lems in common. Outside the U.S. they have hardly been touched with research programs. The few workers in other countries know more of our efforts than we know of theirs. The notice in the September Journal that the Council had rescinded the authority for the Middle East Section of the Society came as a jolt to those interested in promoting range management in other parts of the world. Isn't the Society missing an opportun-

ity for International good will, exchange of information and improvement of human needs?—Harold F. Heady, Associate Professor, School of Forestry, University of California, Berkeley, Calif.

Range Management As a Profession

At present, many members of the American Society of Range Management are concerned about the professional status of range managers. Civil Service requirements for range management positions appear to be somewhat less than desired. Individuals with a wide variety of educational backgrounds have responsibility for administration of range lands or lands having several uses including grazing. The pressure for securing more satisfactory levels of management of public lands has been viewed apprehensively by stockmen. The professional competence of range managers has been questioned recently. It is, therefore, timely that the Society review the characteristics of the profession, perhaps give some direction to current thinking, and clarify, if possible, the profession as to definition. This can lead to better educational standards and internship for development of qualified range managers. This article attempts to present a viewpoint on the matter.

It is first necessary to characterize the training of a professional man regardless of the particular field involved. Professional training must have both breadth and depth, it should include a code of conduct defining limits of individual behavior and responsibility relative to others in the profession and to society. The three main elements involved are:

1. A satisfactory intellectual background.
2. Specialized skills and ability to use them.
3. An ethical basis for association with people.

A satisfactory intellectual background is fundamental. Biological and physical principles and laws must be known and understood. Economics and political ideas and concepts are also elements of knowledge which must be related to phenomena in nature before satisfactory conclusions may be drawn. Analysis, synthesis, and ultimately proper generalization to practical situations must be part of the intellectual equipment of well-educated individuals. At the professional level of competence, the best of a variety of possible solutions, is the goal. The professional individual must be competent to work under a variety of conditions. A facility for communication through skill in speaking and writing is desirable and will enhance his effectiveness.

Next in importance is an understanding of the principles and the acquisition of the techniques and skills used in the specialized field. This includes both the unique and those developed in related areas which have application to the particular field. The essential elements are an understanding and recognition of biotic successions, knowledge of food habits and requirements of herbivores, the measurement of herbage production and utilization, the seasonal manipulation of herbage in various vegetative types as well as the control measures needed to fit grazing habits of animals to the particular local conditions. Furthermore, maximum professional competence is manifest when the technician can interpret principles and develop practices to fit local conditions which will result in sound economic objectives.

Also, professional training should be identified with a
functional need, i.e., the best way to harvest herbage, and not with an administrative organization such as the Forest Service, or with a related field such as Agronomy. A test of the uniqueness of a professional field is in the demand by ranchers, game departments and others for its specialized assistance.

When the public associates a high level of ethical behavior with a group of practitioners, and when the relationship between individuals working the field is based on mutual respect, a profession begins to have maturity and stature. Specifically, an ethical basis for professional identity should include:

a. Socially-oriented ends
b. Objectivity in all problems
c. Loyalties within the profession.

The Problem of Related Fields

Ranchers and others may expect a range manager to have competence in related fields far beyond those needed for the major profession. Also, administrative agencies concerned with multiple use of land frequently require generalists rather than specialists in every-day administration under present intensities of land management, and may try to adapt specialists to their administrative needs. The fact that the range manager must utilize knowledge of several subjects, including soils, ecology, taxonomy, animal nutrition and disease as well as economics; and must be concerned with the needs of ranchers, wildlife managers, water users and forest managers, presents problems in their training and in maintaining professional uniqueness.

It may be considered desirable to be competent in a wide variety of fields, but there are some significant limitations. It should be recognized that a four-year educational program at the college level can cover only a limited area of knowledge and training. The sum of knowledge is expanding at a tremendous rate. Few individuals have the time to review and absorb the amount of literature which appears each year in any one field. Many technicians are active land managers. The diversified demand on their time retards acquisition of more specialized knowledge after graduation. Even in the case of researchers or teachers, limitations exist. Specialization is more intensive, and the scope of knowledge among these individuals may be more limited.

