

Range Management Education . . . and How it Grew

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Long before man began to write history, he was a range man. Living largely on game he could kill, primitive man was vitally concerned with grazing lands and grazing animals. An extensive area of grazing land meant abundant game and easier hunting; therefore, more plentiful food. Man's earliest efforts to control his fate, by providing for future needs, must have been on lands where young animals he caught and tamed could find forage. Thus, the beginnings of civilization were on or near grasslands. In fact, much of history is but the record of the movement of peoples seeking fresh grazing lands.

The most common use of the word *history* is to mean "A record of man's past" (World Book Encyclopedia 1952). This record deals with events, with places, with time, and with people. The history of the livestock industry has been characterized by stockmen—that is, range men—who were prominent citizens, well-informed, and taking active part in events of their times.

Throughout the span of history much effort has been expended, in practice and in education, on animal husbandry, the production and care of domestic livestock. But formal education in management of grazing lands, the natural resource base of the livestock industry, and practice of the science and art of range management as a profession are recent developments. The history of range management education, and of the profession of range management itself, is as yet largely an untold story. This paper will give a brief glimpse of the history of the livestock industry for background. It will then concentrate upon how the profession and science of range management came into being and how it grew, nourished by academic education in public institutions of learning, illustrated by events in California. It is our hope that this paper will stimulate compilation of accounts of development of range management and of range science education by range men in other states and the world.

The Range Livestock Industry

Primitive man gained his livelihood by hunting and gathering. In regions where grasslands flourished, an abundance

of game reduced his dependence upon mere food gathering, so hunting became dominant. As a hunter he began to learn about grazing animals and the plants upon which they grazed—the essence of range management. Following the wild animals upon which he depended for food he learned that they concentrated where forage was best and water was available. He learned that they moved from place to place, depending upon season, weather, and plant growth. He soon discovered that these animals increased in numbers more rapidly when protected from predators. Thus, the beginnings of range management even before man began to raise livestock. These were vital bits of the body of knowledge that led to domestication of grazing animals, marking one of the greatest changes on man's long trail from savagery to civilization.

But domestication of animals exacted a price: as man increased his dependence upon animals for his food, the animals became increasingly dependent upon man for their care. Thus, man began to forge links of a chain of mutual dependence that has bound men and livestock inseparably throughout a long period of history.

In The Beginning

The story of civilization unfolds against a backdrop of livestock, grazing lands, and herdsmen. The primitive hunter of western Asia became the nomadic cattle breeder, antecedent of the more settled rancher. Indo-Europeans, our own ancestors, were already herdsmen some 4,500 years ago when they began to move out from the great grassy steppes east and northeast of the Caspian Sea. As these herdsmen found promising lands in Europe they settled down, cultivating wheat and barley in addition to raising livestock; ultimately many became farmers. Abram was a nomadic herdsman, with great flocks and herds, when he set out upon his wanderings from Ur in the land of the Chaldees. The story of the patriarchs—prominent livestock owners of their times—has a continuing background of men moving to new lands for better pastures.

An Infant Grazing Industry

Turning to the records, we find that raising livestock had ancient origins. We are told that in Europe, men of the Old Stone Age were displaced some twelve thousand years ago by other races that brought cattle with them (World Book Encyclopedia 1952). Breeding of cattle, sheep, and donkeys was well established in the Nile Valley by 3500 B.C. (Hitchcock and Chase 1934). Pictures in tombs of Egyptian royalty, dating from as early as 1900 B.C., show cattle, horses, goats, and other livestock (Keller 1956). Some Semitic nomads

Editor's Note: This article applies specifically to California, but in a general sense the situation and developments probably were much the same elsewhere. The things the author writes about are the kind of things that never get recorded; we should give more attention to compilation of the historical background of our profession. If writers were to prepare similar papers about their own areas it would do much toward putting on record the history of the profession and in particular of range science education.

I'm not suggesting limiting this to the United States—we are interested as well in Canada and Mexico, and the rest of the world for that matter, wherever range management and range science are being included in educational curricula.

