

Conservation Education

by

Dick Berry

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Introduction

The purpose of education is to transmit to the present generation the accumulation of the knowledge of society and to develop in this generation the attitudes and responsibilities necessary for the continuation and improvement of that society.

Education makes advancement or progress possible by passing on information which may be useful and by developing and encouraging processes of thinking which will be well fitted to use the information in solving present and future problems.

Education should also make the citizen aware of his responsibilities toward his government and to develop attitudes favorable to the state. This does not mean indoctrination or that the individual should exist only for the state. However, individual development should be cognizant not only of its own welfare but that of the other members of his society and those who will come after him as well.

Depletion of Our Natural Resources -- Overview

In order that any people may live and develop they must first have land which will produce the resources from which they may make the necessities of life; food, clothing, and shelter. The criteria of the extent of their development is the abilities of the people themselves, the extent of their resources, and the efficiency which they involve in the use of these resources and their products. Such efficient or wise use is synonymous with conservation.

The problem of our nation and of every individual is to promote the wise use of our national resources. Conservation does not mean hoarding or preservation according to the popular misconceptions common during the last few decades, but the prolonging of the depletion of our non-renewable resources and continual production of those with which nature has endowed the ability to reproduce themselves. This means using some of our resources as sparingly as possible; our minerals cannot be replaced nor can our soil; yet, we are shipping scrap metal to foreign countries for war purposes and our soil is blowing off the continent and washing into the sea.

Farm Lands

Farm lands have been operated as mines with thought only for the current income; the owners not realizing that the income was not profit but depletion of theirs and the nation's capital, the soil. Rich tobacco lands of the South are now barren and eroded from single cropping with no thought to the future. Cotton, another crop making great demand upon the soil, has desolated many other areas of the South and would have undoubtedly ruined many more but for foreign competition which caused a drop in the prices.

These are only two examples of the unwise uses of our soils prevalent throughout the nation. Conditions in other areas may not be as spectacular nor as irreparably bad, no "Tobacco Road" and no "Gone With The Wind" may be inspired by them; yet that is not to be regretted. Such literature may call attention to the waste that was once a resource and engender, not a constructive attitude, but rather a deep

resentment against those who were not so much willful destroyers but pawns of a national philosophy.

We should, "Let the dead past bury its dead"; the real tragedy is being enacted today in the continued misuse of our lands. We should be concerned only with those which can still be saved or which can be rebuilt, keeping those others already gone down the drain in mind as a warning.

Wild Life

Our wild life, although somewhat less vital to our needs, was comparatively early brought to the public attention and control. This was undoubtedly due to a number of factors: (1) Terrific slaughter of game during early development in each region and the subsequent contrast between abundance of game and no game at all, (2) The natural emotional appeal of wild animals, (3) Complete disappearance of a number of species, (4) Government control of wild animals was easily assumed because of habits which precluded private ownership.

The enormous herds of buffalo will never return and the passenger pigeon is gone forever, but we still have many species of wild game left and with wise planning may approximate the demand made by sportsmen.

This is just an example of what might have happened to some of our more vital resources as our soils or our minerals. We must be thankful that it was not; we can raise game animals and distribute them artificially but our soils were thousands of years in formation and the minerals cannot be replaced by man in any period of time.

Forests

Timber is a crop, a product of the soil, yet from the establishment of the first sawmill in New England during the 17th century it has been cut with little or no thought for a future timber crop. Timber mining might have been a synonym for logging. The land on which the timber drew was regarded as worthless for timber crops. It was considered no more than the package in which the timber came and the only residual value attributed to it was for other uses as agriculture and grazing and possible minerals.

This might not have resulted in such great waste if the land had been valuable for some of these other uses, but most often it was not. Lands which grew the finest timber was often quite worthless for other purposes. The result was that repeated fires swept the areas and followed by erosion on both the burned areas and the sub-marginal farm lands, they often became completely unproductive and incapable of being restored.

When the timber upon one area was gone the thing to do was to move to another area and when it was ravished, move on. The lumber industry centered about the New England States for nearly two hundred years while America was getting her feet under her. As the great expansion began, the timber of those states began to run low and the peak of the center of production--or more fitly--extraction, shifted to the Great Lake States, then to the Southeast, and finally to the Pacific Northwest where the one large body of standing virgin timber remained.

