

# A Visit To San Joaquin Experiment Station Shows What Is Being Accomplished

A visit to the San Joaquin Range Experiment Station at the former Lisenby ranch showed what is being done there to determine the best practices in hill range feeding, both as to grasses and number of head of stock that a given acreage could carry most profitably.

Charts have been worked out, showing the division of the 3,500 acre range into 12 pastures. Six of these pastures are to be stocked with different intensities this year; that is, so many cattle stocked on so many acres. Another chart shows the five predominant grasses grown on the range and their abundance on each pasture. Five species of native clover, two of which are abundant, were found growing on the ranch. It has been the belief of most cattlemen that this is not much of a clover country, but it was noticed that cattle much preferred to eat the clover than other wild grasses and the fact that so many varieties of clover grow here, makes the field of research very promising.

This range produced 1515 pounds of dry material per acre this year. Tar weed, though adding much color to the fields in the fall with its showy yellow blossoms and heady perfume, is not range feed and efforts to stamp it out will be made.

One of the pastures, No. 7, will not be used this year. It is to be left idle and the results of nature watched and recorded.

There is plenty of water on this range, thirty-five springs having been located. One spring runs 1000 gallons a day. Water is piped and the springs walled up with a 6x4 cement top to hold in the water and to keep out rodents.

Thirty different grasses grow on the range. A chart on which are mounted 21 species of grass should be instructive to cattlemen. All of these grasses are found on the ranch but of these 21 species only five or six are native. Wild oats 10 1/2 feet high grew on the ranch this year.

J. W. Nelson, Superintendent, in commenting on the place, said every effort is being made to make the experiment station a plant which will be of great value to the cattle industry, and a credit to the county and state. The station is to be here for a long, long time to come and its demonstrations cannot be worked out in a few years. Cattlemen are well pleased with the results, he said, and are working in close harmony with federal government and university agencies.

Out of a total of 90 men working on this range, 76 are from Madera. A CCC camp of 35 men is now stationed there. The camp started with 50 men but it was soon proven that this number could not be taken care of properly. However, it is hoped that

accommodations will be made shortly to employ a large number of men.

Mr. Nelson stated there would be an average of five men from universities and government agencies making checks on the various phases of the work being done at the station.

Those who enjoy getting out of doors these autumn days, should by all means visit the new government range experiment station on the Lisenby ranch. Going by way of Bates Station, the road is oiled to the Kingsland quarries. From there on the road has many turns and is a little rough in places but on the whole in very good condition.

The scenery is pretty in its early fall dress and with a basket of lunch the day can be spent very enjoyably. It takes about an hour each way for the trip. For some distance before you see any sign of the farm buildings, you notice a very substantial fence, heavy posts with hog tight wire and three rows of barbed wire, with United States government signs posted here and there.

The buildings are situated in a small valley, and one first comes upon a large warehouse in the process of erection. Adobe bricks lay in the sun to dry on the site chosen for the superintendent's residence. The administration quarters, a large adobe building, erected on a small hill, is very imposing, and when the lawn, flower beds and final details have been completed, it will indeed be a show place of Madera County. The outside of the building has been whitewashed. The right wing is given over to a laboratory and bunk quarters consisting of two bedrooms, shower laundry room, lavatory and store room. Each bed room accommodates from two to three men, single beds being used. Two clothes closets, large windows and doors with inside screens give plenty of space, light and air. The casement windows open to the outside and have attractive floor length drapes, which also serve as a window shade when

(Continued on page six)

## A Visit to San Joaquin Experiment Station

(Continued from Page 1)

drawn together. The laundry room is equipped with washing trays, hot water heater and cupboards.

Going out on the patio, one gets a charming view to the east. In the center are four olive trees soon to be surrounded by lawn and flower beds.

The left wing of the building contains a dining room, kitchen, laundry room, two bed rooms, both and an assembly room, 20x27 feet. As in the bunk quarters, one again finds the two single beds in each bed room.

The lounge has a very attractive fire place, as does also one of the bedrooms, built on a much smaller scale, and is most charming in its informality, beamed ceiling, large windows, beautifully draped, chesterfields and many occasional chairs, library, floor lamps, nothing is lacking in its hominess. This room is open to all the men.

The center wing houses the three main offices. Here the scientists, men from universities and field superintendents, will work over maps, tests, draw charts etc.

In keeping with the Spanish design, all rooms have but one entrance—the door leading out onto the patio and hallways. The house throughout, is equipped with electricity and flamo gas. Every convenience known to the city dweller can be found in this house. Some of the bed rooms have furniture made by the SERA workers on Government Island. These men, usually carpenters of the third or fourth class, out of work for months were given employment by the SERA and have turned out some clever work. The furniture is built on plain lines, is of pleasing appearance and the cost of each article is far below the average price paid by the government for furniture.

A flagstone walk of red sandstone, purchased from the Clay Daulton ranch, set in concrete, is very attractive.