I'm sorry about the long list of References but that will enable those highly interested to pursue the matter further.

from lands northeast of Egypt were prominent livestock ranchers at the dawn of written history. One of them, a man named Job, is reported on reliable authority to have had "... Seven thousand sheep, and three thousand camels, and five hundred yoke of oxen, and five hundred she asses, and a very great household" (The Book of Job 1:3). Another was Abram, also called Abraham, whose story is told in some detail in the Book of Genesis. "... Abram was very rich in cattle And Lot [his nephew] also, which went with Abram, had flocks, and herds, and tents Their substance was great, so that they could not dwell together" (Genesis 13:2,5-6). Some disagreements arose between their herders, because they had too many stock for the range; so they agreed to separate and each go his own way, Lot taking the plain of Jordan River, to the east, while Abram remained in the hill country (Genesis 13:7-11). This is one of the first range allotments recorded in history.

After Lot was separated from him, Abram was instructed "... Arise, walk through the land in the length of it and in the breadth of it; for I will give it unto thee" (Genesis 13:17). This is, doubtless, the earliest record of a range reconnaissance survey.

All through Genesis and Exodus we find a continuing theme of grazing; it recurs frequently elsewhere in the Bible. These biblical patriarchs were not only animal husbandmen—they were range managers, employing a number of practices that are considered sound range management today. These practices, amply documented in the Bible and other early records, included predator control to reduce losses from wild animals; moving herds from place to place to find good forage—essentially rotation grazing; water development, to increase supplies and improve their availability; at least rudimentary range allotments, dividing available lands among the various users; and some elementary forms of reconnaissance surveys, exemplified by that of Abraham.

Ranchers . . . Prominent, Educated Citizens

We are told that Job was "... The greatest of all the men of the east" (The Book of Job 1:3). Not only in the Bible, but in other records of these times we are told that livestock raising was one of the most important occupations (Keller 1956). These ranchers were prominent citizens of their times. Moreover, they were educated men; not so much in the sense of formal learning from books, it is true, but they were educated in the learning of their day, because of their experience, knowledge, and reasoning ability. Their calling required continual intimate contact with the natural world about them, and thorough understanding of it. Frequent detailed observations of weather, range condition, and health and vigor of their animals were imperative, as was ability to interpret and apply results of these observations. They had to be adept at maintaining relationships with friendly neighbors, and at dealing with those who were antagonistic. Above all, they had—or took—time for thought: for reflecting upon the meaning and implications of what they observed and did; for reasoning from cause to effect.

They had—or took—time for personal communication: they talked, and they listened; they wrote, and they read. These four elements—talking, listening, writing, reading—are the fundamental basis for all communication.

The fact that these men were educated, and communicated effectively, is attested in records that have come down to us, not only in the Bible of the Jewish people, but in clay tablets, papyrus scrolls, paintings, and monuments of other civilizations. These works, particularly the Bible, are unparalleled examples of effective written communication. "No book in the whole history of mankind has had such a revolutionary influence, has so decisively affected the development of the western world, or had such a world-wide effect as the 'Book of Books,' the Bible" (Keller 1956). The books in this volume include unexcelled examples of many kinds of writing: narration, poetry, essays, laws, and history; they expound some of the most profound philosophical concepts of the entire world. It is said that only concern for these writings kept the knowledge of reading and writing alive in much of western Europe during the so-called Dark Ages (between about 476 and 1000 A.D.) (World Book Encyclopedia 1952). And these records are concerned mainly with the story of some nomadic Semitic range men.

Development and Spread of Stock Raising into Western Europe

Although raising livestock to graze on grasses was more productive of food than hunting, it did not foster civilization as did cultivation of grasses for their grain, which compelled a more settled abode and yielded larger supplies of food that could be stored for considerable time. So a civilization based on both the grazing of grasses and their cultivation for grain arose in the "Fertile Crescent," the region curving northeastward from the Nile Valley to the Persian Gulf. This culture, built on the economic foundation of grain fields and grazing herds spread slowly in all directions until it stretched from China into the British Isles, and reached down through Abyssinia into East Africa (Hitchcock and Chase 1934).

Tracing the livestock industry through history we learn that technical methods of stock-breeding were already fairly developed and that appropriate equipment existed—still very simple, but adequate—at the time of Homer—about the 9th century B.C. (Toutain 1930). During the next five centuries animal husbandry and livestock grazing lost ground in favor of crop agriculture. "... It is remarkable that in none of the Roman writers on agriculture are any instructions given as to the fattening of cattle, nor indeed is any, but the slightest, allusion made to them as articles of food. . . . Indeed, there is no single word for beef, mutton, or veal" (Daubeny 1857).

