A Student Looks at Range Education

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Many range students nearing graduation are pausing to ask themselves, "Is college where I learn the mechanics of a job? Is college a glorified trade school? Or is college the place where I gain the tools for logical thinking?" Although there may be certain elements of each in various college programs, it is my belief that college studies should be devoted primarily to basic and applied sciences and to developing orderly thinking.

Three phases in the career preparation of a range manager deserve consideration: training in the basic and applied sciences related to range management; training in economics, business and administration; and practical training including the development of skills. Let us examine these to see where and how the range student can obtain the most adequate training.

Presently, the core of most range curricula is composed of basic courses in physical and biological sciences, mathematics, English composition and speech, range and allied resource-management, animal husbandry, soils, plant physiology and ecology. It is evident that the college is in the best position to give this basic training in general sciences. This training is good, but it does not go far enough.

If tomorrow's range managers are to keep abreast of research findings and aid range progress, they must have certain additional courses. Some of these are statistics, biochemistry, advanced English composition (feature-article and technical writing, and informational methods), soil-plant relationships, animal nutrition, photogrammetry and genetics. With these courses added to the curriculum, the range manager would be better prepared to perform services of a truly professional nature. Logically, the college is best equipped to handle this phase of scientific training.

Present-day employers find range students lacking training in business and personnel management. The college is in a position to give basic courses in business and administrative management, law and employee relations. Too often these courses are left for the student to pick up as electives since there may be little room for them in the required curriculum.

The curricula in range management not only contain necessary courses, but are also burdened with courses of a practical nature. Apparently due to pressures from students and employers, practical courses in skills and in the application of range management, including extended field trips to view ranching operations, are placed in the study program. By eliminating these practical-type courses from the curriculum, courses in business and administration could be included.

Obtaining on-the-job skills poses a problem to the range student. Employers desire well-trained men on the job. Close cooperation between employers and colleges could be effected to accomplish desired objectives. The college could advise the student of the type of training to get; the employer could arrange summer work planned to parallel technical training gained in the classroom. Here the student could develop basic skills and acquire a knowledge of minor repair and maintenance jobs. More advanced practical training in applying technical knowledge and administrative procedure to range problems could best be obtained on the job.

To properly train a range manager, logical distribution of the three phases of training is necessary. The colleges are in a position to give technical training and basic administrative preparation. The employer is better equipped to give...
practical education and expand the administrative training. Greater responsibility for gaining practical experience and skills could be placed on the student by the college. The college advisor could assist by providing an approved check-list of projects that develop practical ability.

It is logical that the range student should spend his college time studying sciences he can not learn on the job. College would be more effective if it were to confine itself to fundamental scientific education and training in business administration. Practical experience and applied administrative education could be more effectively acquired before and after graduation as a part of on-the-job training.

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**Range Management: Objectives and Training**

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"... a complete and generous education, that which fits a man to perform justly, skillfully and magnanimously."

John Milton, *On Education*

I came to this country from Israel to study range management and thus have become familiar with its application as well as training objectives in both countries. This paper will summarize my observations of the training objectives of the range management curriculum. Objectives for training cannot, of course, be separated from the application to a particular situation. I believe that range conditions are alike in many ways in California and Israel, particularly because of the similarity in the Mediterranean-type climates of both places, and the natural vegetation. The chief difference between the range situation in Israel and California is the antiquity of the range throughout the Eastern Mediterranean, compared to the youth of that in the western United States, where it is, at the most, only a few hundred years old.

When a review is made of the history of grazing in any one place, a parallel may be found between the chronological sequence of management procedures, as applied to particular situations, and the development of teaching objectives. Thus, the practice of pasture and range husbandry, and the stages in the development of its theory can be divided into four phases:

- **Description of vegetation types;** plant communities and their relations
- **Management of the resource (site and resident species) for the optimum of sustained production**
- **Introduction of superior forage plants**
- **Selection and Synthesis of superior forage plants (using resident, exotic or both)**

This division is arbitrary and will not apply equally to every situation, but will depend on the historical status of each. The immediate objectives of training will vary in the same way. Since this division is arbitrary, a certain degree of overlap is inevitable. One's work is never limited to any single phase. Yet rarely, if ever, will anybody find need to divide his efforts among all four. Nevertheless, when planning a range program, we should consider the whole picture. The first phase, describing and assessing the range resource, is carried on as soon as a territory is opened to settlement. Vegetational types can be determined in a practical manner by the settler, who is followed by the administrator and the botanist. The latter study the vegetation extensively and their results are summed up in the form of a workable map of the types. Further intensification of human activities, particularly of an agricultural nature, calls for more detailed analysis of vegetation. At this point sub-types and plant communities of various magnitudes are defined. For instance, the soil-vegetation survey currently carried on in California can justly be classified under this category. This first phase, in general, is regarded as an inventory.

The onset of the second phase, that of *management*, practically coincides with that of the former; i.e. the settler and his beasts arrive simultaneously. It is assumed that the vegetational types which a settler finds are in a stable ecologic equilibrium in the pre-settlement environment. However, the introduction of new environmental factors will obviously disturb this balance. The disturbances brought about by human activities will be reflected in the biota, i.e., soil, flora and fauna. The attainment of a new equilibrium depends on the extent of human activities, such as grazing pressure and management practices. Before this new balance is reached, some soil changes will have taken place, botanical composition will have changed and, similarly, various components of the original fauna will have been altered. American rangemen are well aware of problems of management and no further elaboration is required at this point.

The third phase of *introduction* may start with the settler but will increase in importance as settling activities become intensified. It is safe to generalize that man selected his crop plants and transported them along with his beasts from time immemorial. These crops were subjected to constant, though unintentional, selection, i.e., the heavier