Here, as well as in other areas, forests were also cut down and destroyed by the early settlers to clear the land for agricultural purposes. Much of it was more valuable for farming than for forest land, but much of it was not, and has taken its place in the land use problem along with the other unstocked forest lands. This is all water gone under the bridge; we must be concerned more with the future of our forests than affixing the responsibility for past degradations against our resources.

Ranges

Like all our resources our vast grass lands were once considered inexhaustible. As late as 1870 a general of the United States Army stated that he thought all the herds and flocks in the world could graze on the grassland of the Great Plains. (1) They were believed to be absolutely inexhaustible yet exploitation by sheep and cattle men along with the drouth periods of the natural climatic cycle have rendered vast areas of our ranges incapable of supporting livestock.

A survey made by the Federal Government in 1936 indicates that about 30 to 65 per cent of the range is seriously depleted. (2) This does not mean merely that it has been over grazed but that the original, non-replaceable soil has been seriously damaged. In some places the damage is completely beyond remedy, but in others, the soil may be restored to some productivity by proper management.

(1) The Pastoral Lands of America, U. S. Dept. of Agriculture Report, 1870, p. 304.

(2) Conservation Education in The North West, W.F. McCulloch, p.24.

Water

Water resources are directly related to the conditions of the watersheds. Man cannot control the regularity of the amount of moisture to fall on the lands, but he is directly concerned with the manner in which the water is dispatched from or retained on the watersheds.

Grass and forests hold the soil with their myriads of small fibrous roots, they keep the soil open and porous, they give the soil its humus content, and they break up the direct descent of the rain and cause it to percolate into the ground rather than wash it away. All these things help the soil to store up the water during the rainy season and release it slowly when it is needed. These two resources keep man's water supply free from the pollution of eroded soil, they ^{it} keep/flowing for him when he needs it most, and they hold the soil which supports him with other products. This is just one of the many ways in which man and the resources are interrelated.

Destruction of the cover in many areas has caused serious floods and water shortages. The City of Los Angeles finds it necessary to pipe its water hundreds of miles across nearby drainage areas to hold the water or even to prevent serious floods and erosion.

Summary of Overview

Any treatment of the history of the depletion of the wealth of the national resources should have an objective cognizant with the whole objective of conservation. That is, to instill and awareness of the problem and to aid in the

determination of future actions by using the mistakes of the past as a lesson. In individual psychology the awareness of the commission of an error is a great aid to learning and there is no reason why the principle should not be applied to a society. Any presentation of such historical facts should be made with a minimum of emotional appeal since this tends to focus attention on those who were to blame for present conditions rather than to create a constructive attitude. We are not interested in instilling a punitive attitude toward those who despoiled our resources since their actions were partly the result of the development of our national philosophy of rugged individualism.

Fundamental Policies and Attitudes Which Permitted Exploitation of our Resources

The early colonists of America were fugitives from the old European philosophies of government, where the individual existed only for the state and had few if any rights. With the printing press and subsequent education of the masses, the concept of individual liberties was formed and then carried to America where a definite antithesis grew out of the clash between the individual and the government. It culminated in the Declaration of Independence in 1776 and the War of the Revolution.

The reaction at the close of the war was to swing to the extreme of the complete individual liberty exemplified by the weak, near anarchy of the Articles of Confederation.

Later the Constitution was adopted to create a stronger central government in order to hold the states together for

mutual protection. Individual rights and liberties were full guaranteed. The individual was insured against encroachment upon his rights by all forms of government and by other individuals but nowhere was there a statement as to a man's duties toward society or his responsibility to leave the nations resources in fit shape for the generations to come. The concept of stewardship was unheard of.

The forests were cut down and burned to make way for farms without regard for the true value of the land, mines high-graded, the buffalo killed, and the soil ruined by single cropping, but the government had pledged not to interfere and could not since the men who formed the government did not see that a day of reckoning would come but always that there was more land, more timber, more minerals "out West". This principle of giving the individual free rein or "Laissez-faire" was one of the greatest contributors to our failure in the good stewardship of our natural resources. As has been stated before, no one or no one group was responsible; it was a phenomena beyond the control of any man or any group which had failed to prepare itself for the inevitable.