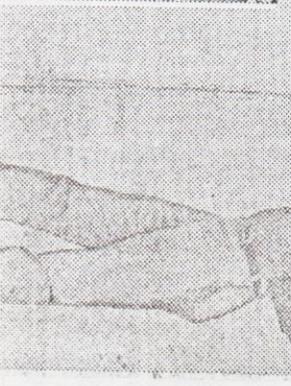
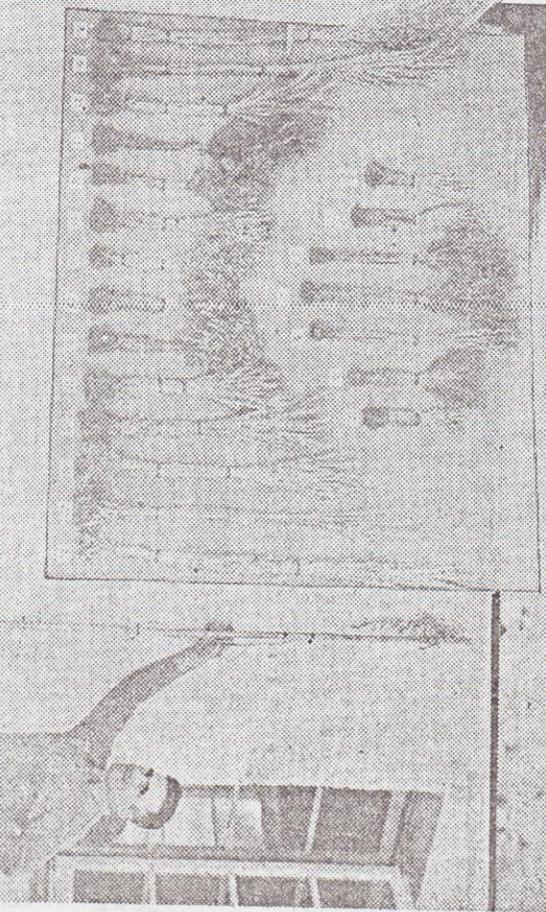
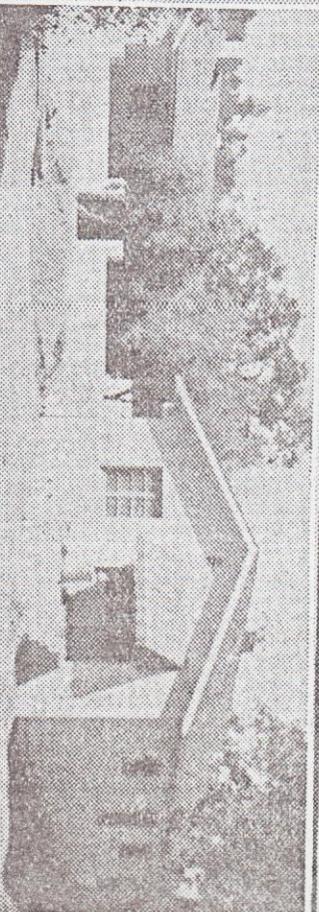
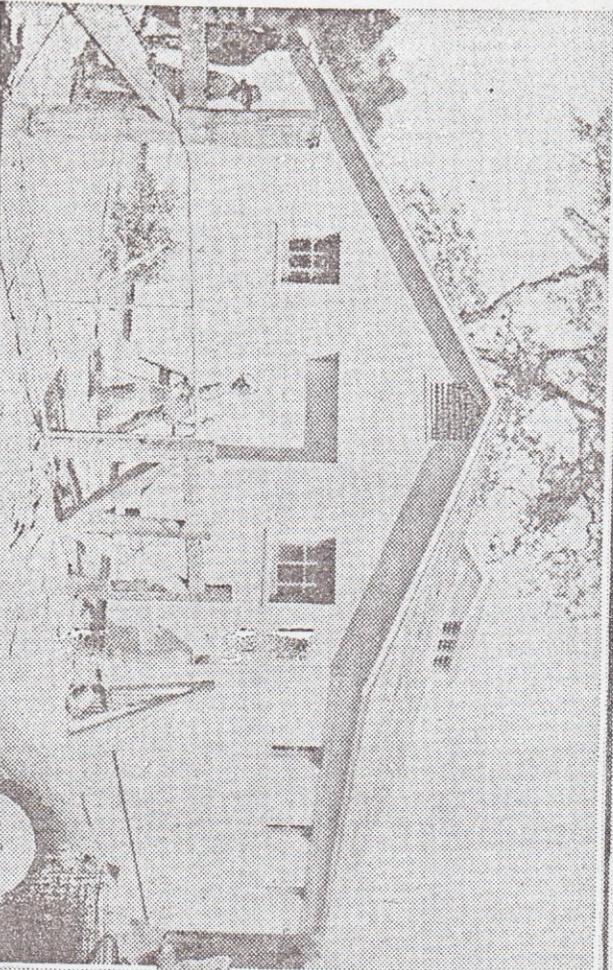
Many small buildings are being built, all whitewashed or painted white, adding much to the appearance of the place. A hot house has already been erected and plots of various seed planted so the results of its growth can be watched.

*The Madera News*

1935

## SEEKING BEST GRASSES FOR RANGE CATTLE

When the work of the federal experts at the San Joaquin Experimental Range near O'Neals has been completed California cattlemen no longer will have to guess about the relative nutritional properties of the various grasses on their land and they will know with certainty just what effect heat, rain, frost, etc., have on their feed. The pictures, taken at the Experimental Range by Lew Hege, The Bee staff photographer, show: Rear view of the newly-constructed adobe headquarters, including the patio; J. W. Nelson, the superintendent of the Experimental Range, showing the twenty-one kinds of grasses found on California foothill ranges; home recently built for the superintendent; Civilian Conservation Corps men building a corral for the barn, and Richard Klugh, one of the federal experts, displaying a ten-foot stalk of wild oats found on the range.



## FEED PROBLEMS BEING STUDIED BY FEDERAL EXPERTS

Ranch Near O'Neals Selected  
For Government Experimental Project

By M. J. K.

Very often the methods and performances of scientists are a profound puzzle to people in general and with a doubt that is the case with the United States Govern-

## Merced Corn-Hog Contracts Sent To Washington

MERCED (Merced Co.), July 13.—A total of 136 contracts from Merced County under the 1935 corn-hog adjustment program have been sent to Washington for final approval.

Assistant Farm Advisor I. I. Bennion says the contracts represent more than 10,000 hogs raised in the county under the government program. Growers will receive benefit payments of \$15 a head on 10 per cent of their base rate on contracts approved.

Published by scientific observation and study that it is round." The study of the effect of rain

formances of scientists are a profound puzzle to people in general and with a doubt that is the case with the United States Government scientists who have established themselves at the San Joaquin Experiment Station in Fresno, Calif., in Matadero County, to study problems of range feed.

"What," says one grizzled cattleman, "can these white collared fellows tell us about feed... I've been in this business all my life and my father before me, and I can tell these government people in half an hour what it will take them many years to find out for themselves."

#### Nelson Is Philosophical

J. W. Nelson, the superintendent at the Experimental Range, a veteran of thirty years in the grazing division of the United States Forest Service, smiles at this rhetorical question but merely answers, "We encounter that attitude quite a bit." Nelson, incidentally, was a horse wrangler for Buffalo Bill before he joined the forest service early in the century.

The Experimental Range, located three miles southwest of O'Neals on the old Lisenby place, consists of 3,500 acres. It is being fenced off into twelve different pastures on which the cattle will be grazed at stated intervals. At present there are seventy head of 2-year-old Herefords on the range and this number will be increased by purchase and natural production.

#### Reason For Selection

The ranch in the Madera foothills was selected for study by the United States Government, Nelson explains, because it is representative of 6,000,000 acres of the same type of grazing land located chiefly in the Sacramento and San Joaquin Valley foothills.

There are more than twenty families of feed grasses in this vast area, according to Nelson, some of them excellent, some just fair and some possibly more harmful than beneficial. One of the objects of the experimental range is to determine through an extended period of scientific study just what is the value of these various grasses.

"Indoubtedly," says Nelson, "it is difficult for some cattlemen to see the sense of spending a lot of money, time and energy on studies of this nature. They think they know all there is to be known about range feed."

#### Cites One Instance

"For instance, San Joaquin Valley residents, not only cattlemen but also persons engaged in other lines of endeavor, are of the opinion a heavy rain in June or July would absolutely destroy all range feed. That, however, is only a commonly accepted belief. We're here to determine just what effect summer rain has on foothill range feed. Our findings may corroborate the common belief and it may not. Remember there once was a common belief that the earth was flat. Some questioned that belief and got burned at the stake for their temerity. However, it turned out eventually that the earth was not round and it has been pretty well estab-

lished by scientific observation and study that it is round.

The study of the effect of rain on mature range feed, however, is only one of a myriad of research matters being studied at the Matadero foothills during the next several years. Dry seasons will be compared with wet seasons, green feed with mature feed, one type of grass with another until more than twenty varieties have been scientifically tabulated as to their nutritional properties. The development of each animal will be closely watched and recorded from the time it is a suckling calf until it is ready for the slaughter house or the finishing pens. The quantities of milk supplied by the cows under circumstances of frost, sparse grass, heat and rain will be checked. In fact, it is planned to obtain an answer to the hundred and one questions regarding range feed that have been perplexing federal grazing officials since the forestry service first was given an interest in the welfare of the cattlemen of the West.