As livestock raising spread northward and westward through Europe, two distinct forms developed. In southern Europe, especially in Spain, what was essentially a ranching industry evolved. Stock were maintained in the open; driven considerable distances between summer and winter ranges in relatively large herds and flocks; branding and other range practices which we know today came into use; and the indus-



try was controlled primarily by a livestock-owners' association—The Mesta (Klein 1920). Central and northern Europe, being a land of mixed forest and relatively small expanses of open grassland, favored a more settled life combining livestock raising and grain farming. Grazing depended essentially upon pastures, with butter and cheese being important products; in winter livestock required shelter and supplemental feeding of hay—grasses harvested and dried during summer; when grazed on unfenced pastures, close herding was the common practice. In some places, the Swiss Alps for example, driving dairy cattle to summer pastures at higher elevations became an established practice. Written records exist telling us that as early as the mid-1400's these Swiss herders allocated forage available on their mountain pastures in terms of an estimate known as a "kuhstoss," or cow's portion; this is a unit of forage use similar to our animal unit.

Livestock Raising Comes to America

Curiously, North America is the only continent on which native grazing animals were not domesticated. Consequently there was no prehistoric period during which grazing-and-herding was a dominant stage in the culture.

Domestic livestock were first brought to America by Columbus on his second voyage to the New World, in 1493, for colonies being established in the West Indies (Casas 1875-76). Horses were brought to the mainland of North America by Cortés, when he began his expedition to conquer Mexico in 1519 (Cortés 1519). Cattle and other domestic animals were brought a year or two later—the exact date is uncertain (Díaz del Castillo 1975; Hackett 1923). Other introductions followed, so that a thriving livestock industry soon developed, at first in Spanish settlements of Central and South America and later in colonies founded along the eastern seaboard on lands claimed by France and England.

The Spaniards who colonized Central and South America employed the open range husbandry and range management practices to which they were accustomed in southern Europe. These practices of raising livestock on the open range spread into the United States from south of the border in the region extending from Texas to California.

Colonists along the eastern seaboard were mostly from northern and central Europe. They brought traditional methods of livestock raising from their homelands: grazing animals on pastures; close herding; putting up hay for winter feeding in barns. In the southeast, and as northeastern settlements were extended westward and more cleared land became available, together with some natural grasslands, eastern stock raising assumed some of the characteristics of the industry on open range. These practices were expanded greatly as the Ohio country and Mississippi Valley opened up, and stock were driven from here to markets on the eastern seaboard.

Traditional stock raising practices of northern and southern Europe, as modified by conditions and experience in eastern and southwestern North America, eventually met and merged in the middle of our continent. The essential characteristics of livestock production on open range have been retained throughout the western and southwestern United States.

A Profession Called Range Management

Spanish pioneers who brought the first livestock to California turned them out onto a magnificent range. Abundant,



Melica grasses (*Melica* spp.) are representative of perennial bunch-grasses associated with needlegrasses and other dominants of California prairies.

palatable, nutritious forage, mostly from perennial grasses, provided excellent year-long grazing.

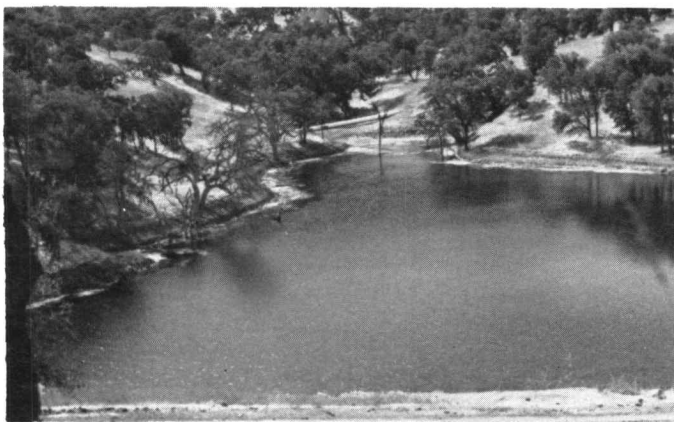
Productivity of this range resource was not maintained in the condition found by the Spanish colonists. Vagaries of climate, accidental introduction of aggressive alien plants of inferior forage value, and many other factors, combined with extremely heavy grazing pressure in the 1850's and 1860's, brought about a great reduction in amount and quality of the forage crop. A downward trend in range productivity was begun which continued until quite recently—is still in progress in some areas. Today, instead of having a superabundance of range for livestock we are confronted with the necessity of exerting conscious, continuous efforts to increase forage production on rangelands and to keep them from being diverted to other uses. Similar conditions exist over most of our western range country.