Interrelated with the other causes of unwise use was the belief in the inexhaustibility of the resources. It is impossible to say which was the most important as a contributing factor because they were interdependent; one could not have existed as such without the other.

The wealth of the United States was apparently inexhaustible. Men could see no end to the bounties of the land and assumed that there was none not realizing that they were

jumping to unwarranted conclusions. Until the last homestead land was taken up, the attitude, "There is always more land Out West," remained, while in reality much of the land then in cultivation was not fit for continued farm crops. For an example of this belief it is within the span of the writer's memory when many timber men believed that the then existing stands of mature virgin timber would never be exhausted.

We simply had too much and have wasted it without any consideration of a possible failure of the source. Switzerland, admired for its democratic government, had no such heritage as ours, yet for a thousand years their peoples have lived on soils which are richer today than when the Swiss first came to them. Their forests are more productive than they were and none of their soil is washed into the rivers because of plowing up a steep grassy slope to get a few good crops. In short, they had little to begin with and had to practice conservation to exist.

The Role of the Public School

We had infinitely more than the Swiss and we still have much more if we can only use it wisely. To continue as we have done we may become infinitely poorer than they. The choice is ours to make and the approach must be made by those who are able to reach the most people. We could have government control but would give away part of our democracy in so doing. The answer is in the public school system.

The public school reaches more people at an age when they are easily influenced than any other agency. It is not

desired to merely indoctrinate school children with the methods of conservation or to make conservation technicians of everybody, but to replace the old attitudes of "laissez-faire" and "inexhaustibility" with an understanding of, or at least a will to understand, the relationship of man to his environment and to inculcate a sense of responsibility toward the nation and its affairs.

It will be necessary to have government planned programs to carry on much of the work but not purely government control. The connotations of "government control" are undemocratic if not totalitarian, however the government is the logical agency for handling the machinations of such a broad and diversified problem.

The role of the school is to prepare citizens with the necessary attitudes and responsibilities to support the government in and contribute to a constructive conservation program. No agency of control in a democracy can succeed without the will of the people behind it. The liquor prohibition law was an outstanding example of that. Although the law was intended for the general welfare and would have been very beneficial if enforceable it failed for lack of public support.

An example of the other extreme is the recent forest conservation legislation enacted by the Oregon State Legislature. State control is necessary for administration, but the lumbermens associations of the Pacific Northwest were allowed to incorporate their own ideas into the bills. This is a democratic function of the highest level yet there seems to be little doubt that a program with such backing will fail to succeed.

Problems of Conservation Education

There are many problems which must be overcome in establishing conservation education in the public schools.

There are practically no teachers with sufficient background in both education and conservation to carry on the work; many teachers have no realization of the problem and are not aware that one exists. There are even fewer teachers prepared to instruct teachers in conservation education work. The curricula are already overcrowded and the question arises whether to remove some things which now appear indispensable and replace them with courses in conservation.

There is relatively little prepared material applicable to the needs of primary or secondary school teachers or pupils. Much of that which is capable of being assimilated was written without sufficient background in either conservation or in education or both. There are also many books which quote pages of statistics or appeal to the emotions extensively. The former are almost meaningless to the average student of high school age and completely so to the grammar school pupil. Other authors appealed to by what they regarded as a fad and a desire to sell books have written just that--books.

The situation, however, is far from hopeless as it might seem since many teachers are taking it upon themselves to become informed to such an extent that they may be able to present conservation material to students in the regular curriculum courses and in such outside work as field trips, moving pictures, playgrounds, and other extra-curricular activities.

The following is a quotation from a Minnesota bulletin:
"A poll of teachers in elementary grades show an overwhelming interest in the teaching of conservation in the elementary schools. About 90% believed that nature study should precede the teaching of the subject incorporated with reading, nature study and science, composition, and social science. Most teachers would assume the responsibilities of getting their own conservation training, but would appreciate usable texts and pamphlets already in a form to be presented to the children.

"About 84% of teachers in Minnesota take children on field trips for the purposes of conservation studies."

A Definite Program is Needed

The development of a program could be left to the slow process of evolution but the need at the present time is urgent. Another war is now in progress and we do not wish to see the devastation wrought our resources during the last war and the ten year period afterward repeated if possible.

