Some Notes and Quotes on Range Education

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WHEN the Editorial Board requested an article on range education it was necessary to profess great and enduring interest in the subject, but also to admit no knowledge of proven formulae for giving or receiving range education. When one has lived and worked for years with hundreds of the products of formal range education, interest in the subject is inescapable.

There is interest in the success of each graduate as employed and then, later, there are tantalizing unanswered questions in trying to relate various degrees of success and failure on the job, to kinds of education, experience, and personality. Answers to the questions thus raised would virtually eliminate perplexities in getting the right men to take range curricula in college, and in getting the right men from each graduating class for each kind of job, and in getting the job done.

Psychical and physical examinations have not yet been devised that would permit even moderate accuracy in predicting eventual on-the-job success of a class receiving degrees in range management. As recently as December 1952, *The Journal of Applied Psychology* reported that tests might show high validity in prediction of capacity to learn a job, but relatively little validity in predicting how well an employee would perform on the job after training was accomplished.

The seeking of solutions to problems such as these is probably explanation enough for someone outside a college or university having extracted from divers sources over many years certain passages on education that seemed especially enlightening, as well as appropriate from a rangeman's viewpoint. This article provides an opportunity to share some of the best of these extracts with you, as well as to record some notes relating to range education.

Thomas Henry Huxley, great English biologist of the 19th century wrote: "Let us ask ourselves, what is education? Above all things, what is our ideal of a thoroughly liberal education?—of that education which, if we could begin life again, we would give ourselves— of that education which, if we could mould the fates to our own will, we would give our children. Well, I know not what may be your conception upon this matter, but I will tell you mine, and I hope I shall find that our views are not very discrepant.

"Suppose it were perfectly certain that the life and fortune of every one of us would, one day or other, depend upon his winning or losing a game of chess. Don't you think that we should all consider it to be a primary duty to learn at least the names and the moves of the pieces; to have a notion of a gambit, and a keen eye for all the means of giving and getting out of check?... it is a very plain and elementary truth, that the life, the fortune, and the happiness of every one of us, and, more or less, of those who are connected with us, do depend upon our knowing something of the rules of a game infinitely more difficult and complicated than chess. It is a game which has been played for untold ages, every man and woman of us being one of the two players in a game of his or her own. The chess board is the world.

the pieces are the phenomena of the universe, the rules of the game are what we call the laws of Nature. The player on the other side is hidden from us. We know that his play is always fair, just, and patient. But also we know, to our cost, that he never overlooks a mistake or makes the smallest allowance for ignorance. To the man who plays well, the highest stakes are paid, with that sort of overflowing generosity with which the strong shows delight in strength. And one who plays ill is checkmated—without haste, but without remorse.

"Well, what I mean by Education is learning the rules of this mighty game. In other words, education is the instruction of the intellect in the laws of Nature, under which name I include not merely things and their forces, but men and their ways; and the fashioning of the affections and of the will into an earnest and loving desire to move in harmony with those laws. For me, education means neither more nor less than this. Anything which professes to call itself education must be tried by this standard....

"... long before we were susceptible of any other mode of instruction. Nature took us in hand, and every minute of waking life brought its educational influence, shaping our actions into rough accordance with Nature's laws Nature's discipline is not even a word and a blow, and the blow first; but the blow without the word. It is left you to find out why your ears are boxed.... Those who take honors in Nature's university, who learn the laws which govern men and things and obey them, are the really men great and successful in this world. . . .

"The object of what we commonly call education—that education in which man intervenes and which I shall distinguish as artificial education—is to prepare ... to receive Nature's education, neither incapably nor ignorantly, nor with wilful disobedience; and to understand the preliminary symptoms of her displeasure, without waiting for the box on the ear.

"That man, I think, has had a liberal education, who has been so trained in youth that his body is the ready servant of his will, and does with ease and pleasure all the work that, as a mechanism, it is capable of; whose intellect is a clear, cold, logic engine . . . whose mind is stored with a knowledge of the great and fundamental truths of Nature and of the laws of her operations; one who, no stunted ascetic, is full of life and fire, but whose passions are trained to come to heel by a vigorous will, the servant of a tender conscience; who has learned to love all beauty, whether of Nature or of art, to hate all vileness, and to respect others as himself."

Might not the foregoing, extracted from a philosophy on liberal education, be adopted for range education? Consideration of the meanings and values of range education, though this is philosophy, should probably precede consideration of the science.