The Need Becomes Evident

Obvious changes in grazing lands of California during the 1850's and 1860's made ranchers aware of the need for better management of both livestock and land. They were stimulated to making improvements on the land so they would no longer be dependent solely upon natural range feed. These efforts were not highly effective because of both lack of knowledge of requirements of range plants and the limited nature of this work.



A remnant of California prairie in the South Coast Ranges. The principal dominant is purple needlegrass (*Stipa pulchra*); associated plants are mostly annual grasses and forbs.



Obvious changes in California grazing lands made ranchers aware of the need for range improvements as early as the 1850's. Water development—stock ponds or other supplies—still is one of the most important means of improving range forage utilization.

Perhaps surprisingly, some foundations of range management and range improvement were laid during the Gold Rush era, and accelerated by droughts of the early 1860's. The first steps were largely agronomic in nature. They emphasized that grazing lands can in essence be cultivated; that declining ranges can be seeded with plants not normally native to the site; that they can be fertilized with relative ease—even irrigated in some cases.

Alfalfa—then called “Chilean clover”—was being grown on a considerable acreage as early as 1851; burnet, a perennial forb of the rose family was brought to Shasta County from Bavaria, and sown on range lands in 1851, also; timothy was grown for hay in Trinity County as early as 1858. Orchard grass, redtop and other bentgrasses, velvet grass, tall meadow oatgrass, and several clovers were among plants introduced into California during the 1850's and 1860's. Some were not desirable forage; others were highly successful, and still are being used in range revegetation.

With the founding of the University of California as a land grant college in 1868, attention turned to educational and research needs of the rapidly developing agricultural industry of the state. For many years, however, this interest was directed toward animal husbandry and agronomy, insofar as livestock and forage crops were concerned. While these subjects are closely related to range management, and competence in them is highly useful to range managers, they apply less directly to understanding and solving range prob-



As settlement progressed in California great areas of grazing land were converted to agriculture and other intensive uses. Some of the most productive agricultural lands of today formerly were the best livestock ranges in the state.

lems than do basic sciences such as botany, plant physiology, ecology, and economics.

In the last quarter of the Nineteenth Century, livestock ranching became a subsidiary part of the specialized agriculture which grew to dominate the California scene. Range livestock husbandry was crowded into the foothills and mountains. This was an interesting repetition of what happened in Europe between the 9th and 4th centuries B.C., mentioned already.

Much available range was “public domain” land, which could be grazed without cost (at that time). The prevailing principle was “first come, first served.” As long as forage on the public lands was the main reliance for grazing livestock, owners gave little thought to range conservation or management. Besides, little knowledge of the rudiments of forage growth and requirements of range plants was available—among ranchers or anybody else.

Events of the late 1800's and early 1900's created an awareness of deteriorating range conditions and the need for range management. In 1883 the U.S. Census Office issued a “Report on the productions of agriculture as returned at the tenth census” (U.S. Census Office 1883). It included an excellent study of the range livestock industry—one of the first—by Clarence Gordon and a report on pasture and forage plants by the eminent botanist William H. Brewer, who had been in California in the 1860's with Whitney's geological survey. The California State Board of Forestry stressed the need for forest conservation, and dealt with the condition of grazing lands to some extent, in its public meetings and reports during the mid-1880's (Calif. State Board of Forestry 1886, 1888). A federal government report on history and condition of the sheep industry issued in 1892 discussed grazing problems and need for regulation of grazing on public lands (Carman et al. 1892). The Bureau of Plant Industry, then an agency in the U.S. Department of Agriculture, studied range conditions and forage plants on western ranges at the turn of the century. Reports on Arizona ranges, published in 1901 and 1904, showed conditions were cause for deep concern in that state (Griffiths 1901, 1904). A similar report on stock ranges of northwestern California, issued in 1902, is a classic (Davy 1902). Studies were made of conditions in a number of other range areas (Cotton 1904, Griffiths 1903, Kennedy 1903).