Perhaps it would be desirable at this point to indicate what a range manager is and what he is not. He needs to know how to grow and harvest vegetation, both tame and native, but he need not necessarily be competent to operate a ranch. To measure a range man by his ability in range operation would be to presume that all ranch owners are competent operators or to ignore the fact that a fair number of range managers have become good ranch operators. It can also be said that the ability to be a cowboy is desirable, but cowboys do not always qualify as good range managers. Being a good cowboy has little relationship to the total knowledge and skill required to manage range. Similarly, a range manager should have some degree of competence in botany, animal nutrition, animal production, genetics, agronomy, engineering and economics, and yet he may lack the proficiency expected of a trained specialist in each of these fields.

To paraphrase an old saying, he should not be a “jack of all trades and a master of none”, but a “jack of all trades and a master of one”. In other words, he should be characterized as having a combination of diverse talents with high competence in one field. He will be employed for this particular capability, and his recommendations will be accepted and used with confidence. He will know when to call a professional in a related field. The public will recognize the special nature of range and seek out the range manager for the special skills which he has.

Qualifications of a Professional Range Manager

If we characterize a professional range manager as one with competence in the growing and harvesting of native forage plants, it will be immediately apparent that by experience alone in administering public lands many may qualify as range managers. A student with a degree in Range Management will certainly so identify himself. A rancher who has been successful in operating a western ranch can also assume that he is qualified. Individuals in each of these categories may or may not be qualified, depending upon a variety of basic points of competence. Training and experience alone are not sufficient unless the experience was acquired over a considerable period of time and in a wide variety of situations. The recent graduate needs supervision and practice before he has skill in management. He is only on the first rung of the ladder of capability. The rancher may have been very successful in a given locality because of many years of trial and error experience and general good judgment. He would be the last to assume that he knows how to solve many of the special problems in other kinds of ranching country.
Perhaps three of the most significant qualifications of a range manager should be:

1. To understand the basic ecological relations in two or more major plant communities.
2. To be able to manipulate and use these communities for sound economic ends.
3. To be capable of recognizing problems of improper management and to recommend and secure satisfactory solutions.

In the final analysis, the problem of obtaining satisfactory resource use depends upon a number of things. The availability of properly qualified technicians is only one aspect of the problem. Research must be more comprehensive, particularly with reference to the development of tools to adequately measure the productive characteristics of the resource. It must be more clearly recognized that the actual users of the resource, ranchers and sportsmen, are the key to better land management. Their attitudes, interests and range knowledge may be more significant in determining management and the general condition of the resource than anything done to improve the quality of research or the competence of professional managers. The man who controls the grazing animal on the range is actually the range manager.

—Melvin S. Morris — Professor, School of Forestry, Montana State University, Missoula, Montana.

The Use of Molasses to Increase the Utilization of Rank, Dry Forage and Molasses-Urea as a Supplement for Weaner Calves

KENNETH A. WAGON AND HAROLD GOSS

Specialist in Animal Husbandry and Professor of Animal Husbandry, Emeritus, University of California, Davis, California.

At times forage grows very rank on some California annual ranges. As it matures and dries, palatability decreases to the point where cattle, especially younger animals, largely reject it. The accumulation of excessive litter decreases the quality of next year's vegetation by shading out some of the more valuable species (Talbot et al., 1939).

Spraying molasses on coarse roughage to increase palatability is an old practice. Besides testing this use of molasses, urea was mixed with the molasses to see if it would replace a portion of the animal's protein requirements when on deficient forage. Other studies have indicated that about one-third of the animal's protein requirements could be supplied by urea. Analyses of the dry, mature herbage have shown that crude protein runs 5 percent or less (Wagnon et al., 1942). Total digestible nutrients were estimated to be about 40 percent and digestible protein about 2 percent. Thus, 12 to 14 pounds of such dry herbage would provide weaner calves less than one-third of their daily digestible protein requirement (Guilbert et al., 1945).

Procedure

The experiments were conducted through the dry forage period, early July until the onset of fall rains in October or November, in 1947, 1951, 1952, and 1953. Because winter rainfall for 1946-47 was below normal, the 1947 forage crop was too thin to spray without losing most of the molasses-urea mixture on the ground. Therefore, in 1947 a group of heifers was self-fed molasses-urea as a check, and another group received daily supplements of cottonseed pellets. Further study was delayed until better range conditions occurred.

A 1951 test concerned two groups of heifers, one on dry, rank forage sprayed with a molasses-urea mixture, the other on untreated range with a 30-70 percent salt-cottonseed meal mixture available free choice. The objective was to see if the natural protein content of the forage plus protein synthesized from the urea would promote weight gains comparable to those on untreated forage plus cottonseed meal. In 1952 three groups had free access to the salt-cottonseed meal mixture. In each case the water source was about 100