#### Village Being Built

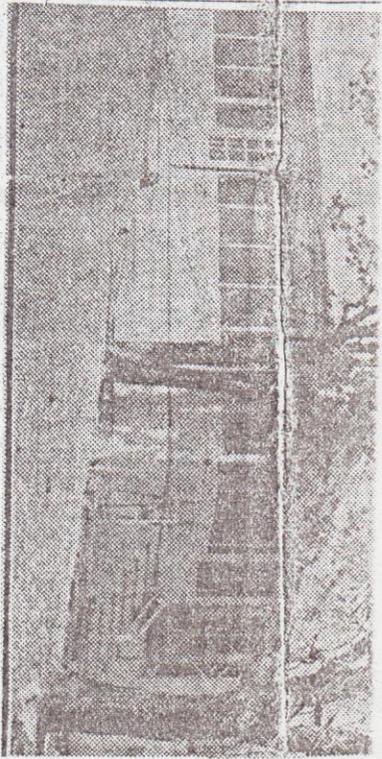
The old Lisenby ranch, which until a year ago contained only the old homestead and some barns, is rapidly taking on the appearance of a spruce little village nestled in the foothills. An attractive adobe structure, with all the modern conveniences, including electricity, running water, etc., will serve as headquarters and will provide living accommodations for several of the group of federal experts attached to the project. Here also is housed the laboratory where trained men already are engaged carefully weighing the various grasses found on the 3,500-acre ranch. Comparisons will be made between this year's weighings and the weighings of subsequent years to determine the effect of more or less fall, winter and spring rain on the quality of the feed. Among the specimens of wild grass brought in from the range by the federal men is a stalk of wild oats that measured ten feet from root to head.

#### Several Buildings Erected

A neat superintendent's home for Nelson is in process of completion. Another smaller office has been completed, as have also a barn for the cow ponies, a reservoir, a large water tank, a few smaller residences and a hot house, where various range grasses will be propagated for observation.

The entire project is being undertaken in Uncle Sam's methodical way. It is a safe bet that the ranchers of the San Joaquin will not receive any half-baked conclusions in the course of a few months, or even years, but it is just as safe a bet that the conclusions, when ultimately published, will be of incalculable benefit to the cattlemen of California.

The project will be carried on by the United States Government with the co-operation of the animal husbandry departments at the University of California and the university branch at Davis.



SAN FRANCISCO EXAMINER: SUNDAY, NOVEMBER 10, 1935

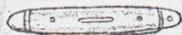
---BELIEVE IT OR NOT---

BY BOB RIPLEY



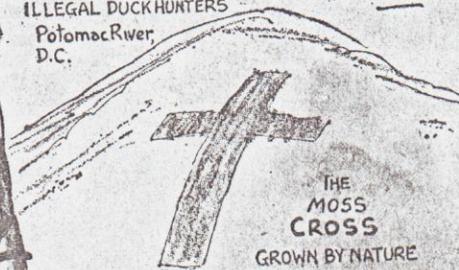
THE  
**BIG SHOT**

SHOTGUN 10 FT. LONG  
KILLS 500 DUCKS AT ONE SHOT  
Used by  
ILLEGAL DUCKHUNTERS  
Potomac River,  
D.C.



KNIFE  
USED 61 YEARS  
By L. V. SHAW  
of Clementsport, Nova Scotia  
AGE 80

— WHO  
NEVER LOST  
A POCKET KNIFE  
IN HIS LIFE



THE  
**MOSS  
CROSS**

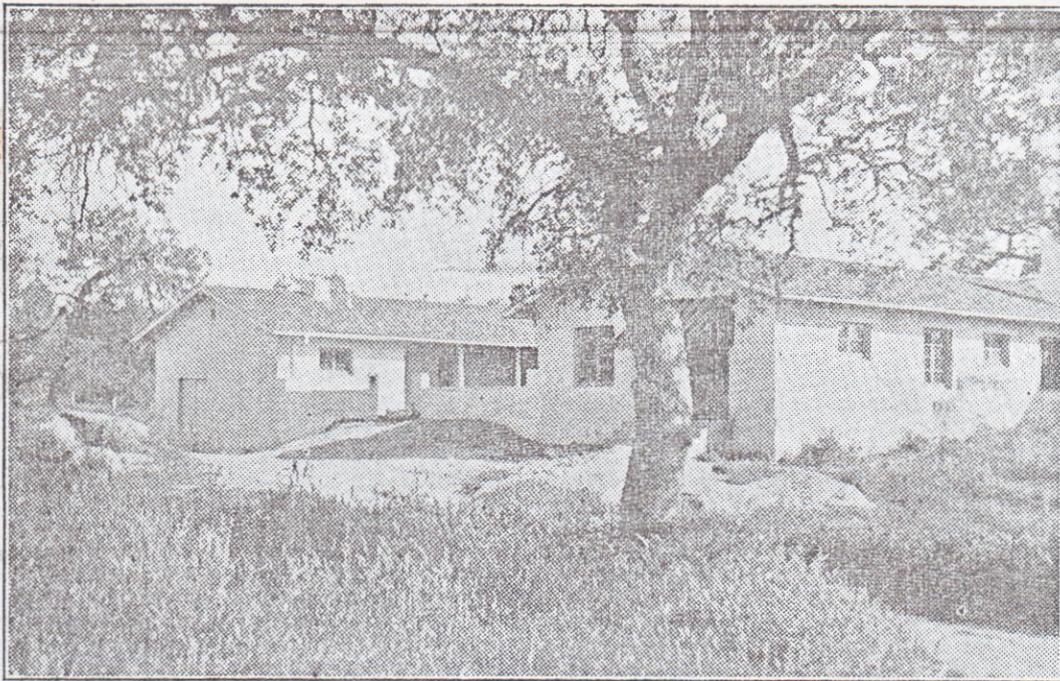
GROWN BY NATURE  
ON A HILLSIDE ON THE  
SAN JOAQUIN RANGE  
California

Oct. 29, 1936

By J. W. Nelson

THE MADERA NEWS

# San Joaquin Experimental Range



ADMINISTRATION BUILDING EXPERIMENTAL STATION

This tract of 3,600 acres in Madera County is being developed by the California Forest and Range Experiment Station as a field laboratory in which to study, in cooperation with the University of California, the puzzling problems of foothill range management and interlocked land uses. The experimental range, a sample of the granite-soil region, is located in the oak-grass type, at elevations ranging from 800 to 1,500 feet.

Foothill ranges in central California, totaling 10,000,000 acres and more, are of vital importance to the livestock industry, as sources of fall, winter and spring feed.

Lying between the cultivated valley floor and the mountains, these foothills have many important interrelated values. Consequently, their management is closely tied in with the handling of large areas of valley and mountain lands. In addition to the cattle and sheep industry of the State, many lines of business, supported in varying degree by stockmen, are vitally concerned in management that will, if possible, improve existing range conditions and also utilize most efficiently the forage crop which fluctuates greatly from year to year.