A Push and a Shove from Forestry

Parallel events in forest conservation were more decisive at this time. The “conservation movement” brought the public to a realization that natural resources were not unlimited, that misuse of land was increasingly obvious, that there was a real need for conservation.

The first forest reserves were withdrawn from public domain by President Harrison in 1891. Presidents Cleveland, McKinley, and Theodore Roosevelt made extensive additions to them. A forestry division in the U.S. Department of Interior managed forest reserves from 1901 until 1905, when they were transferred to the Department of Agriculture and placed under jurisdiction of the newly formed U.S. Forest Service. In 1907 the name “forest reserves” was changed to National Forests.

In 1907, also, the first two range technicians were employed by the U.S. Forest Service—J.T. Jardine and Arthur W. Sampson (Sampson 1952). This marked the beginning of federal grazing administration on National Forests

and the beginning of range management as a science and a profession.

The profession of forestry was in its infancy in the United States. The task of managing federal forest lands created an acute need for technically trained foresters—and range managers. These were some of the forces that gave a much-needed impetus to establishment of forestry schools in the United States, and to inclusion of courses in range management as an essential part of forestry education. An inevitable result in the long-run was emergence of range management as a distinct scientific discipline.

Range Management: The Science Emerges

During the first 25 years after the Forest Service was established, its primary task was to bring national forests into some semblance of management. Inventory, organization, and protection—from forest fire and timber thieves—were the most urgent needs. At that stage these were tasks for the “generalist” rather than for the specialist. World War I was a major interruption to orderly pursuit of management objectives. As far as range management was concerned, the greatest need at this time was for technical foresters who had enough training in range management to understand the basic problems so they could deal intelligently with ranchers whose stock grazed National Forests. Of course, some range inventory was needed, and other work was carried on as a matter of necessity; range research on some most obvious and pressing problems was initiated. While progress was commensurate with the times and outstanding needs, range management as a full-fledged science and profession waited in the wings for a more auspicious moment before appearing on the stage of natural resources management.

In the decade of the 1930's, the conservation movement again became very active. Now its efforts were directed primarily toward remedial measures for past improper uses of forests and range lands. It was spurred by the Great Depression, which created a need for employment; by availability of a large labor force in the Civilian Conservation Corps; by a more realistic appraisal of the seriousness of forest and range conditions; and by a greater appreciation of the urgent need for corrective action.

The Taylor Grazing Act of 1934 marked termination of a long struggle to place under management grazing lands in public ownership. As amended the next year, this Act provided the basic framework of a management system for 142 million acres of federal range land. The comprehensive document *The Western Range*, prepared by the U.S. Forest Service for the Congress of the United States and published in 1936, gave details of the problem of managing western lands and recommended solutions (U.S. Forest Service 1936).

Until about this time the major opportunity for employment for trained range management specialists was in the Forest Service, and jobs were not overly plentiful. With establishment of the Civilian Conservation Corps in 1933, which at first emphasized “tree forestry” almost exclusively, there began a great demand for foresters. The budding forester who passed his Junior Forester examination was practically hauled away from his graduation ceremony in a chauffeured limousine. By 1938 this bubble had burst. But the Taylor Grazing Act and *The Western Range*—and related factors—turned the spotlight on the range man: college graduates with specialized training in range management who could qualify as Junior Range Examiners on the Civil

Service examination could literally pick the job they wished. By the early 1940's the pace slackened, largely due to the outbreak of World War II with the change in demands for personnel and productive capacity it dictated.

After the middle of the decade of the 1940's there was another surge of interest in range management (and other efforts in conservation and management of natural resources); new opportunities arose from employment for range scientists. This was sparked in part by a reorganization in the Department of Interior, which incorporated the Grazing Service, the General Land Office, the Range Development Service, and other land-managing agencies into the Bureau of Land Management. It was fueled, too, by a great amount of “catch up” work in programs of various federal agencies, made necessary by the delays due to World War II. In addition, some western states began to take action to improve management of grazing lands or to initiate co-operative programs with ranchers on privately owned lands, leading to employment for range managers by extension services and other state agencies. Opportunities for employment in private business as consultants and for engaging in the business of ranching itself became available increasingly to men trained in range management. Results of a considerable amount of range research were being published in usable form; and employment opportunities in range management research itself were more plentiful. Another indication of the need for range scientists was the significant number of colleges and universities which set up a curriculum in range management during this decade.

