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Regional Oral History Office

WOODBRIIDGE METCALF
EXTENSION FORESTER, 1926-1956

An Interview Conducted By
Evelyn Bonnie Fairburn

Berkeley 1969

Produced Under the Auspices of
Forest History Society

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FOREWORD

This interview is part of a series produced by the Regional Oral History Office of Bancroft Library, University of California at Berkeley, under a grant from the Forest History Society, whose funding was made possible by the Hill Family Foundation.

Transcripts in the series consist of interviews with: DeWitt Nelson, retired head of the Department of Natural Resources, California; William R. Schofield, lobbyist for timber owners, California Legislature; Rex Black, also lobbyist for timber owners, California Legislature; Walter F. McCulloch, retired Dean of the School of Forestry, Oregon State University, Corvallis, Oregon; Thornton Munger, retired head of U.S. Forest Service Experiment Station, Pacific Northwest Region; Leo Isaac, retired, silviculture research in the Forest Service Experiment Station, Pacific Northwest Region; and Walter Lund, retired chief, Division of Timber Management, Pacific Northwest Region of the Forest Service; Richard Colgan, retired forester for Diamond Match Lumber Company; Myron Krueger, professor of forestry, emeritus, U.C. Berkeley; and Woodbridge Metcalf, retired extension forester, U.C. Berkeley. Copies of the manuscripts are on deposit in the Bancroft Library, University of California at Los Angeles; and the Forest History Society, University of California at Santa Cruz.

Interviews done for the Forest History Society under other auspices include: Emanuel Fritz, professor of forestry, University of California, Berkeley, with funding from the California Redwood Association; and a forest genetics series on the Eddy Tree Breeding Station with tapes by W.C. Cumming, A.R. Liddicoet, N.T. Mirov, Mrs. Lloyd Austin, Jack Carpender, and F.I. Righter, currently funded by the Forest History Society Oral History Program.

The Regional Oral History Office was established to tape record autobiographical interviews with persons prominent in the history of the West. The Office is under the administrative supervision of the Director of the Bancroft Library.

Willia Klug Baum, Head
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INTRODUCTION

Woodbridge Metcalf at eighty is cheerful, optimistic, and self-fulfilled--a state of euphoria that probably comes from his thirty years (1926-1956) of work throughout California as one of the nation's first extension foresters. Headquartered at the University of California, whose School of Forestry he helped found, he promoted forestry concepts by traveling constantly up and down the state giving fire prevention demonstrations to clubs, schools, and other organizations. He became nationally known as a 4-H Club organizer, spending long hours in the summers visiting the camps, teaching fire protection and general forestry concepts to the girls and boys, and singing with the campers; in the winters, he helped to establish new camps.

While his major work was public education, he was also on the staff of the School of Forestry for twelve years before he became an "Extension Specialist" under Agricultural Extension. His academic reputation can be said to be founded on his work in Eucalyptus, culminating in his appointment as chairman of the delegation when he represented the United States at the Eucalyptus Conference of the United Nations' Food and Agriculture Organization, held in Rome in 1956. Not content to simply study the species, he has urged the planting of thousands of miles of eucalyptus windbreaks for the protection of citrus groves in southern California. Often after a recording session, we would begin discussing the beauty and the variety of the various sample species of eucalyptus sitting on his desk awaiting his expert eye before they were added to the large University Herbarium.

His extension work allowed him to pursue his natural interest in tree identification, not only on the campus but in the San Francisco Bay Area and probably over the entire state. A booklet is to be published soon of a series of walks which he designed to enable tree-lovers to spot all the unusual trees growing on the Berkeley campus. Many of these sport name plates which he was instrumental in having mounted. In addition, he knows where the best and biggest specimen of each species is located in California, and he has documented this in a large photograph file which also includes forest landscapes, fire demonstrations, and 4-H activities.

As a California forester whose work was known throughout the United States, Mr. Metcalf was never identified with any of the controversies in which many other foresters participated. This is consistent with his emphasis on "cooperation" between the various forestry organizations--state, private, and federal. Any time all was not running smoothly in California forestry, he operated on the theory of his close friend and supporter in Agricultural Extension, Director B. H. Crocheron: that when there is a large problem, we must all work together to solve it.

Even when he has seen some of his projects destroyed after his retirement, such as the 4-H camping program, his attitude is that this is a sign of progress and one must adjust to change. Always his comment is, "That is just one of those things." He especially prides himself on the lack of a "generation gap." While he sees the need for the younger generation to show improved consideration for others and to manifest increased economic and social motivation, he feels that the older generation should make an effort to understand the younger generation. In his 4-H work with California youth, his tremendous charm for children attracted them to him, according to J. B. Tippett, a retired extension administrator and long-time associate of Metcalf. "He knows how to talk to them and how to teach them and really become a part of them," Tippett says. "But he was an inspiration to all age groups and to all types."

Within the concept of conservation, Mr. Metcalf is extremely practical--one reason that he was concerned about fire prevention. As for preservationists, he cannot understand why they do not support the utilization of a forest for its greatest value or intended use. He is worried about waste in government--local, state, and national. He himself worked as a civil servant on a tight budget and got results. Now when he detects wasted or unproductive activity, it is distressing to him.

Unproductivity is, even in his retirement years, an unknown in his own life. While the interview focuses on his formal career as an extension forester, his list of post-retirement activities is impressive: he has recently written a history of the first fifty years of the Northern California Section of the Society of American Foresters; he continues to advise and consult on any problem or planning attempts concerning the growing and caring for trees--both ornamental and forest types; he has conducted surveys in eight California cities (Walnut Creek, Livermore, Hollister, Campbell, Santa Barbara, Ross, Dos Palos, and San Anselmo)*; he is active in the Saratoga Horticultural Society, the California Christmas Tree Growers' Association, the California Conservation Council, the Descendants of the Mayflower, the San Francisco Yatch Club, and the School of Forestry luncheon meetings each Monday, which he has attended for the last fifty-four years.

Perhaps the activity for which he is most popularly known is his singing, a hobby he has pursued since he was a student and one which has thrown him into many a faculty musical function. He was a song leader for the 4-H camping program, for the Boy Scouts, and for the School of Forestry Alumni meetings. In addition, he has sung in several mens' glee clubs and the Congregational Church choir.

While in the Regional Oral History Office of the University of California at Berkeley, helping in the editing and indexing of the Hill Foundation manuscripts which were being done for the Forest History

*Surveys can be found in the Forestry Library, U.C.B.

Society, this interviewer was assigned the production of a four-session interview with Mr. Metcalf. Paul Casamajor, who compiled Forestry Education at the University of California--the First Fifty Years, provided an initial introduction to Mr. Metcalf in the form of a tape recording of the extension forester's eightieth birthday party in June, 1968. On the tape are reminiscences, anecdotes, testimonials, great camaraderie, and, of course, singing. Robert Burton, a Santa Cruz County Supervisor, said, "He has taught the joy of living and the fun of doing good work with people, and losing yourself to service to everybody." He added that Metcalf, if anybody, should be awarded the "Doctorate of Joyous Living." Howard Neilson, president of the California Christmas Tree Growers Association, which Mr. Metcalf helped to found, remembered, "At a meeting [Metcalf] would stand and pound his cane on the wooden floor and say, 'If you want to be a good tree grower, you have to have the feel.' Woodbridge has the feel for life." It seemed that here is a man who is more cheerful than pessimistic, more outgoing than reticent.

Then we met in his office in Mulford Hall a few days later. The windows of his office, appropriately enough, face the great eucalyptus grove. On several of our interview dates it had been quite dark and stormy, but, as if to match his enduring cheerfulness, the sun managed to shine in his office windows during our morning sessions. We taped four interviews during which he talked easily and pleasantly for several hours, his usual exuberance subdued in a thoughtful, business-like approach to the questions. After the transcript was typed and arranged in chronological order, Mr. Metcalf spent hours carefully checking it for accuracy of names and places and inserting answers to a few additional questions which he was sent by the interviewer. He also gave a morning of his time poring over his file of photographs in the library in order to select a few pertinent pictures to illustrate the final manuscript.

Metcalf had a very happy career, as he himself admits. He has taught thousands to practice and appreciate good forestry. Indeed, as Paul Casamajor said at Metcalf's birthday party, he is a true "forestry ambassador."

Evelyn Bonnie Fairburn
Interviewer-Editor

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Series Director

January, 1969

CHRONOLOGY

WOODBIDGE METCALF

Woodbridge Metcalf, California conservationist and Extension Forester, Emeritus, was born at Grosse Point, Michigan, June 23, 1888. He was raised on a small farm accessible to good schools, located on the shores of Lake St. Claire. He attended the University of Michigan and graduated in 1911. He received a master's degree in forestry from the same institution in 1912.

He worked for a short time in the Snoqualmie National Forest in Washington, and directed a planting crew in the reforestation of the Barlow Pass burn in that area. Beginning January, 1913, he worked in Ontario and Nova Scotia for the forestry branch of the Canadian Pacific Railroad making timber surveys and fire damage appraisals.

In 1914 he married Morah Clements of Bala, Ontario. Their honeymoon trip was to Berkeley, California, where he joined the faculty of the University of California. In 1926 he became Extension Specialist in Forestry with the Agricultural Extension Service where he remained until his retirement in 1956.

With his teaching responsibilities, Woody assumed charge of Whitaker's Forest, in the big tree country of Tulare County and two forest units near Santa Monica and Chico. During World War I Woody taught military mapping in the S.A.T.C. At the same time he assisted the State Extension Service in organizing 330 farm fire companies for the protection of forests, forage, and food. This project was to lay the foundation for a nation-wide program during World War II.

Between the years of 1928 and 1934 Woody shared in initiating an intensive campaign of rural fire prevention. Through this program more than 150,000 people have been taught fire prevention. During World War II he shouldered the job of emergency farm fire leader and through his efforts over 2,300 farm fire fighting companies were organized and trained in prevention and suppression of fires. It has been estimated that ten million dollars worth of resources were saved by this project.

During World War II Woody was responsible for distributing potted cork oak seedlings in the state's program to produce more cork.

Woody enjoys tree and plant identification, particularly in the case of eucalyptus, about which he is the nation's expert. Because of this knowledge he was named head of the U.S. delegation to the World Eucalyptus Conference in Rome in 1956. He has compiled a long list of outstanding native and exotic trees in California. In recent years he has pioneered the treatment of local woods with new preservatives for the use as fence posts.

Woodbridge Metcalf

Conservation--as it applies to resources or human beings--and Metcalf are inseparable in California. His friends all know him as a friendly man, an ardent conservationist and a great teacher.