Great changes have occurred in central California since frontier days. Intensive agriculture has expanded in the valleys. Methods of handling livestock have changed. The striking changes in forage are evident. Especially surprising is the extent to which native vegetation has been replaced by foreign plants.

Over vast foothill areas these immigrants total between 50 and 60 percent of all the range feed. Examination reveals that annuals account for approximately 97 percent of the herbaceous forage. Bunch grasses and other perennials totaling only about three percent.

These annuals quickly dry at the

close of the rainy season thus affording only a short green-fed period. During the subsequent period of approximately six months, as shown by the University of California, this forage is deficient in protein, phosphorus, and vitamin A. These and possibly other deficiencies affect growth, reproduction, and the fattening of cattle.

Successful livestock production in this area, either on a yearling or in connection with other ranges is dependent upon management of these foothill ranges to secure maximum production and quality of forage. Close proximity of these ranges to large population centers, as well as changing economic conditions have intensified the need for information on numerous practical questions.

Several groups of studies are now under way, such as;

#### Grazing Capacity and Season of Use

The initial work has a two-fold purpose: first, to observe the effect—on the range and on the animals—of light, moderate, and heavy grazing at different times of year; and second, to develop improved methods of evaluating range condition and changes. An experimental herd of 70 Hereford cows with their calves has been divided among three pairs of pastures, each pair to be grazed to a different degree. The cattle in each pasture are kept under close observation and records are maintained (1) of weights by individual animals, repeated at frequent intervals, and (2) of animal improvement and condition as indicated by various animal-husbandry tests.

The study is now under way in the grazing-capacity pastures. A range survey or forage inventory has already been completed which shows just what range plants are now on the area, as well as information on their average yield, relative abundance, and their distribution in the various pastures. The detailed forage observations, measurements, and weights are obtained from periodic examinations of hundreds of small sample plots scattered throughout the experimental pastures, and including some plots protected from livestock grazing and others from which both livestock and rodents are excluded. This picture of the present forage will provide a basis for future comparisons and for detection and measurement of any

where studies of precipitation and run-off are in progress.

#### Wild Life Studies

The initial work to be undertaken under this subject will be in connection with Valley Quail.

This study will be conducted by the University of California working in cooperation with the Biological Survey, to determine cover and food requirements, rate of increase, and effect of predators, etc. So far the work has only progressed to taking of a census of brood stock.

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#### Rodent Enclosures

Four plots, three 1-4-acre in size and one twice as large, have been enclosed with fine-mesh fencing extending both above and below the ground surface, in which to confine ground squirrels, pocket gophers, and kangaroo rats—one species in a pen. The object of these plots is to determine, in cooperation with the Biological Survey, the kind and quantity of forage that these species of rodents consume—in other words, their effect on the range.

Surrounding the group of four enclosures, a strip 12 feet in width is fenced against livestock but open to rodents. Marked plots on which the vegetation is measured annually are located in each of these five areas, and also on the outside range which is grazed by both rodents and livestock.

#### Forage Plant Nursery

In the forage plant nursery, some 50 species are being tested for survival under foothill conditions. These species include both native bunchgrasses and plants from the Great Plains, the Southwest, and from foreign lands. The next seeding will include a more complete assortment of potentially useful species. The next step will be the sorting out of the few most promising kinds for actual testing in the experimental pastures. The aim of this program is to explore the feasibility of attempting to modify the present forage cover through artificial measures.

#### Run-off And Erosion Plots

A group of nine rectangular plots 1-40-acre in size has been installed to aid in the study of rainfall run-off and soil erosion when such land is grazed to various intensities. The run-off from each plot is measured by catching the water in a concrete trough at the base of the plot and running it through a settling tank and a specially designed tipping bucket which catches 1-10 cubic foot of water, then dumps it and brings another bucket into position. The tipping buckets fill and empty as long as the run-off continues. With each tipping an electrical contact is made and automatically recorded. An intensity rain gauge is also connected with the recorder. A continuous record is thus obtained for the total rainfall, the period during which it fell, and the total amount of resulting run-off.

The plots will be left undisturbed until inherent differences between the nine areas can be ascertained. Thereafter, they will be subjected to various treatments. Data from these plots will supplement the findings from similar apparatus installed at North Fork and in other places in the State

## SAN JOAQUIN RANGE EXPERIMENT STATION AT MADERA NOW OPEN FOR INSPECTION

### All Stockmen Should See It

The formal opening of the San Joaquin Experimental Range of the United States Forest Experimental Station, Berkeley, at the Range, near Madera, Calif., on May 2, marks a new milestone in the development of the livestock industry of the West. There the experimental work of the laboratory will be put into actual practice. It marks the culmination of efforts commenced years ago by the late great Professor Gordon H. True. Progressive cattlemen are behind the project. Harvey Russell, who was chairman of the day, was most enthusiastic. The University of California is cooperating with the U. S. Forest Experiment Station and the U. S. Forest Service, also the U. S. Biological Survey. With Jesse Nelson, formerly in charge of Grazing, California district U. S. Forest Service, as superintendent, the range work will be ably handled by a practical livestockman.

#### Harvey Russell Enthusiastic

The range on which the experimental work in the development of range grasses and better beef stock is to be conducted is the poorest around here, said Harvey Russell. Different forage plants from all over the world will be tried out. If we can find one forage plant which makes good the money spent will be well invested.

#### A Day Dream Come True Declares Director

This is a very happy day of my life, said Director Kotok of the Forest Experiment Station at Berkeley. It is a day dream come true. This experimental range is the result of efforts of the Madera Chamber of Commerce, the local cattlemen's group and the Farm Bureau. We want all of you cattlemen and livestockmen to feel that this project is yours.

#### Range Management, a Business In Itself

Dr. Stanley B. Freeborn, represented Dean Hutchison, College of Agriculture, Berkeley. He mentioned that cattle were first introduced in California in 1769 and that during the Mission days 9,000,000 cattle hides were exported from California. We have lately found out, Dr. Freeborn stated, that range management is a business in itself, it is not botany, agronomy or forestry. The utilization of the range is the oldest form of agriculture but the least one studied. It will be given consideration at this San Joaquin Experimental Range. There is not over-production in the United States of any agricultural enterprise. It is a sad commentary that we have to limit production he declared, in order that the man on the land can make a living and at the same time find people who are undernourished.

#### Will Endeavor To Bring Back Range Grasses

Mr. M. W. Talbot, in charge of the Range Station asked the question when he spoke "What did Madera Co. ranges look like before the white man came." Between 50 and 60 per cent of the grasses which now cover these hills came in the last 90 years, he said. Only 3 per cent of the present vegetation is made up of perennial plants. They were at one time much more abundant. The San Joaquin Experiment Range is established as a field laboratory.

#### A Practical Laboratory

The Animal Husbandry Division, College of Agriculture, has accepted the invitation of the Federal groups so we can experiment with cattle to a greater degree than we can do in the laboratory, mentioned Dr. Geo. H. Hart, Head of the Animal Husbandry Division, University of California.

#### Chemical Analysis of Grasses

Professor A. W. Sampson, described the importance of chemical studies of the various forage plants.

