the energies of members of a university faculty in performing tasks which should be assigned to teachers in the elementary and primary schools, is a serious menace not only to the intellectual life, but to the mental health of the nation. The absurd pedagogical tasks imposed upon university professors of attempting to give to mature students the mental mechanisms characteristic of men of culture, which should have been acquired either at home or in the kindergarten, represent forms of servitude that should not be tolerated in these institutions.

4. As regards the actual training of teachers competent to approach the study of educational problems from the biological point of view, much can be accomplished by creating in the universities increased facilities for study in this direction.

The establishment of departments of biological psychology, independent of any direct affiliation with those of philosophy, is desirable. At present, philosophy and psychology suffer from the effects of an unnatural union continued merely out of respect for tradition, and a disinclination to do that which is right in the face of adverse criticism.

If the universities intend to become centers for the study of human activities with a view to making life pleasanter and more effective, they should renounce any half-hearted interest in the development of biological psychology as indicative of a lack of intelligent sympathetic appreciation interest in the solution of problems having a vital bearing upon the progress of our civilization. In universities where this division has already been accomplished by which philosophy and psychology have been set free to develop normally, it is to be hoped ample provision will soon be made for the establishment of biological psychology upon a basis indicating that at last human intelligence has awakened to appreciate "the true study of mankind is man."

In addition to the extension of present courses and facilities for training teachers, ample provision should be made for instruction along special lines in our medical schools, as has been suggested by Professor David Spence Hill; particularly in connection with the work in the psychiatric clinics. Instruction in this particular field should be directed to the demonstration of methods for studying the human individual and for giving teachers an opportunity to become familiar with the early symptoms of imperfect adjustment, and the treatment applicable to individual cases.

I have attempted to indicate a few of the essentials of an education when the process is considered as a means of directing the activities of living beings. Education is one of the youngest of all the arts. Its renaissance followed the birth of the biological sciences. Long held in bondage by those afflicted with an hypertrophied historical sense or cultural mysticism, its growth was retarded by man's whimsical and inconstant interest in the study of his own activities. If teachers and students were compelled to walk backwards with their gaze constantly fixed upon the monuments of the past it was no wonder they stumbled and often fell while climbing the mountains. The struggle to become free from the paralyzing influences of tradition and superstition continues, but hopes for progress and for the reduction of human inefficiency, waste and suffering depend primarily for their realization upon the recognition of the general biological principles which actually determine human life and human ideals.

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