TABLE OF CONTENTS

INTRODUCTION	i
CHRONOLOGY	iv
UNIVERSITY OF CALIFORNIA AGRICULTURAL EXTENSION SERVICE:	
ORGANIZATION AND ADMINISTRATION	1
Beginnings of Extension Forestry	2
Financing Extension	3
Administration of Extension Forestry	7
AGRICULTURAL EXTENSION SERVICE: EXTENSION STAFF	9
COOPERATION WITH OTHER FORESTERS	16
Foresters From Private Industry	17
Working With Emanuel Fritz	18
State Forester Merritt Pratt	21
Working With the Lumber Industry	26
FIRE DEMONSTRATIONS: TEACHING FIRE PREVENTION AND PROTECTION	29
New Equipment	29
Presenting Fire Prevention Demonstrations	32
Establishing Fire Protection in California	34
The Uses of Control Burning	40
PROJECTS OF THE EXTENSION FORESTER	42
Experimenting With Windbreaks	42
Working With Eucalyptus	44
The Eucalyptus Boom	46
Working With the WPA and CCC During the Depression	49
Organizing the 4-H Camp at Whitaker's Forest	52
Other 4-H Activities	55
The Cork Oak Project	58
Fence Post Dipping Project	62
California Christmas Tree Growers Association	63
Travelling	66
OTHER PROJECTS	69
California Conservation Council	69

Radio Talks and Publications	72
Small Woodlands Council	73
FORESTRY LEGISLATION	76
COOPERATION WITH OTHER AGENCIES	79
United States Forest Service	79
Working With Experiment Station Personnel	81
Soil Conservation Service	82
Change at the University	85
PRESERVATION VS. CONSERVATION	87
CONCLUSIONS: ACCOMPLISHMENTS OF A CAREER	90
APPENDIX A	94
APPENDIX B	100
APPENDIX C	105
APPENDIX D	110
APPENDIX E	120
APPENDIX F	127
INDEX	136

UNIVERSITY OF CALIFORNIA AGRICULTURAL EXTENSION SERVICE:
ORGANIZATION AND ADMINISTRATION

Fair: Please tell me about your work with the Extension Service. My notes say that your title was "Forestry Specialist."

WM: Well, I think that the Extension Service is one of the most interesting organizations that I know anything about. There isn't anything else just like it anyplace. I imagine that it has changed in the last few years, but we had stimulating leadership from Director B. H. Crocheron.

We were stimulated to put out our own program and work with the farm advisors in the different counties. We would go to the counties and discuss local problems about land use in the counties and the things that they were interested in, particularly the forest lands, if there were any, what their attitude was toward these lands, and their relation between grazing land and timberland and agricultural cropland.

It was not an easy problem because most of these fellows, at least in the early days when there were only one or two men in the county, had so many problems coming to them from agricultural crop people that it was a difficult thing for them to give much attention to tree planting or forestry problems. We had to work with groups sometimes from the Farm Bureau.

WM: One of the reasons I got interested so much in 4-H Club work and did so much in connection with it was that it gave me an opportunity to work with the boys and girls in conducting nature study trips and tree identification trips, discussion of land use and watershed protection and all of these things in connection with the forest.

Beginnings of Extension Forestry

Fair: I would like to ask you about the beginnings of Extension Forestry. Where and when did the idea originate?

WM: You mean having to do with the creation of the position of Extension Forester?

Fair: Yes. Why was there a need at this time? Why do you feel that the position was created?

WM: Well, it is along the same lines as Agricultural Extension. As in almost any other part of human knowledge, it has been felt for a long time that people should be informed and educated about the various aspects of natural resources, both land and water, and air, timber, grazing resources, and all of these things.

The Extension Service was set up originally to transmit the findings of the agricultural experiment stations, and the various colleges, out to the public, particularly the farmers, to inform them of the latest information on the way that crops should be, or could be, grown.

This was a saving of time and wasted energy by trying to grow things in areas where they couldn't be grown. That all had to do with the Soils Division which made analysis of lands in California from the University: analyzing these things as to what would be the most feasible crop and so on.

Well, of course it wasn't until 1924, with the passage of the Clarke-McNary Act, that the federal government had some money set up to stimulate additional interest in extending information about forest lands. And that, you see, followed the Agricultural Extension program which came to California in 1913.

Fair: This was a provision of state funds in 1913?

WM: Yes, both state and federal funds. The Extension emphasis on forestry and the better information about the use of forest lands, soil conservation, and that sort of thing, didn't come about until 1924. So it was ten years later, you see.

Fair: Now how did you get involved in Extension Forestry?

WM: I was appointed in 1926, about a year and a half after the Clarke-McNary Act became effective, and the relatively small appropriation of \$1620.00 a year from the federal government was added to by the University. But I had worked with the Extension people quite a lot before that along the same lines, particularly during World War One when in 1917 and '18, we set up volunteer rural fire companies for the saving of resources of all kinds, things which were important in the war effort. And those amounted to some three hundred different rural fire companies throughout the state.

Fair: You were just sort of a natural to go into this position of Extension Forester when it was created, or were there other people considered?

WM: As I said, I knew the Extension people and had worked with them, enjoyed working with them. They usually invited me to the annual conference even before I was a member of the staff. I was involved in the programs, leading singing and that sort of thing, which I continue to do, by the way.

Fair: I understand that is something that you enjoy very much.

WM: Yes, I just did so down there at a meeting today of the senior citizens. I am the song leader for that group too.

Fair: Did you find Extension work a big switch from your teaching responsibilities?

WM: Well, I enjoyed teaching very much and of course Extension is a little different method of teaching, but I enjoy people also. The older I have gotten and the more experience that I have had, it seems to me that working with people is more important than some other aspects of human endeavor.

Financing Extension

Fair: Yes, that is true. I am interested to know just how Extension Forestry was financed.

WM: At the first when this money was set up by Congress under the Clarke-McNary Act--I have forgotten what the amount was now--I don't think it was as much as two thousand dollars a year, may have been about \$1620 that was allocated towards the salary of the Extension Forester. And I got a check from Washington for some time each month, which came from this fund. And then finally it was taken

- WM: over in Agricultural Extension by the much larger appropriation which Congress continued to make for other types of Extension. So this initial way of starting the program was changed over so that the money was incorporated into the regular amount of money that the University received from the federal government for all Extension work.
- Fair: Now were these appropriations increased, say, every five years by Congress in a set pattern, or did it just so happen that they would be increased in various years by additional acts of Congress?
- WM: Well, a number of different laws through the years were involved, such as the Weeks law, Clarke-McNary law, Bankhead Jones law, and so forth; and amendments were added to them. The Clarke-McNary law was only one of them.
- Fair: This was a nation-wide program, is that correct? All the universities in all the states were provided funds for extension?
- WM: Following the previous impetus which Congress gave to the land-grant colleges, which were originally set up for the teaching of mechanical arts, agriculture, and military science, more funds were allocated.
- They received in the beginning grants of land from Congress, which through the years has amounted to many millions of dollars of course. The original land grants involved sections sixteen and thirty-six of every township. These were grants to states for general educational purposes, not just agriculture or forestry.
- Fair: It was given for education purposes and Congress added to it each year?
- WM: Yes, funds for agricultural experiment stations and then for agricultural extensions, through various laws providing for additional support of certain programs by the land-grant colleges. And then of course, one of the very large aspects of the Clarke-McNary law was a much larger appropriation provided to the state for additional forest fire protection. That money did not come to the University of course, but to State Forestry in the different states. There was also some money for growing forest nursery stock.
- Fair: Now why did the University of California get the funds and not the state colleges? I understand that the state colleges were also the land-grant colleges here in California.
- WM: No, no state colleges were land-grant colleges. There is only one institution in each state which is a land-grant college, and here it is the University of California.

We are very fortunate in California because we do not have, or

WM: have not had until recently, the conflict between state institutions. Washington, for example, where the University of Washington in Seattle is not a land-grant college and Washington State College in Pullman is, has a problem. The University of Washington has the leading forestry school in Washington, but all the extension work has been done from Pullman.

Fair: That makes it very difficult.

WM: Yes, it is a very difficult thing and a very great contest between the two institutions. Minnesota and California are the most fortunate states in that respect, for in both of them the land-grant college is the University. Therefore, the federal funds come to the University.

We had, I suppose, fewer problems in California than some of the states did, although all of the states did have problems. We had some, not any very serious ones. One thing of course was that the Clarke-McNary appropriations for forestry were never increased after the first appropriation was made. Therefore, this made up a relatively small part of the millions of dollars that go into the various types of forestry work in California and the various states.

Then there was a conflict of interest between different organizations and questions of appropriations--state, county, local fire district, and so forth, or authority on fires, or the adequate training of volunteer personnel in upkeep of rural fire equipment and in its most effective use. This was usually handled by local training meetings and our demonstrations helped with this, as did the Rural Fire Institutes and county-wide fire protection days.

Each county presented a somewhat different situation which had to be ironed out by accommodation to personalities and eventually by contracts between the Board of Supervisors and the State Forester.

Fair: Now what about state funds. A portion of your salary is paid by federal funds; now how much of it was paid by state funds?

WM: From the University, from the University budget.

Fair: Yes.

WM: All of the employees in California Extension are hired and paid by the Regents of the University. In many of the other states, which are not so fortunate financially as California, there have been various combinations of finance. In some cases the county Farm Bureaus paid a part of the farm advisor's salary, or the county agent, as he is called in most other states.

Fair: Then the county gave no money toward the Extension Forester's salary?



WM: No, no money. In California the county supervisors have always paid the cost of the local office and the transportation cost of the farm advisors and their staff, and the University pays their salary.

Fair: But the Extension Forester, as yourself, had no contact financially with the county. Is that correct?

WM: Yes, that is correct. But here again you must realize that there are wide variations between the various states, and the way in which these things are set up. I think that it has been a very fortunate thing that in California the local man was not dependent on the county, except for his contacts with the county board of supervisors as far as the annual appropriations was concerned. His job depended on the Regents of the University.

Fair: Because the federal government did help finance the position of Extension Forester, did they insist on playing a part in what you accomplished? Did you have to write reports for them?

WM: Only by suggestion. They appointed at the same time, or a little bit later, in the federal Extension office in Washington, one or two U.S. Extension Foresters there.* They were supposed to stimulate additional information on the part of the Extension Foresters in the field, such as me, to call on them occasionally, which might be once in two to five years in California, to find out what they were doing, to keep informed of this, and to transmit anything that was of particular interest in any of their departments to others throughout the United States.

Now of course, the federal Department of Agriculture has always maintained a financial supervision, in a way, of the money that came from Washington to the University. I never knew any of the details of this, but I know that there is an inspection officer who has visited the campus, probably once a year, in order to go over the way in which the federal money is spent.

I asked one of the regional foresters in the Lake States why they allowed things to be done without reference to the State Forester, the Division of Forestry or the Extension forester. They said, well, we don't have any inspection of these people so we have no particular interest in what they are doing. That could have been said about California, but I don't think that it ever was

*The U.S. Extension Forestry was housed with the U.S. Forest Service in Washington and reported to the U.S.D.A. Director of Extension. The Annual Report of the Extension Forester and all other Extension workers was transmitted each year by the Extension Director to Washington, D.C. Comments were sometimes received from the U.S. Extension Forester.