#### Facts Needed

The stockmen have been in this country a long time and so has the Forest Service. What both have to know are the facts. This experimental range dealing with forage and cattle will produce those definite facts which have been lacking, pointed out S. B. Show, Regional Forester, U. S. Forest Service. The range livestock business is a definite basis of use in the San Joaquin Valley, we, therefore, expect it will always be an integral part of national forest management.

#### A Place Where Practical Men and Research Workers Can Be Brought Together

This San Joaquin Experimental Range is more than a ranch, said Chris Rachford, Associated Forester of the United States, more than an experiment, more than a piece of land. It is a proving ground. It represents a demonstrational area where results of research can be applied, where practical men and research workers can be brought together. We are especially interested to see that stockmen and the University are directly connected with it.

#### Range Should Not Be Used To Prove But To Get Facts

Dr. Walter Mulford, Head, Forestry Division, College of Agriculture pointedly brought out that the keynote of the meeting was cooperation; that the experimental range should not be used to prove a point but to get the facts.

#### Stockmen Interested

Others who spoke included Phil Klipstein, former president, California Cattlemen's Association, John Curry of the same organization, S. P. Arbios, president, California Wool Growers Association and the secretary of the sheepmen's association.

#### Biological Survey Cooperates

Mr. Horne of the Biological Survey in the afternoon described plans of experiments in reference to rodent and predatory animal control; Professor Guilbert of the College of Agriculture, told of experimental work being undertaken with the beef cattle while Louis Rochford gave a beef grading demonstration.

#### A Trip Worth While

All interested in the livestock business will find a trip to look over the San Joaquin Range Experiment Station, 26 miles east of Madera well worth going to see. It couldn't be otherwise with our good friend Jesse Nelson on the job. It will give you an opportunity to meet Mrs. Nelson and that indeed is a privilege.

Those interested in seeing up-to-date, convenient ranch buildings and ranch equipment will find it a day well spent.

Report lamb and wool sales.

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1937

## LOOKING AT IT By S.G.T. FROM HERE

Highlight of the annual convention of the California Newspaper Publishers Association, held last week-end at Fresno, was the address of James G. Stahlman of The Banner of Nashville, Tennessee, president of the American Editorial Association, on "A Free Press in a Democracy." The talk received a half-hour nation-wide broadcast.

Into the much discussed freedom of the press topic Stahlman thrust a new point—that the history of the English nation shows it was not under bad rulers but under the good that valuable privileges were lost. It was from King John that the Magna Charta was wrested and it was after Charles II that the Bill of Rights was secured. It was when the country was satisfied with its ruler and granted new concessions to popularity by failure to protest that powers were accumulated by the crown and passed on to successors.

Most interesting was the Sunday excursion promoted by host publishers and the Fresno Chamber of Commerce to Friant damsite and the U. S. Department of Agriculture's Experimental Station in Madera county.

The huge Friant dam, that will hold the water of the San Joaquin river, will take five years to build and be part of the Central Valleys Water project, for which the voters have granted \$170,000,000. Already in place is the last word in ready-made construction camps. Six-room cottages and three-room duplex cottages await the families of executives, all shining bright, and surrounded by new-laid lawns and shrubbery. The site is about 20 miles east of Fresno in the rolling foothills.

The Experimental Station is something new under the sun. It is engaged in studying the foothill land of California for the benefit of the live stock people. So well has it done already with supplemental feeding that its products in one year have brought more in the commercial market than the average two-year product.

You will be surprised to learn most California grass is not native but imported. The station is testing all kinds of grasses, for their own inherent qualities as well as ability to live in competition with other kinds. In these lands, not good for farming and yet capable of sustaining a great industry, the government wants to plant the best grass possible. The 4700-acre station, typical foothill country in its natural state, is a grand laboratory in which to find out definitely once and for all. Results will be directly applicable to about one-third of such California territory.

Perhaps even more amazing to the city dweller, for we do a little gardening ourselves, is the study of animals, particularly alleged pests. The station appears glad to have found it has an area well stocked in rattlesnakes, about one in three acres it thinks, and even the rattler will be only an "alleged" pest until proven guilty. Why, those stock men "brand" rattlesnakes! That's a little literary exaggeration, of course, but they do actually catch them, label them and turn them loose again for further study of their habits.

How cheery it must be to go abroad in the sun lit fields in the bright morning as the lark sings loud and high and hear a ding-a-ling-a-ling and be able to smile blithely:

"Why, my old friend, No. 872, Susie Jones I nicknamed you, let's see, this is the first time our paths have crossed since 8:38 a. m. on the 5th of last month. And what have you to say for your place in the economy of nature? Have we good marks for you in our conduct book for keeping other pests in their places, that is, their right numerical ratios, or, my snake-in-the-grass, shall I decide you are just all bad and go investigating price cutters in the city?"

They watch rabbits, too, instead of popping them every time an ear looms up from a rock. But to keep them in their numerical ratio they separate the papas and mamas. And men even watch quail and robins and other delights of huntsmen and poets.

What they find out is amazing—how much each animal eats of the flora and how much of the next less defensible fauna. Right by headquarters is a tree so chock full of nuts packed in the trunk by woodpeckers it looks like bead work. Are the woodpeckers vegetarians? No, they are the real "live stock" men. Those nuts gather the worms and the woodpecker likes worm steak.

Jess Nelson, once a trick rider for Buffalo Bill, and many decades in the cattle business, was Sunday's genial host of the Experimental Station. His simple, direct, unadorned speech has a dignity that matches his silver crown and makes a city dweller feel he is just like everybody else—a person who knows just one side of the many different kinds of living that make life varied and interesting.

Flanked by scientists and technical experts, he is doing for the cattle men what government has long done for the farmer: offer him free the benefits of all that studious research can bring forth. They say at the Madera station the trouble has always been the cattle man (no, not the farmer, the keeper of cows and pigs) but the he-man who rode the ranges, has always had a bump of independence plus a fatalistic feeling the higher elevations are just what capricious Nature chooses for the year, and has not asked government for any assistance.

But government has at last caught up with him and is offering to recarpet California with better grass if it helps him make money, and so the cattleman, like all the rest of us, takes from the Great White Father in Washington.

We feel mighty privileged to have seen what we saw last Sunday through the kindness of Superintendent and Mrs. Nelson and those Fresno Chamber of Commerce men and

San Joaquin county publishers, for we realize now the amount of human skill devoted to what to us has never been anything but a lot of filet mignon. Before long they will be producing such fine cattle poor cooks will not be tolerated and then we shall all live longer and cheerier. So a big salute for the fact-finding men who tolerate even noisy little Susie Jones (No. 872 to you) in order to see Nature "steadily and see it whole," which is what the philosopher said is the way to see life also.

# Progress in Restoring the Range

[Editor's Note: Adopting the style of the radio folk, the PRP presents as its guest speaker in this article, Jennings Pierce, famous Director of Agriculture, Western Division, NBC. The next voice you will hear will be that of Mr. Pierce.]