In considering science to be studied in range education it is necessary to admit that the terms range management and range conservation at this time both have only the rather indefinite connotation of wise use and an intelligent development of ranges. There is not now a science or body of facts, where much range experience is completely and consistently described in terms of universally applicable principles or laws. That will be necessary before there is a well defined science of range to teach and to learn. Yet range education has, I believe, quite generally the objective of developing scientists, rather than artizans, artificers, or artists. The Bachelor of Science degree, rather than the Bachelor of Arts degree, is generally conferred upon graduation from range schools. Such an objective is necessary if men with range education are to develop an organized body of range knowledge or a science. Range students may well ask what is entailed in the evolution of a science and what is the goal.

The stages in the development of a science may be likened to the changing interests and aptitudes of any normal boy who might grow to maturity without losing the curiosity of youth. Five stages have been recognized. First the observational stage which is comparable to the boy hunting bright seeds, beetles, and stones, in unassorted collection. The second is the *classification* stage in which collections are placed in order much as knowledge is later made orderly. The third is the experimental stage when new facts are gained by experience as when the boy explodes his first "22" cartridge with a hammer. The fourth is the theorizing stage when hypotheses concerning cause and effect are formulated and then tested to form theories. Finally there is the fifth or mathematical stage when operation of the applicable laws of Nature can be expressed with mathematical exactness.

A worthy goal for any scientist as well as for science was recently tersely stated by E. C. Stackman who said, "... to help substitute facts for fancies; principles for prejudices; education for propaganda; statesmanship for partisian politics; broad humanitarianism for tribalism; the Golden Rule for the law of the jungle. This should be the ultimate goal of science."

Throughout formal education, range students need occasionally to be reminded or forewarned that college scholastic ratings do not rank men according to professional ability. Grades reflect principally ability to acquire facts. Acquisition of facts must come first! These may be acquired most efficiently by study and instruction. To those who would deprecate "book learning" I would say "only a fool has to learn everything by first hand experience." But, success as ordinarily measured by college standards is no assurance of success in the profession. While in school, it is difficult for the range student to picture himself in the position of the educator. But educator he certainly must become; whether as a professor, a researcher, a manager of federal range, or a private or public purvevor of technical assistance to ranchers. How differently he would listen, read, and observe while a student, if he realized that his future success depended fully as much upon being able to intelligibly express and convince others of range facts learned, as upon himself learning facts!

On the job you will see the good worker obtaining results by what appear to be roundabout methods not recorded in textbooks. The most refined and accurate technical procedure may fail to produce results because application depends upon many people, who must not only want to attain a certain result but must also appreciate or understand the steps to be taken. The zeal with which you work and the ideals toward which you work may carry more weight with your employer than your scientific knowledge and the techniques or methods by which you work. Most range curricula provide for study of climates, soils, vegetation, and livestock. There is a fifth subject that will be inextricably woven into all of your thoughts on these subjects after graduation. That subject is people. Perhaps "men and their ways" should become an object of formal as well as informal study by range men.

Although the highest of level of human reaction is *intellectual*, the student will encounter somewhat less of it after graduation and more of *emotional* reac-

tion. In fact his efforts will often meet with the third and most challenging type of human reaction, namely, habitual. Thus, "fact" knowledge necessary for scholastic standing and despite its obvious value, may have less immediate utility than expected in attaining success as a practicing professional. The ability to move other people to appropriate action will assume surprising significance even though it be in application of range facts quite elementary compared to complexities mastered while in school. Hence, results usually are more closely related to plain and sustained industry than to brilliant strokes in application of science, all of which may be mildly or disastrously frustrating, depending upon training and personality of the graduate.

Such frustrations occur in the lives of any of us. Unfortunately, we may rationalize the difficulty as lack of appreciation, by our employer or organization, of our specialized training and uncommon talents. On such occasions, and now, whether student or employee, it is well to remember the astute observation of Bourke Cockran, who wrote, "There is but one straight road to success, and that is merit. The man who is successful is the man who is useful. Capacity never lacks opportunity. It can not remain undiscovered, because it is sought by too many anxious to use it."

Finally, our personal education, as envisaged by Huxley, should never end. The purposes of education were summarized by George Tomlinson, completely and simply, as threefold: ". . . to develop *competence, curiosity*, and *conscience*." The range graduate will find that increasing experience and maturity favors development of competence, but may, and often does, benumb curiosity and conscience. The continued development of the last two will "take some doing."

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RANGE PLANT IDENTIFICATION CONTEST

At the Seventh Annual Meeting of the American Society of Range Management in Omaha, Nebraska, January 26 to 29, 1954, a range plant identification contest will be conducted similar to the contests at each of the past three meetings.

Competition is becoming tougher; the school producing the winning team this year will have to be on its toes.—H. W. Cooper, Chairman, Contest and Display Committee.