- WM: because all of us realized the importance of understanding the whole over-all program in the state and the necessity for effective cooperation.
- Fair: And so there really weren't any conflicts because you all worked together.
- WM: Very little conflicts of any kind. After all, the problems were so large and the effort was so comparatively small that we could do mostly what seemed best to us and as approved in the Annual Plan of work.*
- Fair: Did you ever find that any of your projects were held up or changed in anyway because of federal interference?
- WM: I don't think so.

Administration of Extension Forestry

- Fair: The University then is the one whose policies you primarily had to follow.
- WM: Yes. And of course, the Director of Extension is the directing head of all the Extension Service. He's part of a three-fold responsibility of the University Department of Agriculture: A, teaching; B, Research; C, Extension. This has had its various aspects during the years.

Now Extension is set up under a vice-president in charge of agriculture, with the three men reporting to him, the director of the Agricultural Extension Service, director of the Agricultural Experiment Station, and then the responsibility for teaching which is under a dean on each of the campuses where agriculture is given. At the present time, agriculture is only given on the Davis campus, the Berkeley campus, and the Riverside campus.

I had to write an annual report and everyone in the Extension Service had to write an annual report.* When these things are stacked up, they are about that deep. They are on file at University Hall and in the Forestry Library in Mulford Hall.

- Fair: About two or three feet high.
- WM: Presumably, after they were approved here, at least one copy was

*See Appendix A.

** See Appendix A

WM: sent to Washington for the information of the Extension Service in Washington. Whether anyone read them or not, I don't know, but we all had to make an annual report, following somewhat an outline that was received from Washington from the U.S.D.A. Extension Service.

Fair: Do you have copies of these annual reports?

WM: These are all filed in the forestry library, everyone of my annual reports. The Director of Extension [Crocheron] was a man who stimulated you to do your best job. He left things largely up to you. Of course, you had to make out an annual program of work, and all of these programs of work are on file over there in the Agricultural Extension office, too.

The main advantage of the report was not the report to Washington, but the discipline that you had in doing it, going over the accomplishments of the year and writing up the places that you had been, and the people you saw, and how many contacts you made.

AGRICULTURAL EXTENSION SERVICE: EXTENSION STAFF

Fair: I was wondering what contacts you had with Crocheron and how you worked with him. I know that he supported your 4-H programs. Did you work closely with him in many of your programs?

WM: Naturally I reported to him. He was, I think, one of the outstanding Extension Directors in the United States. He was a very positive person and he had some brilliant ideas. He was a dedicated person to the Extension Service; the welfare of the men and women who were in the Service, as far as tenure and salaries and all that sort of thing, was something that he was always fighting for in the Service.

Of course, he was a lonely person. He never was married; he had no interest apparently except the Service. The Service was his whole life. One could never imagine him in a retirement situation; it was probably a very good thing for him that he died before he had to retire. He had a yacht, one of the finest schooner yachts on San Francisco Bay, but he rarely asked anyone to go out with him, except for Glenn Waterhouse and me because we could help with the sailing of the boat. But he was a man who did not know how to relax, even on the water.

As I say, he was a strange personality; he was brilliant, capable, but very lonesome. When he died, very strangely enough, there wasn't anyone that you could write to, to say that you were sorry.

Fair: Did he die suddenly?

WM: Yes, he had a heart attack and only lived a few days after. It was one of those things.

You ask in the outline about building up a staff. I never had any staff of any kind. I had a part-time secretary during the twenty years that I had an office in Giannini Hall, after we moved out of Hilgard to Giannini. The main office of the Extension Service was in Giannini Hall. There was a steno pool there and I had a part-time secretary, which was all I had until 1939, when Ralph Waltz was appointed as my assistant. He served until he went into the Navy in the spring of 1942. His place was taken by Rudi Grah who served with me for a time until he went to Bolivia in the rubber industry program which was a very large war-time program.

Fair: You worked with Grah again later, didn't you, in the early 1950's?

EXTENSION FORESTERS



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Assistant Extension Forester Rudolf Grah
United States Extension Service Forester William Sowder
Extension Forester Woodbridge Metcalf

WM: Yes, he came back after the War was over and was appointed as assistant Extension Forester, I think in December, 1945, or January, 1946--at the end of World War II. He served until he decided he was going to the University of Michigan to get his doctor's degree. I was alone for a year or something like that.

I was asked to stay one additional year after I was sixty-seven, which was 1955. Ed Gilden was appointed during that year and I got him started. Then I retired in 1956. My tenure was continued during that extra year.

Fair: Now you say that you were in Giannini Hall with the rest of Agricultural Extension specialists, is that correct?

WM: Some of the specialists have always been stationed at Davis and some in southern California. Forestry was in there too, and so was the Forest and Range Experiment Station. We were all in that building.

Now the School of Forestry and Conservation is a part of the Department of Agricultural Sciences of the University. The Forest and Range Experiment Station is a separate entity--U.S. Forest Service. But as I said the other day, all of these outfits worked together pretty closely.

Fair: What about the United States Forest Service Forest and Range Experiment Station--what did you do with them? Where was this located?

WM: Its first location was in Hilgard Hall, then in Giannini Hall, then in 1947, in Mulford Hall, and later, on Milvia Street in Berkeley.

Fair: This is the Forest Service one?

WM: Yes, and then when we moved into Giannini Hall, that was 1927, and a portion of it was assigned to the Forest and Range Experiment Station. And they were there, and the Extension Service offices were on the first floor and the specialist offices were right around that downstairs. My office was room eight for twenty years. The forestry school was on the second floor. The Giannini Foundation, which is also a research organization in agriculture, had its offices there.

Some of these projects overlap and wherever desirable, they have joint discussion and probably combine from the different units to work on the problem together. The men in the field, the farm advisor's staff in the county, set up test plots to carry out the suggestions of the experiment stations to see what these things do under actual field conditions. And the specialists work with them and examine the test plots, writing up the results. So as you

WM: probably noticed in the annual reports, I mentioned different people in the different organizations.

Fair: It was very advantageous then for all of you.

WM: Yes, very advantageous. When Mulford Hall was built, we moved in here, and the Forest and Range Experiment Station had their offices on the top floor. Then it gradually developed that the specialists in the various lines in Extension were officed with the subject matter division. I think that in almost all cases now that is true.

But in the beginning, there were relatively few of us, as compared to now. We had most of our offices in Giannini Hall adjacent to the Director's office, which is the big room now occupied partly by the library. But that whole lower floor has been completely changed after they rehabilitated the building.

There were always some Extension specialists at Davis. The Agricultural Engineering specialists were always at Davis. Then gradually of course they set up a Regional arrangement in the state. This was not true when I came into Extension. Everything was handled through the Berkeley office.

With growth of population and complexity of agriculture, it gradually came about that increased staff was needed and specialists along several lines were assigned as farm advisors in some counties. Now somewhere between twelve or fifteen staff members are in the larger counties. Some forestry farm advisors work in two or more counties.

Fair: What do you mean by present situation? The cut-back in funds to the University?

WM: Yes, this has had a definite effect. One Extension forester was dropped. There were forty--I don't know how many now--but I know that at least forty positions have not been filled in Extension because of the decline in funds. Several of the fellows had to take early retirement.

Two of the foresters: Jim Gilligan, who really took my place, has gone to Wisconsin; and Ray Isle, who was one of the county agents and a graduate of this forestry school, was in Mendocino County and then in Sacramento County doing forestry and 4-H Club work, was not reappointed; so he is now with the Washington Extension Service in Okanogan County.

Fair: When did the diversification of the specialist take place? When did some of the administrative work force move out from Berkeley to the counties? About 1935?

WM: Well, this was a gradual development of regionalization in the north coast counties, the south coast counties, the Sacramento area, the San Joaquin area, and southern California--five different sections. This was because of the increase in population, and the increase in the problems, and the difficulty or greater ease in contacting the local people and all that. The same thing happened in the State Division of Forestry; they set up the regional offices on about the same basis as the University has.

Fair: There are five areas. Now did these men work directly under you?

WM: No, no. These people are Agricultural Extension. I was only one of the specialists in the Agricultural Extension Service.

Fair: Oh, I see. But they did have a different specialist in each of the five areas depending on the need.

WM: No, they had administrative personnel in each of the five areas. Gradually in those counties in which, say, fruit products were most important, they had a local farm advisor who devoted all of his attention and was a specialist in fruit products. There was one in dairy products, one in animal products, grazing and other areas of specialization, as these things became more in demand by the local people.

Usually it was a request by the Farm Bureau and other agriculture people to the board of supervisors, who would agree to look after the local costs in connection with it, if such a person were appointed by the University.

Fair: Was there any specialist in forestry in, say, the northern counties, besides you?

WM: There were several graduates in forestry in counties but often with other responsibilities than forestry. In all the northern counties?

Fair: Well, that is where all the lumbering is.

WM: No. To explain the relationships between Agricultural Extension and the College of Agriculture, the United States Forest Service, the Soil Conservation Service, the State Division of Forestry, is a difficult thing to get any understanding of by the outsider, by the average person. It is a very, very complicated arrangement.

Fair: You were the forestry specialist. Now who were some of the other specialists in Extension?

WM: Well, I mentioned Jim Fairbank was in agricultural engineering, and there were the three 4-H Club specialists that I worked very closely with: Waterhouse, Ralston, and Spurrier. Then Eddie

WM: Gordon, the dairy specialist, had his office next to mine in Giannini Hall. And Bill Newlin, the poultry specialist; Dr. McKay, specialist in animal diseases; Burle Jones in range management--there were others on soils, entomology, citrus, and so forth.

Fair: Were there about twenty or thirty different specialists?

WM: Something like that.

Fair: What type of specialist was Tippet? Was he an administrative specialist?

WM: Yes. He came in 1913 with Mr. Crocheron and was always sort of office manager in the Extension Service.

Fair: Did Tippet help you set up a budget each year?

WM: Well after all, these things were arranged on a rather regular schedule. (Phone rings) As you have probably noticed in the annual reports, we drew up a plan of work for the year, in which you outlined certain places where you were going and the things that you planned to do; and this whole thing involved discussions with other people in the administrative office, and all that. They looked it over and after it was approved and at the end of the year, you were supposed to indicate whether you had done all of these things. In many cases you had, and some you hadn't.

Fair: What kind of man was Tippet? I understand that you are good friends.

WM: Oh yes. He certainly was one of the most understanding of people. He looked out after people who got into difficulty, who were hurt or became sick. A very helpful person.

Fair: He seemed to be very compassionate.

WM: Very, yes, he always did that. You have probably seen the write-up that Agricultural Extension wrote about him recently. And also the one on Burle Jones that just came out about two or three weeks ago. He was the specialist in range management. He is still living down in San Mateo County. You would be interested in getting a copy of that. The first one came out on Crocheron, then the one on Tippet, and then this one on Burle Jones.

I have got to remember to send this to different people who were in the Forest Service and the Soil Conservation Service who worked with him on range improvement and management. I found out at our meeting of the F.S.X. Forest Service Retirees* meeting last

*I am a member of F.S.X. on the basis of my work on the Snoqualmie National Forest in 1911 and 1912.