**H**ELLO, everyone! May I have the pleasure of greeting you in this informal style of the Farm & Home Hour? I can assure you it is a privilege to speak to you from the pages of the Pacific Rural Press as we sit down together to share the experience of this tour which was at once a revelation and a pleasure.

We are bound for the San Joaquin Forest and Range Experiment project east of Madera, under the capable guidance of Spencer Munson. Present, also, Cary Hill, assistant director of the Experiment Station, and Wallace Kadderly, Western Radio Program Director for the USDA—he of Farm & Home Hour fame.

Well, the weather was perfect (unusual California weather), hillsides with their carpets of "Goldfields," other wildflowers and grass. Emerging from the Pacheco Pass, sunny San Joaquin, lay at our feet, reminding of a song by Lucy M. Thompson, Modesto pioneer, who caught the spirit of this valley in her composition, "The Sunny San Joaquin." Shall we sing it as our tires hum off an accompaniment with the passing miles?

"From the heights where eternal snows glisten and gleam  
To the winding canals far below  
Flows softly and swiftly a life-giving stream  
Making bare sands to blossom and grow  
From the Coast Range that looms in the distant West  
To the East where Sierras stand guard  
San Joaquin spreads her verdant and smiling expanse  
A sight to thrill artist and bard.  
Down in Sunny San Joaquin  
Nature paints a golden sheen  
On the sloping hillsides gay  
Where the yellow poppies sway—  
Life is happy and serene  
Groves and fields and vineyards green—  
Lend their charms to our Sunny San Joaquin."

Through Madera and up into the foothills to the east. Here at an elevation of seven hundred feet, we enter the lower boundary of the 3,600-acre San Joaquin Range of the Forest Experiment Station, the first objective of our tour.

This area represents a cross-section of ten million acres of Sierra foothill country stretching from Bakersfield north to Yosemite, comprising nearly one-tenth of the land of California and therefore an area of great importance to our commonwealth, especially to our livestock producers.

While we were learning of these interesting facts from Dr. Beswell, one of the younger research specialists, a meeting of the range section of the Madera County Soil Conservation Committee had been going on in an adjoining conference room. We were introduced to the twelve cattlemen who make up this committee, and then we listened-in while they talked about cross-fences, drift fences, boundary fences, water development, troughs, and all the other factors involved in qualifying them for payment under the Soil Conservation Act. Farm Advisor Ed Garthwaite of Madera county, made a splendid chairman and these cattlemen expressed themselves freely and effectively.

In the morning our party set out to view the various projects under way. Mr. Nelson explained the layout of this experimental range first, that it contains 3,600 acres, lying between 700 and 1,700 feet elevation. For the best utilization of this area, it has been laid out in twelve units, all under fence. We were especially interested in the first six of these because of a grazing experiment now in progress. Units ONE and THREE are of 160 acres, grazing sixteen cows, or at a rate of ten acres per cow. Units TWO and FIVE are of 240 acres, grazing 16 cows at a rate of 15 acres per cow, and units FOUR and SIX are of 320 acres, grazing sixteen cows at a rate of twenty acres per cow. At regular intervals throughout all seasons these animals are weighed, the grass studied on the six pastures, and a chart compiled. Over a period of several years, as a result of this study, these range experts expect to show how many animals the range will support without over-grazing; the best season of use; when the animals put on the most weight, and if they fail to gain, to recommend a practice that will enable the livestock producer to profitably keep his animals on this range the year-around.

**R**ESULTS already show that with the drying of the grass in the early summer the feed rapidly loses in nutritive value with a consequent failure of the stock to continue gaining. So, to offset this lack, a long-time experiment on supplemental feeding is being undertaken and while one of the

seen nothin' yet." So off we went to see the so-called run-off plots; nine plots, each one fortieth of an acre in extent, laid out on a grassy northern slope. Board curbing three inches high separate the plots and direct the run-off rain into nine silting tanks located at the lower ends of the plots, and through volume measuring devices which automatically record the run-off. Then, too, rain gauges record the rainfall in any one storm and also seasonally. So, from the data thus collected the scientist can accurately determine intensity of rainfall, percentage of erosion, amount of run-off and amount of soil absorption. Then by grazing certain plots and by burning certain others, a comparison can be made against a normal plot which is retained as a check or "control plot." Thus accurate comparisons can be made which should be significant enough to settle the ever-present question, "to burn, or not to burn."

**F**ROM these run-offs, Mr. Nelson directs us to another very interesting study being carried on under the direction of E. E. Horne, biologist of the U. S. Biological Survey. Here we found an attempt to show the actual damage to range forage from such common rodents as the ground squirrel, the pocket gopher, and the kangaroo rat. Four plots have been fenced off which have been made rodent-proof by specially designed fences, a very difficult effect to accomplish. In plot number ONE, seven ground squirrels are enclosed on a one-half acre plot. Plot number TWO, contains four gophers; plot number THREE is a check plot, and plot number FOUR encloses eight kangaroo rats; these last three plots are one-quarter acres each. Finally, a barbed fence about ten feet out surrounds the plots. This then makes for three conditions: (1) The enclosures which exclude free rodents and livestock, (2) The barbed-wire fence which permits access to free rodents but not livestock, and (3) The free range accessible alike to rodents and livestock. From careful daily analysis, Mr. Horne is compiling data on the degree of rodent damage; which pest is the most destructive, and what species of forage are most readily taken. When this study is completed it will be easy to determine when the rodent population of a given

through Maclera and up into the foothills to the east. Here at an elevation of seven hundred feet, we enter the lower boundary of the 3,600-acre San Joaquin Range of the Forest Experiment Station, the first objective of our tour.

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**A**RRIVING at the comfortable adobe headquarters of the "Range" we were greeted and made welcome by Jesse Nelson, authority on livestock and rangelands, who is in charge of this 3,600-acre project.

We first learned that in all probability this whole foothill country, before the advent of the white man, was covered with native perennial grasses of high nutritive value, but that with the over-grazing and fires of modern times, most of these grasses were killed out and now in their stead we find that 99 per cent of the forage is of the annual type, 45 per cent of which is made up of introduced species. Among the better species of these introduced annuals are found the alfilaria, brome grasses, wild oats, and bur clover.

Now this is all very well during the green, growing stage of the plant, but just as soon as these annuals reach the seed stage and dry up they lose rapidly in nutritive value, especially in protein content, and as a result, cattle that have been gaining rapidly up to early summer stop gaining and then begin to lose condition rapidly. Well, right here we find the problem the Forest and Range Experiment Station has set out to solve. Operating on the theory that it is better economics for the cattleman to keep his cattle on the home range throughout the year instead of moving them to the mountains or to the valleys during the summer months, the station has laid out a long-time program in which they hope to work out efficient practices which will make this operation possible. This problem, then, is being studied on several fronts: intensity of grazing, season of use, response under certain known conditions and supplemental feeding. Along with these factors the station is studying surface run-off and soil erosion, rodent damage, and new forage plant species.

mend a practice that will enable the livestock producer to profitably keep his animals on this range the year-around.