The Foreign Operations Administration (FOA) came into being in 1949. President Harry Truman set out six points in this program whereby this country would undertake to help needy countries develop themselves. The fourth point (Point Four) of the six gave impetus to application of technical range management principles on a world-wide basis. Philosophies and techniques developed in the United States provided this basis for scientific range management which could be applied in many developing countries on all continents. Employment opportunities for the United States range scientists were thereby greatly expanded and a number devoted their careers to technical assistance overseas.*

It appears altogether reasonable to say that range management emerged as a profession and as a science and became of age worldwide during the decade of the “Fabulous Forties”.

Range Management Education

Range management has been defined as the *science* and the *art* of procuring maximum sustained use of the forage crop (or maximum livestock production) without jeopardy to other resources or uses of the land (Sampson 1952, 1954). It is a *science* because knowledge is accumulated by observation and classification of facts, then systematized and formulated with reference to discovery of general truths or principles. It is an *art* because the knowledge is made useful or efficient only by skill or experience in its systematic application to bring about desired results.

And How It Grew

Range management is concerned not only with how the

*Credit is given to C. Kenneth Pearse for this paragraph. Pearse became thoroughly competent in his profession by training and long experience on Western range lands. He was for many years one of the American range scientists who worked in developing countries, making the Point Four program such a success.

range affects grazing animals, but also with how grazing animals affect the range. Although range land-use is today a public issue, and it is imperative that the range scientist deal with people as well as with grazing animals, he must never lose sight of this fundamental concept of land-animal-plant interaction. As a profession, range management is relatively new. It was first practiced in the western United States, by technicians of the Forest Service, beginning in 1907. As a science, range management is not fully developed. Many of its important problems are not solved; many of its basic philosophies are not proved experimentally; many of its fundamental concepts need further clarification. The science of range management must be developed far beyond its present scope to serve its best role in livestock production and conservation of range resources.

As a profession and as a research discipline, range management grew out of forestry. In a similar way, some 20 years later, game management also grew out of forestry. The first practitioners of both professions were, basically, foresters. A term currently in vogue is "spin off"; so both range management and game management are "spin offs" from forestry.

Being an outgrowth of forestry, the development of range management education is intimately related to forestry education. Perhaps this intimacy is nowhere better illustrated than in California—and at the University of California, where the first formal instruction in these subjects was given in this state.

Trained . . . to Deal With . . . Grazing Interests

The earliest references to forestry education in California go back to 1878, when the University of California at Berkeley was in its infancy (Casamajor 1965).** One of the strong arguments of those who advocated establishment of a forestry school in California was the need for foresters trained under western conditions to equip them to deal with ". . . western lumber and *grazing interests* [emphasis added]." Instruction in forestry at the University was first authorized by the state legislature in 1913; the school of forestry began operation the following year.

Although the importance of educating men in range management was recognized when the school of forestry was being planned, the first course in that subject was not offered until 1920, 6 years later (Sampson 1954).

Courses in range management were introduced into the curriculum on a permanent basis in the spring of 1922, under Dr. Arthur W. Sampson (Casamajor 1965). In September 1924, Sampson was joined by Harry E. Malmsten, who con-

tinued as his colleague in teaching and research until 1935. From 1935 until 1947, Professor Sampson continued range management instruction alone. Dr. Harold H. Biswell joined the faculty of the School of Forestry in 1947, as associate professor of range management. He assumed a share of the instruction load and continued it after Dr. Sampson retired in 1951. Dr. Harold F. Heady—the "other Harold"—was added to the range management staff in 1951, taking up his duties shortly after Sampson's retirement.

In 1953, in collaboration with faculty members from the University of California at Davis, Drs. Biswell and Heady organized an undergraduate curriculum in range management. The same year a graduate program in range management leading to the degree of Master of Science was established in the School of Forestry at Berkeley.