WM: Monday that Russell Beeson, for example, who was range specialist for the Forest Service had not seen this write-up on Jones; Cronenmiller also, who was a range specialist. He lives down in the San Mateo area. They both knew Burle Jones well and worked with him. They were the people most interested in seeing this report on his career.

Fair: Could you say something about James Fairbanks at Davis whom you did so much work with? Can you tell me about some of the work that you did with him and what kind of a person he was?

WM: As I said, we worked very closely together for, I guess, a total of nine to ten years, of which we spent fifty percent of our time on these fire demonstrations, preparing for them and putting them on, and arranging for the Rural Fire Institutes, contacting the different organizations, and getting the meetings here or at Davis or at UCLA. So we had them back and forth, the preparation of the equipment reports, and the organizational reports on local fire organization and all. We worked very closely together.

Fair: Was he easy to get along with?

WM: Oh yes. We never had any problems. We traveled thousands and thousands of miles together in this truck that we had.

Fair: Can you think of any interesting experiences that the two of you had together when you were traveling, or when you were presenting demonstrations?

WM: [Chuckle] Oh lots of them. They were very enjoyable. He was a humorous person, and he had a very dry wit. We got along just fine. One of the meetings that we did at Davis, for one of these leadership meetings, we put on a little skit in which he took the part of the farmer, and I took the part of the ranger coming in to make inspections. We worked up several things like that, trying to appeal to people.

Fair: What did you do with the Farm Bureau?

WM: Of course, the Farm Bureau was set up originally as a medium whereby the information of the University could be presented to farmers.

Fair: I thought that was Extension's job?

WM: Extension is the arm of the University to do it, but the Farm Bureau, through the Farm Bureau centers in the different counties, supervised and assisted by the local farm advisor who is the local representative of the Extension Service, held meetings, usually a monthly meeting, of each center. They held commodity meetings on potatoes and grain, and fruits, animals, and various other farm

WM: crops, where specialists from the University, either Extension specialists from the experiment station or elsewhere, transmitted this information to the farmers.

Take the cow-testing association, for example, which was promoted by the dairy division of Extension Service at Davis. Through the specialist, who was Eddie Gordon (he died about six or seven years ago now), cows were signed up for testing. The application of breeding techniques to the dairy cattle resulted in an enormous increase in milk and butter-fat production by the cows in California. Los Angeles County had the largest cow-testing organization in the United States. I don't know where it is now because there are too many houses there now and they probably don't have so many cows.

But that is the kind of thing, you see, that Extension is all about. All of these things have been going on to the point where some big counties now have specialists in a number of crop specialties important in the counties.

Fair: I see, rather than one here at Berkeley only.

WM: Because, for the state man, such as I was, it got to be too big a job in some counties. You couldn't do it. So counties like Los Angeles have something like twenty people in the Extension Service, specialists in citrus, dairy, poultry, floriculture, and many other crops.

COOPERATION WITH OTHER FORESTERS

Fair: Who were some of the others you worked with?

WM: Well, E. I. Kotok was director of the Forest and Range Experiment Station, and ^{CAREY L.} ~~LEROY~~ Hill was in charge of products in the station, and Charles Kraebel (who still lives in Berkeley) was silviculturist in the experiment station. They have a field station at Black Mountain in Lassen County and one in Los Angeles County.

At San Dimas station near Los Angeles, studies of watershed management are conducted. Don Sinclair, who was a graduate of the forestry school, was the director of the San Dimas station for a long time. I occasionally went up there and discussed the problems with them about planting, clearing firelines, and these other various aspects of watershed protection which is so important in southern California.

Fair: Can you think of any project that you and the men who were working with Kotok happened to solve in forestry? Was there any problem at the experiment station that you gave assistance to?

WM: Well, I don't know really. Of course, the station in those early days was small. They were just getting started. Our program was small, and as I think that I said the other day, the problems were overwhelmingly large. Everybody was working along certain areas, for example, testing fire resistant plants.

They are still working on that, to find plants which may be suitable for the prevention of erosion on burns, and also on the fire lanes which are built to make it easier to control fires. They have been testing for years plants from different parts of the world that might be fire resistant, as well as drought resistant and frost resistant; so that if the fire came up to this area, it would not burn as fiercely or bare the land which would lay it open to erosion during heavy rainfall, but it would have plants that would spread fire less rapidly than grass or young trees.

Fair: Now would this be like Composite, or small woody ground cover--Atriplex?

WM: Yes, Atriplex, saltbush, a number of these things, like ice-plant, for example, Mesembryanthemum. This grows all right down in lower areas, but it won't stand frost; so again you have got this problem of climatic influences, soil influences, and all.

Foresters From Private Industry

Fair: Did you know Richard Colgan, the private forester for Diamond Match?

WM: Yes. He is a graduate of Michigan State University. I never knew him really well, but I knew that he was a very capable person high up in the organization. And of course, on these committees that were set up by the lumber industry, which has developed into the Keep California Green, the representatives of the different lumber companies were all interested in fire prevention, and also in the development in this cooperative fire protection plan for California, under the Clarke-McNary Act.

The amount that they spent for local fire protection and the cooperation that they put in was counted in connection with the amount of money that came from Washington for forest protection in California.

Fair: Who were some of the other company foresters that used to come along with Richard Colgan to these meetings? Do you remember any of the other private foresters? Did the Union Lumber Company have a private forester?

WM: Yes. Bob Swails was one of the men up there at Union Lumber Company. He was interested in Eucalyptus too and did some Eucalyptus planting in the early days.

Fair: How about the Arcata Lumber Company?

WM: No. The Union Lumber Company had a Carl Garhardy, who just died recently, and Virgil Davis at Fort Bragg. Davis was in the field, and Carl Garhardy in 1922-25 was in charge of their nursery, where they raised over a million trees a year for planting in the redwood cutover lands.

At the same time--what were those fellows' names at the Pacific Lumber Company at Scotia? They had two men there. Wirt was the man in charge of the nursery. They had a very large nursery at Scotia for carrying on planting in the redwood area. The man who was in the fields, the field forester, was a graduate of the University of Washington and went back up into Washington. I think that Wirt is dead now, but I can't remember the other's name. Dave Mason, who was here on the faculty for a while, and then was a Major in W.W. I, was consulting forester for the redwood industry and set up a lot of these things.

Fair: What things?

WM: The planting program, and the plan for the better management of redwood lands, better protection, better cutting procedures, and so on, in the Twenties. All of this went by the board in 1929. During the Depression, very, very, very regrettably, the redwood industry completely wiped out all of the forestry programs that they had. They closed the nurseries and let the foresters go.

If they only had seen the advisability of cooperative maintenance of one man to carry on the necessary research work on a continuing basis, no matter whether it was done at Fort Bragg or Scotia or wherever, they would have been years and years ahead. But they didn't do it.

Working With Emanuel Fritz

Fair: What about Emanuel Fritz? Can you tell me something about him?

WM: He came here after World War I where he was Captain in the Signal Corps. He and I made several trips in the early days up into the redwood country. (Then I got interested in putting a lot of time in 4-H work in the pine country.) He became known as Mr. Redwood and headed up the work that the University did in connection with the redwood people.

We laid out the plot in Big River in 1923 when it became known as the wonder plot. The one acre demonstration area, study area in extent which had been growing for sixty-five years, had 130 thousand board feet of timber on that one acre, showing what bottom lands in the redwood country will do if they are protected from fire. This area was too wet to burn, but the surrounding area had been burned maybe two or three times in the sixty-five years; and so it was practically nothing but small sprouts.

Fair: Do you think that Emanuel Fritz was bitter about his S.A.F. activities? Because he was so active, and he then seemed to be so bitter in the end when he retired from the editorship of the Journal.

WM: I don't think he was bitter about S.A.F. He is a strange personality anyway. I don't know--I suppose that I know him as well as anybody. Fritz was apt to be curt and abrupt a lot. He was not easy to be friendly with. He had a strange personality but he did a lot for S.A.F.

He was opposed to many of the Forest Service policies, some people thought unduly critical of the policies. He was close to

WM: the lumber owners in the redwood region and he established the annual redwood logging congress for better silviculture, fire practices and logging in the redwood region. The redwood region owes him a lot for his interest and work.

He and I were here for many years but he was working in a different field. He was teaching on the campus and working primarily with the redwood region, and also as editor of the Journal of Forestry for quite a long time. We didn't get a chance to do very much together, except in connection with redwood meetings occasionally. I attended the redwood logging congress several times with him, but we didn't arrange meetings together because he was working with a different group of people.

Fair: You started to say that people didn't understand him sometimes?

WM: Well, that was mannerisms I guess, and attitudes. He had a sort of--I don't know if you would call it a combative attitude. He worked very closely with the lumber industry, and he was rather critical of a good many of the attitudes and methods of the Forest Service.

He was consultant to the State Division of Forestry, to the Board of Forestry for a time. I never went to any of those meetings that he was at, and I don't think that I ever went to more than two or three meetings because I didn't have that involvement. He was employed by them as a consultant on policy matters and that kind of thing. Occasionally I would be invited to go to a meeting if I was around Sacramento.

Fair: Fritz was employed by the state as a consultant?

WM: I really don't know what the situation was, that is, whether he was actually employed by the State Board of Forestry; but he put in a lot of time working with them.

Fair: Now you say that Fritz was a consultant for the Board of Forestry?

WM: I can't say exactly that he was; he was at a lot of the meetings.

Fair: This was when they were writing the Forest Practice Act? He was so active in this work.

WM: Yes, I think so, about that time. I went to a few of those meetings. They held district meetings in the five different forest districts in the state: I, the North Coast; II, the North Interior; III, Central; IV, Southern Sierra; and V, South Coast (Southern California is stated as District VI, but is not a logging district).

At the time, they were holding the meetings for discussion for the suggestions that the industry and land-owners and grazing MEN

WM: had made at these meeting. I went to a few of these meetings but not all of them.

Fair: Who was Herb Gilman?

WM: Gilman was representative of the water interests in southern California on the State Board of Forestry. He was from San Dimas and was very active, and a very capable and dedicated man. I enjoyed him very much.

Fair: Did you know Colonel William Greeley?

WM: I met him a few times. I never knew him very well, but I met him at the Society of American Foresters meetings. I admired him very much. He was one of the leading foresters in this country. He was Colonel of the forestry regiments during World War One, and later, Chief of the U.S. Forest Service. After that, he came out west and was with the lumber industry in Portland. He had a long and very distinguished career.

Fair: Can you tell us anything about Mr. Lowdermilk and about your work together with soil erosion projects?

WM: He was here in the Forest and Range Experiment Station, working on erosion control methods. He made suggestions for the erosion setup that we used in that fire demonstration. This was one of his major interests.

Fair: Did you have contact with any of the governors listed here: Stephens, Young, or Rolph or Merriam, or Olson, or Warren or Knight?

WM: Only indirectly. I went to see Warren when he was attorney general. He was very much interested in the forestry and fire protection program, and helped it a good deal in getting better fire protection started. I think he was very helpful after he became governor, because he was naturally inclined toward conservation.

Fair: Did he help you start the conservation week at the beginning of spring?