**R**ESULTS already show that with the drying of the grass in the early summer the feed rapidly loses in nutritive value with a consequent failure of the stock to continue gaining. So, to offset this lack, a long-time experiment on supplemental feeding is being undertaken and while one of the first tests is not a basis for final conclusions, still it is startling in its revelation. Calves that were weaned on July 1st were put on pasture and some fed a small daily supplement of cottonseed cake (a pound per day) other were not supplemented. The latter averaged a one-pound gain, while the calves on cottonseed cake gained 114 pounds. Beginning with the new grass after November 1st the unsupplemented calves gained more rapidly, although results to date indicate that they never will catch up.

Another significant experiment concerned the so-called acorn calves which are famous up and down the Sierra foothill area. These calves are badly deformed and the supposition has been that the deformity resulted from the cows feeding heavily on acorns during pregnancy. However, from data accumulated to date, the Experiment Station feels reasonably sure that acorn calves are NOT caused by the cows feeding on acorns but rather from the general protein deficiency of the dry summer and fall feed. The acorn itself is largely starch and, of course, the hulls contain much tannic acid which precipitates proteins and hence are a factor in reducing what little protein the animals do get. Projects, with cows being fed acorns at different stages of pregnancy are under way and will be continued for several years after which these experts will know and be able to report accurately on causes and effects. Feeding up to \$4.00 worth of cottonseed cake per cow per season has shown encouraging results so far, and this phase of the experiment is being watched with intense interest. Briefly then, at present, indications point pretty sharply to high protein supplemental feeding as a solution to the whole problem of range management in this area.

By now our party was fascinated by the magnitude of the San Joaquin Experiment Station Range and by the enthusiasm of its research specialists, but, as Jesse Nelson said, "You ain't

plots. This then makes for three conditions: (1) The enclosures which exclude free rodents and livestock, (2) The barbed-wire fence which permits access to free rodents but not livestock, and (3) The free range accessible alike to rodents and livestock. From careful daily analysis, Mr. Horne is compiling data on the degree of rodent damage; which pest is the most destructive, and what species of forage are most readily taken. When this study is completed it will be easy to determine when the rodent population of a given area of the range has become an economic factor.

We have one more project to hear about. We drive down to the nursery where we saw eighty seven different species of annuals and perennials imported from all over the world. Each specie is grown on two plots, one of which is irrigated. Some of these grasses look very promising and if they continue to show adaptability the best ones will be planted on the range. The hope is that sometime these scientists will find a perennial or perennials that are well adapted to this particular range; that are high in nutritive content and that will bring the range back to the condition believed to have existed originally in this foothill country.

**F**INALLY Mr. Hill introduced us to young Ben Glading who is conducting a sub-project on this range in interest of sportsmen and I mention it because I believe there is a universal interest in our upland game birds. In other words, research on quail management. Mr. Glading told us that this is ideal country for quail because it has a good natural balance between feeding grounds and cover. It is his opinion that restocking is not the answer to abundant birds because they do not seem to propagate under this plan. Also the hawks and owls as predators are not particularly important and while the wild housecat is a serious menace, still it is not a limiting factor. His analysis at this early stage in his study then is that the critical period in the life cycle of this bird is at nesting time and if we can control the predator which feeds on the eggs (the ground squirrel shows evidence of being the villain) we can bring back this fine game bird in abundance. If future study bears out Mr. Glading's early analyses another very significant contribution will have been made to society through the medium of the San Joaquin Experimental Range.

Sept 25 1951

# Natural Grass Proves Best Forage

After almost two decades studying natural and imported range plants on the San Joaquin Experimental Range, U. S. Forest Service scientists have made a tentative conclusion: nature does pretty well by itself.

"After tests of over 200 plant species, including more than just grasses, from all over the world," says Research Range Conservationist Lisle R. Green, "nothing has proven better for the purpose of producing beef under market conditions on the Madera county hills than the natural mixture of grasses and herbs while it is green."

But as the natural forage dries out in late spring its nutrient value decreases. The protein content in particular drops below the needs of the grazing livestock. Long-lived perennial grasses, when adapted, produce earlier green feed and they stay green later in the year. Thus they may be used to supplement the natural forage and shorten the period when protein concentrate feeding is desirable, Green says.

One such perennial, stipa by name, has been here all the time and at one time may have been an important original plant inhabitant of the hills. "The theory is," Green says, "that stipa was an important grass in the valley and on the lower slopes a century or more

ago, especially on what are now the dryland grain fields." (Stipa still grows naturally near Friant.)

"But when the Spanish settlers came they brought, either intentionally or by accident, many of the annual grasses and filaree which now cover the hills. Both they and later American pioneers sometimes over-estimated the cattle these hills could support. The cattle preferred stipa and grazed it off, letting the imported Mediterranean plants take over," Green says.

In the valley, of course, many thousands of acres of natural stipa were plowed under.

"Besides lengthening the period of nutritious green feed, perennials are a more consistent source of forage," Green says. "But they are summer-growing plants and suffer from the heat. Annuals, on the other hand, have a short, intense growing season in the spring and are ready to go to seed when the hot weather hits, thereby surviving better."

But some perennials show promise: Harding grass from Australia, smilo from central Europe, and prairie brome from the Midwest are examples. However, they grow best in the damper areas of the range. "Where the range is dry, we've had more success with natural range or annual rose clover than anything else so far.

We've had good stands of other grasses established, but the native plants eventually took over," Green reports.

Experimenting with new and old types of grasses is only part of the range research work carried on at the Experimental Range. "Probably our most successful work has been in improving forage through fertilization," Green declares.

In general, the experimenters have found that all the range lands lack nitrogen. But nitrogen easily washes out of the soil and must be applied each year. On relatively low producing range land this has not proved economically practical.

Better results have been obtained with sulphur which greatly increases the growth of legumes in the natural range. The legumes in turn increase the nitrogen content of the soil and greatly stimulate grasses the next year and thus continue a cycle which can be kept going by applying a sulphur fertilizer once each three years.

After a 40 acre pasture was fertilized in 1949 with a mixture of superphosphate and sulphur which totaled 60 pounds of sulphur per acre, Green reported that the 1950 crop produced 500 pounds more dry forage per acre than a similar 40 acre pasture which was not fertilized, and legumes jumped from 15 per cent to 35 per cent of the forage production. "Steers grazed the two pastures from July to December, and either the value of the increased forage production or the extra beef produced by it would more than pay the cost of fertilization in one year," Green declares.

"The 1951 production of 1,775 pounds of feed per acre more than was produced in the non-fertilized pasture would all be profit."

Tests to determine which sulphur fertilizer is best show that gypsum gave greater returns at less cost than other fertilizers tested.

Another point of intensive research is methods of making most effective use of natural vegetation—that is, how many cattle should be grazed on so much land. "After seven years of experiments, we found that the heavily grazed areas produced about one-quarter less forage and were grazable two or three weeks later in the spring than the moderately grazed areas," Green reports.

## 200 Different Animals Are Discovered In O'Neals Area

DAVIS, Yolo Co.—Nearly 200 different kinds of animals—birds, mammals, reptiles, and amphibians—have been found on the 4,600 acre San Joaquin Experimental Range by University of California zoologists.