The Range Management "Option"

From the time instruction in the subject was begun at the University of California until 1953, range management was an "option" for the bachelor's degree in the forestry curriculum. This option—which was not considered to be the same as a minor—differed from the conventional forestry curriculum primarily in the choice of electives. For admission to the upper division course in range management, the "grass forester" must have completed three units of taxonomic botany in addition to dendrology. Usually his other electives included additional courses in plant physiology and other aspects of botany, and probably in organic chemistry and economics also; whereas, the "tree forester" chose forest administration and policy, forest engineering, wood technology, and similar electives.

The real strength of the "option" derived from thorough grounding in fundamental principles of forestry and plant growth—forest ecology, silviculture, and forest management; from supporting courses in plant physiology, taxonomy, and other aspects of botany; and from a sound background in economics—all these were required by the time the senior college student was admitted to specialized instruction in range management. During most of the period before the range management curriculum was established, instruction in range management itself consisted of only two courses.

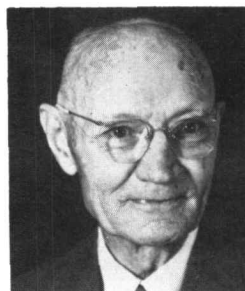
"Elements of Range Management" was a lower division lecture course for three semester units of credit. In the University catalog content of this course was described as "Development and present status [of range management]; its place in forestry and agriculture; economic relationships; treatment of the range and handling of livestock on it."

The real meat of range management instruction was a

**Much of the historical information about the University of California school of forestry is summarized from this source; to cite each item would make the text unwieldy.



Walter Mulford
First Dean, School of Forestry
University of California
1914-1947



Arthur W. Sampson



Harold H. Biswell



Harold F. Heady

five-unit, upper division lecture and laboratory course, "Range Utilization." The aspirant range scientist was introduced to and guided through the mysteries of "Range use and forage valuations as integral parts of land use planning, including technical problems of range management; taxonomy of grasses and forage plants." The laboratory usually included several field problems and one or more all-day or week-end trips.

For those undergraduates who wished to delve more deeply into the subject, or a particular phase of it, there was a "199 course"—special study for advanced undergraduates, which meant individual study under personal supervision of Dr. Sampson. For graduate students, Dr. Sampson's seminars in range management were available.

History . . . Deals with People . . . Who Make Things Happen

Now, I have told you the events, the times, and the place of beginning of education in range management in California. Recital of the mere facts is not especially inspiring. Fortunately, history deals with more than events, and times, and places—it deals also with people. Real live people who make events happen. So, to make the facts you have read come to life, you must know the people.

There were four of them in California. Walter Mulford headed the school of forestry at the University of California from its beginning in 1914 until he retired in 1947. Graduating from the first forest school*** in the United States only 3 years after it was founded, Mulford exemplified the young men who were willing to pioneer in a profession new to America. A born teacher, quick to perceive that conditions in America required training different from that given in Europe, he began to emphasize specialized fields in forestry: logging engineering, forest products, range management, forest influences, and other fields, as rapidly as he could recruit qualified staff. It is altogether fitting that the Regents of the University authorized that the Forestry Building on the Berkeley campus be named Walter Mulford Hall.

Arthur Sampson's appointment to the faculty of the University of California in 1922 was the beginning of an adventurous journey on a long trail. He was the first person to teach a regular and continuing course in range management in the United States. He was also the first permanent member of the faculty of the forestry school to hold an earned doctoral degree. For 29 years, until his retirement in 1951, he continued his teaching; he contributed to organizing and strengthening the program of graduate study in forestry and directed work of graduate students as both an advisor and a professor. At various times Sampson taught other courses in addition to those in his specialized field. When I was an undergraduate in the late 1930's, he was responsible for the undergraduate course in forest ecology; although already "hooked" on the subject of ecology, it is to experiences in this class that I owe much of my continuing interest. Sampson performed a prodigious amount of research, publishing frequent articles and bulletins and several books. Although a prolific writer, he was very painstaking: pinned to the roll-top desk where he customarily did his writing was a slip of paper; it read "This easy writing makes hard reading; this hard writing makes easy reading." And I recall numerous discus-

sions of the import of that statement in relation to whatever writing he was engaged in at that time.

Dr. Sampson was an outstanding teacher and an unexcelled scientist, yet his manner and relationship with students and colleagues was such that he was known universally as "Sammy." It is entirely appropriate that his profession regards him as the "Father of Range Management."