WM: All of the governors have issued a conservation week proclamation, beginning about thirty years ago.

Fair: Do you remember Ray Clar?

WM: Oh yes, from the time that he was a student here.

Fair: He told me about taking your silviculture class in 1919.

WM: Yes. I knew him well. Then he was a ranger in Sonoma County before he went to Sacramento, after he graduated. He was down here not too long ago, looking through the photographic file that I had charge of for thirty years or more. It is now up in the forestry library attic.

Fair: How would you assess Ray Clar's work under Pratt?

WM: I think that he had some problems--his health wasn't good for quite a while. He was Chief Deputy State Forester for a while, and he had a health breakdown on account of the pressures of that office. He was reassigned to this historical matter because of this health condition that he had. He made a very good recovery from it, but the frustrations and the pressures in that office up there got to be too much for him.

State Forester Merritt Pratt

Fair: Why didn't this affect Pratt in the same way?

WM: Well, I think Merritt was one person in a thousand in that job. He had more of a placid personality, and I don't think that he worried a lot about things. He had an unusual amount of adaptability to different conditions in Sacramento, changing administrations and all that sort of thing.

I always had great admiration for him because not very many people could have persisted under the job that he had and these frustrations and pressures and everything else.

Fair: What kind of frustrations and pressures were there?

WM: There was the problem of different interests.

Fair: You mean politics?

WM: Yes, political interests.

Fair: Do you think that many of Pratt's problems were politically orientated?

WM: Yes, there were the personalities of the members of the State Board of Forestry. He had some very difficult times in connection with that. Dr. Pardee was an outstanding chairman of the Board. He kept things on a pretty even keel. But the governors appointed the people and they appointed some strange personalities that didn't contribute greatly to the actual work of the

- WM: Board. The other man who was chairman later, president also of the American Forestry Association, what is his name? William . . .
- Fair: Oh, Rosecrans?
- WM: Yes. He was a very good chairman of the Board.
- Fair: Can you tell me what was the State Forester's relation to the Board of Forestry, at the time that Pratt was State Forester?
- WM: He was secretary of the Board and its executive officer.
- Fair: Did he take orders from the Board of Forestry?
- WM: The Board of Forestry is supposed to be a policy-making Board, similar to the Board of Regents of the University, for example. The executive officer is the State Forester.
- Fair: Did the State Forester have a vote on the Board?
- WM: I don't think so.
- Fair: He was just secretary. Who were some of these strange characters that the governor appointed politically?
- WM: They were recommended by different interests. I wish I could remember some of them. Warren Marsh was from Santa Barbara.
- Fair: How about Rex Black?
- WM: Black, of course, was a very controversial figure. He represented the lumber industry on the Board, but also he and Pratt didn't get along at all. He was antagonistic toward the State Forester. He tried to get him--he wanted to be State Forester himself, I am sure.
- Fair: Really?
- WM: That is one of the reasons why--and he did a lot of politicking to try to accomplish this. But he was never able to do it.
- Fair: Why was he antagonistic toward Pratt?
- WM: I guess, personalities; and he thought that Mr. Pratt wasn't positive enough and that he didn't favor the lumber industry.
- Fair: Do you think that Black was justified in these accusations?
- WM: No, I don't think so. And of course Black was--I guess he was disbarred from the Society of American Foresters.

Fair: Yes, but then he joined again.

WM: Because of all of this political activity.

Fair: Tell us about Marsh.

WM: He was a local politician from Santa Barbara, and he was kind of a lightweight individual. I don't think that he had any--I don't know how he was appointed to the Board, really. It seems to me that he had been in the nursery business, or was in landscaping.

Fair: Why did he cause trouble on the Board with Pratt?

WM: He was kind of a flighty person. I don't think he really understood the underlying situation, but he apparently had a following in southern California.

Fair: What was the underlying situation that this man did not understand?

WM: Well, as I remember it, he was interested in doing some rather impractical things in connection with watershed protection in southern California. He wanted to seed and plant knobcone pines. I think that they nicknamed him nobby-cone pine.

Fair: Pratt didn't think that this would be effective?

WM: I don't think that the rest of the Board went along with it. That was just one of the things. You know, you can't expect all of the people on a Board to be cordial, any more than you can expect any group like that to be fully understanding and cooperative and all. We have a good example of that on the Berkeley City Council.

Fair: I guess one just does the best he can, and that is it.

WM: Yes, that is it.

Fair: Was Gilman on the Board during the problems of the Thirties?

WM: No, he was later, I think. No--earlier than this man.

Fair: Was he on the Board during the problem with Black?

WM: I don't think so.

Fair: You were one of Pratt's best friends, and when Black made these accusations against Pratt, they were quite serious. He charged Mr. Pratt with incompetency and a lot of other things. How did Pratt react to this? Did he ever tell you how he felt? Was he hurt by all of this?

WM: Not in detail, no. But I knew that Black was really an enemy of Pratt. He had shown it in his attitude for some time. I think that Merritt was worried by it, of course; it bothered him a lot. In spite of all that, he had enough friends and supporters, and so the charges didn't get anywhere.

Fair: He had friends in the Forest Service and the State Division of Forestry, as Black's friends were in the industry?

WM: Well, I don't know. I suppose so, because Black was secretary-manager of the California Forest Protective Association, which was the mouthpiece of the lumber industry. Naturally, I don't know if all the people in the industry were behind his efforts to get the State Forester out of his job. Much of this was heard to me as I was busy with other affairs.

Fair: Do you think that there might have been some dissension in this organization?

WM: I don't know about that. Essentially, the California Forest Protective organization, on the face of it, was supposed to be an organization for the protection of the lands and the promotion of good fire protection and forestry measures and all; but actually what it was was a political organization to protect the lumber industry against legislation they did not favor.

Fair: Can you give me an example where they were effective in this?

WM: They took a position that anything that came up in Sacramento that would be designed to raise taxes on the lumber industry or do anything in the management way, or control--they were opposed to it. As a matter of fact, the C.F.P.A. was a lobbying organization for the industry, in Sacramento.

Fair: Do you think that it is still like that?

WM: I suppose it is to a certain extent.

Fair: Do you think that because of the fancy name, "Forest Protective Association," they were able to get a part of the Clarke-McNary reimbursement funds for fire protection?

WM: I don't think that is correct, that the companies got some of the money.

Fair: The Association didn't get any money?

WM: I don't know about that. I didn't think that they ever got anything from the Clarke-McNary fund. Because you see, the companies were supposed to put out a certain amount of matching funds, and then allocations from Clarke-McNary money were made, not to the

WM: companies, but to the whole program of fire protection. I never heard that the Association as such got any money. I don't see how that could be possible.

Fair: Could the money have been allotted to C.F.P.A. and then they divided it up among the member companies?

WM: I don't think that would have been possible. They probably had a representative in developing the program, similar to what the Western Forestry and Conservation Association in Oregon and Washington did. These things were somewhat different in the different states.

Fair: What kind of governor was Merriam? Was he weak, strong? Did you know him or know anything about him?

WM: I never knew any of the governors very well.

Fair: What I want to know is, that shortly after Black tried to oust Mr. Pratt, the Board of Forestry ceased to meet for two years. Did Mr. Pratt ever say anything about this to you? You mentioned this fact in your annual report, that the Board of Forestry had not met.

WM: I think the situation had been so tense that the governor just let things cool off for a time. I was not in very close touch with underlying currents at Sacramento, as I was too fully occupied with my own job and the work of the Extension Service. As a member of the University, I was not supposed to take part in political activities nor to attend meetings unless requested to do so.

I think that they just quit meeting on account of this whole controversy and the opposition to Black and everything, and Black went to Minneapolis after this.

Fair: That was quite a while after that, wasn't it?

WM: Some time after it. I know that the Board didn't meet. They just kind of let it drop.

Fair: Do you think that they scattered in confusion, or do you think that the governor refused to let them meet because of the dissension?

WM: The governor appoints the Board, but after the Board is appointed, I don't think that he has anything to do with their activities.

Fair: Can you tell me something more about some of the comments that Mr. Pratt would have made to you about problems in the Board of Forestry or the Division of Forestry? You see, you are one of the

Fair: few people that we have contacted that knew Pratt as a personal friend.

WM: When the Save-the-Redwoods League was started and the state appropriated that six million dollar fund for purchase of redwood lands for state parks, of course the State Board of Forestry administered that program. There was no park department or park system at all.

Pratt was State Forester, and the Deputy Forester, Solon Williams, was put in charge of that purchase program and he handled a lot of these contacts. He set up the investigations for determining the value of the lands and the expenditure of this six million dollar fund. That was all done under the direction of the State Board of Forestry, and later the State Park Service was created and took it over.

Mr. Pratt was very active in the acquisition of parks, was enthusiastic about the program and all. He was primarily concerned with other aspects of the work of the Division, fire protection and cooperative agreements with counties for this purpose.

Fair: Was he a preservationist?

WM: Well, I think that he was like a good many people in our generation. He was a forester first and believed in the multiple-use program.

Fair: So Pratt was more of a conservationist, a multiple-use man?

WM: I think so. He was a graduate of Yale Forest School and he had been in the Forest Service, and he had the multiple-use idea of forestry management. I would say that he wasn't a preservationist any more than I think that most foresters are.

Working With the Lumber Industry

Fair: Did you work with private industry at all?

WM: Well, of course, there you have to realize most of the things that the University does, or the Agricultural Extension Service does, is largely on request. If you are requested to do certain things, that is fine; but otherwise you don't go into a place and make suggestions.

Fair: Private industry could request that you come in and help them?

WM: That is right. I was just looking at one of the publications

WM: on my desk that came in the mail today* along that line. This article is about wood chips. The man from Extension says, "Sacramento has just approved a 5.3 million dollar bond issue of which two and a half million are to provide facilities to handle a hundred thousand bone-dry units per year of pulp chips to go to Japan. This more than doubles the volume of chips that goes through the port."

Now he goes on to say, "As stumpage prices continue to rise there is a possibility that additional recovery from the log will become more important." And this is the critical point, "I will be glad to help in projecting the chip price required for profitable operation, if requested." That is the point that I had in mind.

Fair: Who requested you to help them? Can you think of any of the companies that you had assist them during your career?

WM: I did some experimental planting for the Union Lumber Company.

Fair: But that was before you were Extension Forester.

WM: Yes. But later of course, the redwood people organized the Redwood Region Conservation Council, which is a public contact between the California Redwood Association and the public. They sponsor fire protection programs and a logging congress, and also sponsor the teaching of practical forestry in the high schools to attract capable boys into the industry.

I was one of the people who helped start the junior logging congress which was held in the area for the one hundred high school boys selected each year. It is all a matter of contact, you see, with this Redwood Region Conservation Council, which is a branch really of the lumber industry of the region. That is just an example of it.

During the C.C.C. days, in cooperation with Santa Cruz County, I did some test planting on the lands of the Santa Cruz Lumber Company in connection with one of the 4-H Clubs of Felton. The leader had been the railroad agent at Felton. The Club got the use of about four or five acres of cutover land from the Santa Cruz Lumber Company, up toward the top of the ridge. We got stock for them and I went down there, and the boys and girls did some of the planting.