Teacher Education

Teachers should be made aware of the problem and a background provided in the various sciences concerned in conservation. They should not become technicians but should be exposed to enough of the facts and principles to enable them to judge what materials should be presented to accomplish the purpose. Teachers should continue to be trained in the methods and techniques of education and should depend upon this

training for presentation of materials. Each teacher should prepare to fit the problems of conservation in his own field or major norm. Those majoring in the sciences would present the physical aspects; history and sociology majors would prepare to present its sociological aspects.

Many teachers and prospective teachers are willing to obtain training in addition to their regular prescribed courses, but there are too few men sufficiently backgrounded in both the sciences and education who have an insight of the problem. Many of those who might be qualified are not motivated to devote their time to it, however, there are a few foresighted individuals with purely altruistic motives now engaged in providing an overview of conservation education in some of the major colleges. The numbers are pitifully low, few especially in the normal or primary teacher's training schools. Expanding curricula and increases in the number of years required for teacher's certificates are creating a great need for such men.

Primary and Secondary Schools

There is no need or desire to incorporate a conservation course in the school curriculum which is already overerowed but rather to relate conservation to the subjects already taught. Such a project will not only give a real meaning to conservation but will also give other courses great significance. The desired end is an understanding of the interrelationships among our resources and their relationship to man.

The primary step in guiding a student or pupil toward an understanding of such relationships is to first help him to see and understand his dependency upon the resources by motivating him to study his own environment. It is much easier for the average child or adolescent to deal with actual objects than to think in terms of abstracts.

The student or pupil should not be made immediately aware of the objective of his additional training but should be allowed to discover it for himself if possible. Early training should be conducted in the spirit of play or diversions and should not be incorporated in the young mind with regular work until the eighth or ninth grade levels are reached. Field trips are very desirable when possible. Agassiz, the Swiss naturalist, says, "Study nature not books."

Examples which the teacher may follow are, observe erosion on the play ground, visit cut over forest lands, trace the origin of food eaten for any meal, study the habits of birds found on the school grounds, show motions pictures of some outstanding problem of conservation, and visit some area in which conservation planning is being put into execution. Older children should be guided in working out their own solutions to the problems by the group discussion method.

In the higher grades and in high schools, information and problems should be introduced with other subjects as geography, biology, botany, arithmetic, history, and sociology. Those who are motivated to do additional work should be encouraged and aided to do so.

Teachers' Aids Needed

There are a number of aids needed for teachers engaged in conservation work.

Visual aids, motion pictures and slides should be made available. Bibliographies properly annotated as to content and suitable grade levels should be provided each teacher, plans for field trips and projects and necessary materials should also be made available. Instructional helps and read-factual materials to aid the teachers to better understand and approach the problem. Cooperation between the schools and other agencies of conservation should be formed. These are aids desired by the teachers themselves and it would be a tremendous advantage if they could be supplied as quickly as possible.

SUMMARY

The solution of the conservation problem in the United States is continual wise use of our resources rather than preserving or locking them up as the antithesis of past exploitation.

Some of our resources under wise management and stewardship can be kept in a continued state of production. Others which are not capable of renewing themselves must be used sparingly as possible to prolong the depletion of the natural supply.

The latter are our non-renewable resources and must be used sparingly and with as little waste involved as possible. They were once thought to be inexhaustible because of the

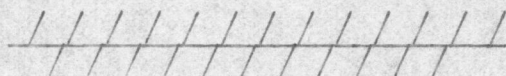
limitations of our perceptions, but we are now aware through the use of scientific and statistical methods that their extent when compared with the drain placed upon them is limited. By the same methods we have also learned that there is a definite slump in the capacities which produce the renewable resources.

We of this generation are in no immediate danger of running out of the material resources which make our national existence possible, but to insure the future of our society, the people of this generation must be made aware of their obligations of stewardship.

To supply the necessary concepts for the citizens of the country to handle these resources wisely we must turn to the school as the agency which contacts the greatest number of people for the greatest length of time.

Teachers must be trained in order that they may be able to pass on training and information pertinent to the problem, to aid in the formation of favorable attitudes, and to develop processes of reasoning which are fitted to the problem.

To accomplish this the teachers themselves must be made aware of the problems and motivated to exercise their training toward consummating the objectives and purposes of both education and conservation. In addition they must be supplied with aids to facilitate their efforts toward teaching good citizenship and good stewardship which are synonymous.



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