It is not *how long* a person does a certain kind of work that is important, or that qualifies him to be called competent; it is *how well* he does it. Both these men—Mulford and Sampson—were unsurpassed in this respect. And they have had worthy successors.

The two Harolds—Dr. Biswell and Dr. Heady—took up the work so nobly begun. They continued to build on the foundation laid by Mulford and Sampson, maintaining the integrity of the structure.

And In the Meanwhile

Meanwhile, back on the range . . . Other states, and other educational institutions within this state, had not been sitting on their hands.

Courses in range management were offered at educational institutions in several other states before they were begun in California. Utah State College was the first, beginning range instruction in 1914 (Sampson 1954). Montana State College followed the next year and established the first range management curriculum in the United States in 1916. Six institutions, in addition to the University of California, offered range management courses by 1920. By 1954, 15 colleges and universities had a curriculum in range management, eight of them having been established during the 1940's. Sixteen additional institutions offered range management training as an adjunct to other degree programs.

By the early 1950's, several California colleges other than the University of California included courses in range management in their programs of instruction. The first was Cal Poly (now California Polytechnic State University) which instituted a formal course in range management in 1947. California State University, Fresno, offered an upper division elective course in range management in the Animal Science Department, beginning in 1948. At California State University, Chico, the first range management class was begun in 1954. Humboldt State University initiated a program of range management instruction in 1967; their first graduate was in 1969.

In Two Score Years

In a span of two-score years—from 1907 to 1947—range management grew from a seed into a thriving range plant. In 1907, two men—Sampson and Jardine—began what could have been just another job, as range technicians for the U.S. Forest Service. From the work and the minds of these men—and countless others who made contributions during the intervening years—there emerged a recognized science and a profession that today challenges the minds and the efforts of several thousand men—and benefits millions of people—throughout the world.

Another span of two score years—from 1914 to 1954. At the end of two score years from the time the School of Forestry was founded at the University of California at Berkeley, education in range management progressed from supporting studies in the forestry curriculum to a full-fledged undergraduate major in range management, leading

***A curriculum in forestry was established at Cornell University, Ithaca, New York, in 1898, as a two-year graduate program. It was the first formal forestry training offered by a university in the United States. Mulford was a student there at the time majoring in horticulture and agriculture and graduated in 1899. He stayed on to take the forestry course and received a Forest Engineer degree in 1901.

to a Bachelor of Science degree. A graduate program had been established in which the degree of Master of Science was awarded. Four other colleges in the state had instituted courses to train range scientists.

Outside the state of California, other education institutions were offering instruction in range management in degree-granting programs; some of them were awarding earned doctorates.

Range men of today are not just cowboys or sheep herders who have gone to school. They are ranchers and range scientists, competent in a profession that has earned respect and esteem through contributions to management and improvement of natural resources upon which a worldwide industry of livestock raising is based, and upon which, in turn, welfare of the entire human race depends. Range men of today are educated, capable, responsible citizens, active in affairs of their times, worthy successors to the patriarchs of old; not just school graduates.

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Celebration of the 25th Anniversary of Rancho Experimental la Campana

Rancho Experimental La Campana, pioneer institution on range management research in Mexico, is celebrating its 25th anniversary, and is cordially inviting you to attend the special program of events for this year, from August 10 - 13, in Chihuahua city and at the experimental station facilities.

For further information and arrangements, please contact Rancho Experimental La Campana offices, Apdo, postal 682, Chihuahua, Chihuahua, Mexico, phones: (141) 2-56-55 or 2-52-27.

Celebración del XXV Aniversario del Rancho Experimental la Campana

El Rancho Experimental La Campana, del Instituto Nacional de Investigaciones Pecuarias-SARH, extiende una cordial invitación, a los eventos que se desarrollaran con motivo de la celebración del XXV aniversario de su fundación, los días 10 al 13 de Agosto de 1982 en la ciudad de Chihuahua y en las instalaciones de este centro de investigaciones, que incluire sesiones, cei científicas y técnicas, para ganaderos y profesionales en la materia, así como el tradicional Día del Ganadero.

Para mayores informes, comunicarse a los telefonos (141) 2-56-55 o 2-52-27, o al Apdo. postal 682, en Chihuahua, Chihuahua, Mexico.