Fair: Did you get the stock from the state nursery?

WM: _____

*Publication from Agricultural Economics, by forest products specialist, William Dost.

WM: I can't remember now, but most likely.

Fair: Did you work with the Diamond Match Company when they were fire-proofing their lands? Richard Colgan, their forester, did a lot of fire-prevention work. Did you work with this particular company?

WM: We did the fire prevention work in cooperation with the State Division of Forestry and the U.S. Forest Service. The programs that we carried on during the fire demonstrations from the spring of about 1929-1935 or so were in cooperation with . . . well, anybody who was interested: local fire districts, and local fire departments, and state rangers who were in charge of a county.

The county farm advisor usually worked on arranging the meetings through the fire departments and with the high schools and the other schools. Of course, where it was possible we gave demonstrations for the Farm Bureau centers.

I remember one year--I don't remember the year--but we gave one of the fire demonstrations at one of the annual tours that the Farm Bureau had where quite a large number of people from many of the different counties went around in certain areas to see the agriculture there. The demonstration was with Mr. Fairbank, the agricultural engineer. We were the two who worked on demonstrations.

There were representatives from the different areas who were much concerned with fire prevention. People from different lumber companies would come to these meetings and assist in arranging for the demonstrations, so in that regard, I think that you could say that we did work with them as much as we could.

Fair: Did you ever give fire demonstrations for the employees of the different lumber companies? for the timberjacks?

WM: I don't think so. They may have sent people, a fire boss or foreman, to these demonstrations to watch because there was quite a lot of publicity sent out in the areas in which they were to be given. The public was welcome.

FIRE DEMONSTRATIONS: TEACHING FIRE PREVENTION AND PROTECTION

New Equipment

- Fair: When you were doing the fire prevention demonstrations, do you remember helping to develop any new tools for fire prevention, or watching any develop so that fire prevention or fire fighting was easier? I know that they started out at one time fighting fires with sacks and shovels, and then they got trucks. You worked during this early period, didn't you?
- WM: The machinery was very limited in its capacity at the beginning. The automobile and the truck were developing, but most of these fire protection outfits that came out in the early days were overloaded. We tried to show at the demonstrations the latest things that were out, such as power take-off on the trucks, new types of nozzles, improved hose, etc. We demonstrated the first fog nozzles that were used, both in the back-pack pump and in the other equipment that is standard for all fire departments now. If there was a fire in this room, the fire-fighter can just break a hole in the window and poke a fog nozzle in, filling the whole place with fog. This is better than a stream of water which would break the other windows or damage other things. Fog is very effective in fighting many different kinds of fires.

Of course the Equipment Committee from the Rural Fire Institute, made up of people from Agricultural Engineering at Davis, the State Board of Forestry, the United States Forest Service, and the Board of Fire Underwriters of the Pacific, were working right along in the development of more adequate equipment, and improvements in various mechanical lines. Back-pack pumps and portable equipment that could be put on a small engine truck and used with high pressure hose were developed. One of the first outfits that we had on a University truck was a hundred gallon barrel, just a water barrel of steel, water, and a power take-off from the truck engines. It was one of the first developments of that kind, and Mr. James Fairbank fixed that up.

We had a monitor nozzle that the driver could use with one hand while he drove the truck with the other hand, to use to throw a stream of water on a grass fire or a fire near a roadway. We actually fought a number of fires just

EARLY FIRE FIGHTING EQUIPMENT



(above) fire truck with moniter water
nozzel. 1928

(right) Early portable back-pump

(below) Emergency Farm Fire Protection
Project, farm equipment .1942



- WM: because the truck happened to be there. I remember one fire right near Davis. We were going up to Davis to put on a demonstration for the 4-H Club Congress at the annual meeting.
- Fair: What year was this?
- WM: Maybe 1935 or so, I don't remember exactly when it was. But we had the truck there and we were going by a fire, so we went in and helped to fight it. The Dixon Fire Department was on the job and the only equipment that they had was two fifty gallon acid and soda tanks. When those tanks were exhausted, they had to go clear back to headquarters to get them recharged. This was a good demonstration of the inefficiency of a lot of the equipment that was in use at that time. Now of course, all you have to do is look in any of the fire protection journals and you can see how vastly all of this equipment has improved. But we were in the beginning of it.
- Fair: Can you give me an example of how your fire prevention demonstrations changed from 1928 to the 1940's? Can you contrast the two demonstrations and tell me what particular innovations took place in those years that would have made the demonstrations different?
- WM: I don't know. After our beginning demonstrations the state built four fire trucks on Moreland truck chassis. They were the first fire trucks that the State Division of Forestry had. They were pretty good outfits for that time because they were largely experimental, but they didn't have enough power to go to places off the road. That of course was the problem of most of the fire truck, and perhaps still is. With most of the large city equipment you can't get to the places in the country, on country roads, in sandy conditions, or steep, narrow roadways, where they have too big a load on the truck for the road. As new developments, such as the truck, came along we could use say, the latest state-owned fire truck and driver at the demonstration to show improvements of recent innovation.
- Fair: What new tools were there besides the truck and the shoulder pack and the fog-foam?
- WM: There was constant improvement in the back-pack pump to make it more comfortable to carry, for instance. And then these little pumpers developed by Western Fire Equipment Company in Seattle-- a four cylinder unit that could be lifted off a truck, or carried on a small trailer, were demonstrated by us.

The Equipment Committee got out the Rural Fire Protection Equipment Manual which discussed the experiments that they



WM: had carried on. For example, Dean Roy Bainer, I guess that he is just retiring now from Davis-- maybe he has retired, but he did the first work on the amount of water that can be distributed through hose of a small size at different pressures. There was information already available on the big hose-- two and a half to three inch hose. He actually carried on the research work at Davis to develop what information was necessary in using minim amounts of water to get the maxium amount of fire suppression.

Fair: When you were establishing the fire prevention programs you developed the mountain fire truck. Is that correct?

WM: All of the men on the Committee had a part in that continuing developing of better fire equipment.

Fair: I see, and the mountain fire truck was just one of these steps.

WM: It was just one of those developments. They were experimental to start with. the Committee proposed changes, and got an outfit built, and then went out and tested it, just like the four Moreland trucks that I mentioned. Naturally the automotive industry was improving during that same time, and all of these were a steady development. You see a Model T Ford being run now, and you just wonder, boy, after all that is all the farm advisors had to begin with, canvas topped Model T Fords.

Fair: Who was on this Equipment Committee at different times? Do you recall any names?

WM: Bainer of Davis, Professor Walker, the head of the Division of Agricultural Engineering, James Fairbank was the Extension engineer who worked closely with the people, and F.P. Burnsides and R.H. Stalnaker from the State Division of Highways. Loren Bush was the engineer from the Board of Fire Underwriters of the Pacific, and then certain equipment men from the State Division of Forestry were all interested in this.

Fair: Were you on this committee also?

WM: No, I wasn't on the Equipment Committee because Mr. Fairbank was the Extension engineer on that committee. But I was very interested in their work. I was on the Public Relations Committee, and also active in the development of volunteer organizations for fire prevention and cooperative presentation of the demonstrations.

Presenting Fire Prevention Demonstrations

Fair: What were some of your duties on the Public Relations Committee? Did you plan the demonstrations?

WM: Yes. Jim Fairbank and I did that, of course. He did certain parts of it, and I did certain parts of it.

Fair: Did people request you to give demonstrations in different places or did you solicit demonstrations?

WM: No, we made a schedule of what dates we would be in San Diego County, for instance, and left it to the State Ranger and the farm advisor to make contacts with the local people in the schools and so on, to put on the demonstrations when we were there.

Fair: How many years did you carry on these demonstrations?

WM: It was usually done in the spring, about three months I think we devoted to it; March, April and May would be about the time that we tried to do it. It would be in advance of the fire season and while the schools were still in session.

Fair: Were the meetings where you gave your demonstrations especially organized for that purpose? They were not like PTA meetings or community club meetings where you were just a part of the program?

WM: They were done at schools, either high school or junior high schools, or occasionally at an elementary school in a rural area. Most of the time the principals were very cooperative, for in most cases we had the whole student body there, despite the fact that a number of principals said that they didn't think that we could hold the interest of the students.

Fair: Who attended your meetings besides children?

WM: People came from around the neighborhood, various people who were interested in fire prevention: farmers and others.

Fair: Did you ever have an important surprise guest or anything? Did Mr. Pratt ever drop in on any of the demonstrations? Or how about the mayor?

WM: These things were done on a one-two-three-four basis. We just had a certain amount of time to do it. Like a class of any kind, the students were dismissed from certain classes and we put on the demonstration, and they went back. So it was

PRESENTING FIRE PREVENTION DEMONSTRATIONS

Erosion demonstration
developed by Metcalf



(above) Fairbank on truck, and
Metcalf put out a fire during
a demonstration.

(below) James Fairbank with
"Pipa", a dressed doll made
from pipe used to demonstrate
putting out a fire on the
body.



WM: a little hard to tell who was there unless they came up to talk to us afterward.

One of the things that I was interested in was that in each demonstration we give some visual idea to the crowd of what fire and the destruction of humus and plant cover does to cause erosion. We had two boxes which were five feet long and one foot wide. There was a gravel layer in the bottom of the box and a sandy-loam soil about four to five inches deep was added. It was some of the best soil that they had in Yolo County. Then we put those side-ways into the truck, and when we pulled them out of the truck we put them on a 20 percent slope. It was exactly the same slope for both boxes. On one of them we had a thin layer of leaf litter and humus on the top, and the other was bare soil. This showed what the condition the soil on a slope like that would be in after a fire. Then we put on at the same time, the same amount of water from two sprinkling pots. We put in about a quart or a quart and a half of water on each slope, just like rainfall. The runoff from the surface was caught in a bottle down at the bottom, and the amount of percolation that went down through and came out in another bottle was measured. We had the two bottles leading from the two boxes sitting where people could see them. It was an amazing demonstration.

Fair: It sounds very effective.

WM: It showed what you could expect. There were no roots of course, and the roots have, as we explained, a very definite retarding effect on the runoff of the water. The humus and litter was sufficient to continually maintain that soil in good percolative condition so that 80-90 percent of the water that went into the soil came out clear from underneath. In the case of the other box, 75-80 percent of the water came off of the top and gullies were made. It was a very interesting thing for people to look at and a very simple thing to do. It was based on similar experiments that Dr. Lowdermilk carried on here in Berkeley after his return from China.

Fair: Yes, I have met him. We are doing an oral history interview with him also.

WM: He was conducting the experiments here on campus, and we developed this portable demonstration. Now you wouldn't think off-hand that you could put those boxes back into the truck and carry them five or six thousand miles, and pull them out and each day do the same thing, but it never failed to work.

Fair: That is absolutely marvellous. What a great visual aid. You said that some of the people were concerned that you might not be able to keep the students' attention. What were some

Fair: of your special techniques for keeping their attention?