Walter E. Howard, field station zoologist at Davis, reports that he and a former graduate student, Henry E. Childs, Jr., found in their study of rangeland fauna that some 133 birds, 37 mammals, 17 snakes and lizards, and eight amphibians live part of all of their lives at the station near O'Neals.

The study was undertaken to learn how many different kinds of animals live on rangelands and what part they play in helping or hindering plant growth and in competing with livestock for food.

Many rodents, said Howard, are active competitors for food on rangelands. Studies of these animals in large enclosures showed that pocket gophers, ground squirrels, and kangaroo rats together may consume as much as one third of the forage on natural range.

In addition, rodents' subsurface burrows often erode to form gulleys, Howard said.

Some of the more common vertebrates the zoologists found

at the station are, the western spadefoot toad, bullfrog, western fence lizard, Gilbert skink (a lizard), Pacific gopher snake, garter snakes, Pacific rattlesnake, pallid bat, western pipistrelle (a bat), coyote, bobcat, and many rodents.

Among the birds noted are permanent residents, summer residents, winter residents, migrants, and a few vagrants—recorded rarely with no particular pattern of occurrence.

Madera Daily NEWS-TRIBUNE Tuesday, Sept.

## Experimental Range Brings Better St

A grassy and wooded area of 4,000 acres off Highway 41 in eastern Madera County near O'Neal's is one of the valley's most closely studied pieces of land.

Established in 1934, it is the

cooperative San Joaquin Experimental Range J. S. Forest University of California

Main It looks like the hill country in summer, but in winter and as it should be. Some of this range, where cattlemen can do best on the range lands, where now animal production is controlled.

So agricultural year to year selection in etymology, in different range

## 1920s Coarsegold Rodeo Aide Will Marshal Parade

Continued from page 1-C  
Edith Downey of Livingston,  
and the son, William H. Ryan,

In 1894 the mills shut down  
and the town died. The post-  
office moved to O'Neals.

### Start Of Ranching

The Ryan family remained  
at Hildreth, buying the school  
section which was the begin-  
ning of their cattle ranching  
operations. Their home place  
stands on the town site, the  
barn shaded by the same tree  
which sheltered the millinery  
shop.

Most of the family food was  
raised on the ranch, Ryan re-  
calls. Fruit and vegetables  
were canned for winter eat-  
ing and the Ryans put down  
their own pork and corned  
beef. Other necessities were  
bought either in O'Neals or  
Madera. Time allowed for the  
trip to Madera depended on  
the extent of the shopping. If  
wagon and team were re-  
quired, and they bought half  
a ton of flour at a time, the  
trip took two days. For odds  
and ends the time allotted  
was only four hours each way  
with a buggy and good horse.

In 1917 Ryan married  
Faustina Wren of Madera, the  
teacher in the one room Han-  
over School. The school  
stands across the road from  
their home, just as it was  
built by the miners in the  
early days. The lumber was  
freighted in from Stockton.  
The William Ryans' children  
are Mrs. Margaret McMullen  
of Oakland, Mrs. Patricia  
Washburn of O'Neals, Mrs.  
Mary Ann Vanderburgh of  
Clovis and a son Richard  
Ryan, also a rancher in that  
area.

### Chiquita Summer Range

The Ryans have run their  
cattle on the summer range  
at Chiquita since 1918. The  
first stop in the early days  
was at Ensign, now the  
Rancheria Forestry Camp,  
then on to Bass Lake, Bea-  
sore Meadow, and into Chi-  
quita. The drive took four  
days. Now the cattle are  
trucked in over the Mammoth  
Road in four hours.

One of the outstanding  
events in the hills from 1936  
to 1947 was an Easter rodeo  
and barbecue put on by Mr.  
and Mrs. Ryan. The site was

an old railroad cut of the  
Minarets and Western which  
carried logs from Sugar Pine

to Pinedale. The contestants  
were teenagers and younger,  
some only 9 or 10 years old.  
The adults were spectators.

The show was primarily  
for the benefit of their own  
children and those of the  
neighbors and was put on  
in true western style.

In addition to roping and  
riding, an oldtime stage  
careened through the cut, was  
held up and rescued. James  
Douglas of O'Neals was the  
driver and Arthur Renfrow  
rode guard, with an authentic  
Lone Ranger hero. Starting as  
an entertainment for the chil-  
dren of the hills, its fame  
spread until many from the  
valley rode up to see the  
show. Johnny Jones, RCA  
champion roper, and dogger,  
was one of the youthful con-  
testant, as was Joe Preuschoff  
of Hildreth, also a member of  
RCA later.

His wife and elder daugh-  
ters joined him there. Two of  
the daughters, natives of Bod-  
die, are Mrs. Bessie Snyder  
of Madera and Mrs. Annie  
Marty of Fresno. The other  
children are Mrs. Myra Hotch-  
kiss and Mrs. Emily Jones of  
Madera, Mrs. Elsie McDoug-  
ald of O'Neals and Mrs.

Continued on page 2-C, col.



RECOLLECTIONS—The rawhide riata tied to Wi-  
liam H. Ryan's saddle horn recalls days when he used  
as partner of Clay Carr in wild cow milking contests  
the Coarsegold Rodeo. Ryan will ride Sunday as the  
rodeo parade grand marshal.

## Rodeo Aide Of '20 Is Parade Marshal

COARSEGOLD, Madera Co.—William H. Ryan  
Hildreth will return to Coarsegold Sunday as hono-  
rable guest and grand marshal of the Coarsegold Amat-  
Rodeo. His daughter, Mrs. Margaret McMullen, of O-  
land, and his daughter in law, Mrs. Richard Ryan  
Hildreth, will be in costume, riding side saddle, with  
Ryan.

The grand entry at 1 PM  
Sunday will be followed im-  
mediately by the rodeo  
events. It will be preceded by  
barrel racing at 10 AM, a  
queen contest a half hour  
later, boys' cow riding at 11  
AM and a barbecue dinner at  
noon. The rodeo dance will be  
held tomorrow night.

Ryan's connection with  
Coarsegold rodeos dates back  
almost 40 years when he was  
one of the officials at all the  
shows given on the same  
ground by the Madera Branch  
of the California Cattlemen's  
Association. He was in charge  
of the chutes and also en-  
tered as a contestant. One of  
his most prized possessions  
is a rawhide riata made by  
the late Pinkey Bethel of  
North Fork and used when he  
teamed with Clay Carr in a  
wild cow milking contest.

### Father's Arrival In 1886

The Ryan family moved to  
Hildreth in 1886, when the fa-  
ther, James R. Ryan, walked  
across the Sierra from Bodie,  
the storied Mono County min-  
ing boom town. Born in Dub-  
lin, Ireland, the elder Ryan  
came to the United States as  
a young man. He worked on  
the Erie Canal to get enough  
money to return to Ireland  
and marry and bring his  
bride west.

At that time there were  
three mining operations at  
Hildreth, the Hanover, Hil-  
dreth and Abby gold mines.  
He went with the Abby. Hil-  
dreth was a typical mining  
town, with three hotels, three  
stores, a postoffice, besides a  
school for the children, a mil-  
linery for the women,  
and a saloon to serve the