WM: We never had any problems with that. One of the things that we did was to put a couple of drops of gasoline in a pressure-top can with a hole in the bottom of it. We shook up the can to illustrate the terrific power of gasoline when properly mixed with air--five parts gas to seven parts air. Then we would touch a match to the bottom of the can and blow the top out of the can, and the ^{top} can sailed about twenty feet into the air. We would go back to the same school a year later and some of the kids would ask, "Are you going to blow up the can again?" We tried to tie that in with the lesson that a number of children had been killed by playing with matches by an empty barrel while it was standing in the yard. This was shown as a prevention for loss of life as well as for fire prevention.

Well, those are some of the things that we did. Of course we talked about electrical fires, the care and proper use of electrical equipment, like the iron, for instance. Plenty of houses have been burned up because somebody had left the iron sitting on the ironing board and went to the telephone and forgot about it. And then we warned about putting pennies in the fuse boxes and the hazard involved in that. It was generally the teaching of caution with the use of electricity of many kinds.

Fair: Did anything unusual ever happen at your demonstrations? Did something ever backfire?

WM: We actually had some fires. No, I don't think so. We had some hose when we were demonstrating the different kinds of nozzles-- a rubber hose with a cotton cover--and it got little spots of acid on the cover and then it blew the hose up. A hundred pounds of pressure caused the crowd to be sprayed. That all added to the excitement. [laughter]

Fair: I imagine that people will never forget that fire demonstration.

Establishing Fire Protection in California

WM: Besides fire protection work, I developed a forestry project for better understanding of the forest problems of the state, and better protection of forest lands in private ownership, much of which--some two to three million acres--was in farm ownership. I also assisted in the development of the planting of stock when the State Division of Forestry got around to organizing a nursery. We did experimental planting to show

WM: the feasibility of recovering some of these lands that had been damaged by fire.

You see, there was practically no state organization for fire protection at the time because California didn't qualify under the old Weeks Law until about 1919. California only had about three rangers in Sacramento and some volunteer fire wardens around the state. During World War I, under the Agricultural Extension Service, Director Crocheron, Dean Hunt, Professor Mulford and I spent quite a lot of time organizing rural fire fighting companies. We had over three hundred of them altogether. They did a lot of work, saving food and fiber and other resources during World War I.

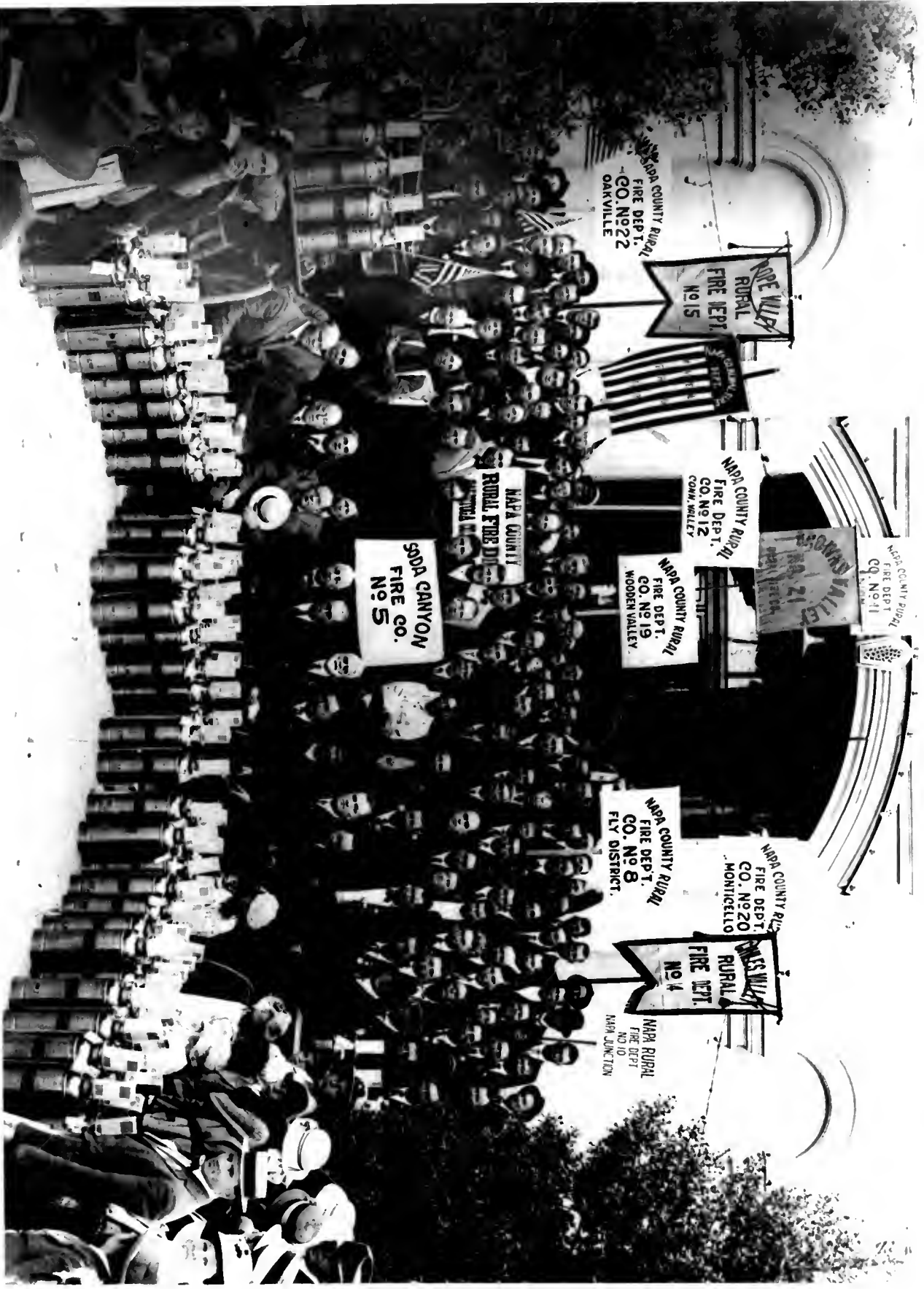
This was a very critical time in which subversive organizations such as the I. W.W. were using disruptive tactics and causing much loss of material in the war effort through the setting of incendiary fires. The state of California had only minimal facilities for fighting fire, without any funds, or facilities or personnel, except a dedicated group of volunteer fire wardens appointed by the State Forester to do what they could in preventing and extinguishing forest and range fires.

After a meeting was held between B. H. Crocheron, the Director of Agricultural Extension, and the State Forester, G. Morris Homans, and I think several members of the Board of Fire Underwriters of the Pacific, and several representatives of the U.S. Forest Service, plans were drawn up to provide emergency fire protection to a large number of rural areas through the organization of small rural fire fighting units of volunteers. The county farm advisor with what help he could get from local volunteer fire wardens and other concerned citizens took the lead in organizing such companies.

Plans for a simple fire fighting trailer were drawn up and distributed together with a brochure on "County Organization for Rural Fire Control ." The county board of supervisors gave support in most cases to the movement, and Governor Stephens and State Forester Homans presided at the swearing in of such companies. In many cases a parade of the trailer outfits was held at the county seat, culminating in the swearing in ceremonies on the steps of the court house. The trailer was kept at the farm of the chief of each rural fire company and was usually a light two-wheel affair with the following equipment:

- eight to ten 2 1/2 gallon acid and soda fire extinguishers;
- supply of recharges of acid and soda for these;
- six five gallon milk cans with extra supply of water;
- six or more shovels (round point);
- six or more wire brooms or fire-falls for sweeping out fire;

ORGANIZATION OF THE RURAL FIRE FIGHTING COMPANIES
Napa, California, 1918. Metcalf is seated in front, far
left. Governor Stephens is seated second row, middle.



WM: box of burlap sacks kept wet in emergencies for beating out grass fires;
 wire cutter for cutting wire fences;
 trailer hitch attached to the chief's automobile-- usually a Model T Ford.

Early in the program it became the custom to have a "Check-up Day" at the county seat each spring for examination of the equipment (which of course improved during the year, and eventually included rural fire trucks) and a demonstration of proper use of equipment and publicity on fire prevention in rural and forest areas. Eventually this evolved into the organization known as the California Rural Fire Association, and in southern California, the Southern California Association of Foresters and Fire Wardens. Both of these organizations have contributed mightily to fire prevention and fire suppression throughout California.

Fair: I read your paper that you wrote in the late 1920's, on the organization of rural fire fighting apparatus. I was wondering what happened to your companies. Did they merge into the State Division of Forestry fire fighting organization, or did the counties take over the work?

WM: After California qualified for money from the federal government, it was necessary to have a state law that measured up to the federal requirements for minimum protection. This did not happen until 1919 because before then the fire protection was so loose that they did not qualify.

The federal government and the national forest was organized, and we worked closely with the federal rangers and the Regional Forest Service Office in San Francisco, as well as the state forest office. Mr. Homan was State Forester at that time. I went with him and Governor Stephens to the organization of a number of these county fire protection assemblies where the rural companies were commissioned by the governor. It was really a very interesting thing. They did a lot of good work.

Later of course, the state organization developed to take over protection of some forty million acres in the state that are outside the national forests and outside of the limits of incorporated cities, to what we have today. I remember Mr. Pratt saying, "If we just had a million dollars, we could solve a lot of these fire protection problems (at that time)." Well, California spends something like twenty million dollars now on fire protection. That is one of these developments over the years.

Fair: Did you know Fred Stevenot?

WM: Yes.

Fair: He proposed a state-wide plan for fire protection during the 1930's. Did you work with him on this?

WM: He was a member, I believe, of the State Board of Forestry at the time, and he was a leader in that regard. Both he and his brother were very capable people. He was a good talker and made a good impression on the audience. I think that he had some very good ideas.

Fair: Did he help you in any way in setting up the rural fire fighting districts? I know that his plan covered many of the ideas that you had for setting up a system of fire protection.

WM: I think that he was interested in the University program of demonstrations, and any other aid in fire prevention, as a member of the State Board of Forestry and in connection with the cooperative development of fire protection throughout the state. But I don't think that he had any more interest than other members of the State Board of Forestry. He was cordial about it, yes.

Fair: What were the Rural Fire Institutes?

WM: The Rural Fire Institutes were conducted here--no--conducted at Davis one year and UCLA another year, and then back to Davis to review the progress during the year in fire suppression equipment and methods of fire fighting. They were cooperatively carried on by the Agricultural Extension Service of the University, the department of agricultural engineering at Davis, the United States Forest Service, the State Division of Forestry, the State Division of Highways, and the Board of Fire Underwriters of the Pacific.

The latter's engineers are the ones which give rating to different fire districts, and to different fire departments, and are a part of the underwriters laboratory experimental organization, which sets rating and rates for insurance throughout the United States. The Western Headquarters is in San Francisco. They have changed the name of it now. Loren Bush was the engineer.

These agencies were most interested in promoting the development of better machinery, trucks, and fire fighting equipment. As I often say to these fellows now, you wouldn't believe it but when I first fought fire in California, there was not a single fire truck, as such, in the whole state. Fire fighting was done with ax and shovel and wet sacks. There was not even a back-pack pump.

We organized during 1928-1930, and then again during World War II, the rural fire companies. We drew up a manual of requirements for rural fire fighting trucks, which was published by the Board of Fire Underwriters of the Pacific and was authored by engineers like Stalnaker from the Division of Highways, and

- WM: some from the Forest Service. All of this was again a matter of education. The Board of Fire Underwriters of the Pacific published the manual.
- Fair: How was your work during the Second World War different from this work? You were organizing rural fire fighting companies the entire time, weren't you?
- WM: Yes, and emphasizing the responsibility the public should have for fire prevention, because 90 percent of the fires that we have are man-caused.
- Fair: Then during the Second World War this program was just accelerated to make people more conscious of the danger of fire?
- WM: Yes, as a means of saving vital material, food, fiber and all other kinds of materials that are needed in the war effort. I can remember the night that the Alber's mill burned. We sat in the window at home and watched that. It was a dust explosion in the flour mill, and it burned up four million dollars worth of flour and equipment at a critical time during the war. Pilots coming in from the Pacific Ocean said that they could see the fire for 150 miles.
- Fair: How was your work in the fire prevention during the regular year, from about 1925 to the beginning of the Second World War, financed? Was it through the University and through the State Division of Forestry and the U.S. Forest Service funds? During the Second World War when you began going out and giving many demonstrations, did you get more federal funds?
- WM: No. The Clarke-McNary funds which were divided among the cooperating states, and the original appropriations were not increased. We didn't get any other financing from the federal government; it was all done by the University.
- Fair: How were tools in each of the counties bought when the rural fire fighting companies were set up in each of the counties?
- WM: In answer to that question, you have to get back to the point where you realize that we have a wide-spread difference in rural California and forest California. The national forests are protected by the U.S. Forest Service, and that includes twenty million acres of the 100 million acres in the state. The lands in the National Park Service are protected by the Department of the Interior and the National Park Service. This protection is all a cooperative matter

WM: along the boundaries between all of the state land and the national forests. The area outside of the national forest, which is considered of number one importance from a watershed standpoint, is protected by the state under the state fire protection system. Although the lands are near and sometimes within the national forest, private lands within the national forest are given protection by the USFS, although some allocation of funds from the state sources are arranged by agreement. Then you have, starting in 1881, a relatively few rural fire districts set up under California state law, similar to irrigation districts, or soil conservation districts. Most of these fire districts were in village or farm areas.

There were two or three other state laws after 1881 which gave the direction of such districts to the county board of supervisors, who oversee and tax the area for provision of equipment and tools. Sometimes the men were paid, but most of the members were volunteers who bought their own equipment. The state organization protects some forty million acres, an area double that of the national forests. The system has been gradually perfected through the years, for at the beginning of World War I there was practically no fire protection at all. These local fire districts, being volunteer, had equipment which was often not ready to go when needed. So the State Forester gradually, through the cooperation of the counties, at the request of the counties, would put a state ranger in charge of the fire protection in that county. The residences and other areas that were not considered of high watershed and timber value would be protected by equipment bought with county funds and the hiring of men by the county.

Now Los Angeles County, for instance, has the most intensive fire protection organization in, I guess, the whole United States. They spend more money on the protection of Los Angeles County than the state of California did for all the rest of the state for quite a long time. It is a hard thing to imagine or to believe, but it is true. I don't know how many millions of dollars they spend now, but I think the state appropriations, plus the federal appropriations and what comes from the timber owners, and from Keep California Green organization, and these other things, is something like sixty million dollars a year for fire protection in the state.

In spite of the fact that they have developed these borate-carrying airplanes and much better fire trucks, the whole crux of the matter is that the public is still responsible for starting most of the fires. The critical thing, like during the Berkeley Fire of 1924, for example, is that fire prevention efforts, which is one of the main things we are

WM: interested in is to keep the fires from starting, particularly at times of high wind, low humidity, and high temperature. The ten million dollar fire in Berkeley was the second largest fire that California has ever had, next to the San Francisco fire. It started at noon over in Wildcat Canyon. We have the curve of wind and humidity and all, for that day, and it is a classic example of what happens; because the humidity, which ordinarily comes up to ninety like it did last night with the fog all around (I guess it was a hundred percent with the rain this morning) only came up to thirty and then it went down to twelve and the wind came up from the north forcing the humidity to drop to eight. The wind rose to forty-two knots, and when the fire started, there was nothing anybody could do to stop it.

The same thing has happened a couple of times in Los Angeles County, Oregon, and Washington and elsewhere, in the past three or four years. Everything becomes so tinder-dry that the pieces of material are carried flaming ahead of the fire by the wind, starting many new fires. This is why fire prevention is so important.

The Uses of Control Burning

Fair: Another thing that I was going to ask you about is control burning. In one of your papers from 1931, I read that you advocated the use of control burning of grazing lands.* Do you still advocate control burning?

WM: I think that you must have misinterpreted what I said. I said that on some of these areas the real crux of the matter was if you got through a season (this article was about the north coast area, I think) and permits were granted for control burns, under what might be ideal situations, there would be less area burned over during the summer with the control burning than there would be otherwise. But I have never been in favor of control burning in forest lands. Many areas of brush lands are largely the result of past uncontrolled fires in the forest, and I think it is very questionable to use fire in any forested area.

Fair: There wouldn't be many advantages, would there?

WM: No, not very many advantages. There is always the hazard that when you get a fire started, even under the best conditions, you might not be able to control it. With improved equipment and adequate personnel it is more feasible now to clean up fire hazards in some forest areas by carefully controlled fires

*See Appendix F.

WM: under optimum weather conditions, but it is expensive and still, often very dangerous. The removal of heavy brush cover from foothill chaparral lands is another problem entirely and is yielding favorable results in increased forage where soils and slope are favorable.

PROJECTS OF THE EXTENSION FORESTER

Fair: I would like to discuss the projects of the Extension Forester. This past week I have been reading through your annual reports, which I found very interesting. You had so many things to do. I want to ask you about the projects in general, and then discuss some of them. Were your projects primarily seasonal, or did most of them spread throughout the year?

WM: Of course that depends. Now the distribution of planting stock or anything that had to do with planting, reforestation, or such, naturally had to be seasonal.

You see, in California the planting of trees is only feasible after the first rains in the fall, that is the first rains that are heavy enough to wet the upper soil. Then after the small trees are planted, if you get hot, dry, and windy weather, say in January or February, as we sometimes do, it is very hard on the plants. With species that are apt to be injured by frost, you have got that complication also. In many cases you get a series of nights that are freezing, and then thawing in the daytime; even though small stock Douglas fir and pine are planted well, the ice forming and coming up will often throw those trees right out of the ground. So you lose the trees. You always have those things to keep in mind. Of course if you are using a tree that is subject to frost damage when it is little, and a lot of trees are more subject to frost when they are seedlings than they are later, it is better to wait until around the first of March so you don't get the frost.

Experimenting With Windbreaks

WM: We carried on experiments for several years in Orange, San Bernardino, and Los Angeles counties to determine the optimum conditions for protection of citrus against damage from the Santa Ana winds that they get in that country. We had anemometers set up at Fontana in Orange County to determine wind speeds. We actually picked up oranges that had been blown off the trees in connection with studies of

WM: windbreaks of a certain height to give the protection desirable. Coby Lorenzen, who is now at Davis in Agricultural Engineering, did quite a little work in making models that we tested out in the wind tunnel here on the campus. Perhaps you saw some of the publications that came out in connection with eucalyptus for the protection of citrus. It is a very interesting and important use of a tree to promote better production in an agricultural crop. And that involved the work by all of the people who were interested in the eucalyptus program.

Fair: When you were building windbreaks in the citrus areas, you were working with eucalyptus. But I noticed in your annual reports that you were also encouraging the use of windbreaks in Modoc and Lassen counties. Was this eucalyptus also?

WM: No, they don't grow up there.

Fair: That is what I thought. What kind of trees did you use for windbreaks?

WM: Lombardy poplars. I think that maybe I showed a couple of pictures of those. And also the local trees, pines, firs...

Fair: What were you protecting?

WM: Buildings, homes and such in order to give greater comfort to people and animals during storms. The same as along the coast here. Have you ever driven along the coast during a windy day? The Lombardy poplar, elms, hachberry, osage orange, pines and firs were used like they are in the midwest to stop the sweep of the wind across the land. That is why the USDA had a windbreak project. They wanted me to take over in the Shelter-Belt Project when it was begun. I had been in this state and I liked it, and I didn't want to leave. Edward N. Munns, who was here as one of the silviculturalists in the U.S. Forest and Range Experiment Station here, but went to Washington D.C., asked me. You know it was not just the planting of the trees, but the care of them after they were planted, that was important. This is true with almost all planting under semi-arid conditions. The thing that we tried to emphasize all the time is that it isn't the matter of just going out and planting trees, but consistent care determines if the windbreak or a tree farm is successful. All the experimental work with tree planting has had to do with improved methods to produce a sturdy plant with a good root system that is well adapted to local climatic and soil conditions and planted at the right time. And then it has to be given care and relief from competition. That middle-western program combined hardwoods and conifer, usually in a five row arrangement in order to build something that would create at least minimum forest conditions for the trees.

Fair: But in Lassen County did you plant both hardwood and conifer as a general rule?

WM: Well, it depended on what the people wanted. We simply carried on information as to what trees were available, how they could get them, or what the trees were to be used for. The state trees that are grown, again through cooperation with the federal government under the Clarke-McNary Act, are grown for windbreaks, watershed protection, timber production, erosion prevention, and Christmas trees, but not for ornamental purposes.

Fair: What kinds of problems were they interested in at the experiment station? What was their main emphasis?

WM: Planting particularly. You see, here again this was a very new thing. The two California forestry stations at Chico and Santa Monica, started by the first State Board of Forestry in 1885, were not popular as indicated by the fact that the Legislature thought that it was a lot of balderdash and they had no use for it. They would not appropriate any more money for it in 1890. However, they did set up these two stations and had some planting done. Now the University had field stations also for the testing of agricultural crops and tree planting at the time. There had been relatively small amounts of planting done before 1901. I have a map . . .

Fair: Oh, this is the map that you made in 1918 of all of the trees at the Chico station?

WM: Yes, I made a plane table map of both stations. Norman D. Ingham, who was resident at the Santa Monica station for some time (I never met him), wrote in 1906 the bulletin, "Eucalyptus in California," as a result of the studies that he had made of the trees that had been planted at the Santa Monica station and in other areas of southern California.

Working With Eucalyptus

WM: I was chairman of the United States delegation to the World Eucalyptus Conference held in Rome the year I retired, 1956. It was held at the headquarters of the FAO, Food and Agriculture Organization of the United Nations. This was the first Eucalyptus Conference. This was my second trip to Europe. Max Watson who was a long-time friend of mine (he died in December, 1968) came along with me at his own expense. He was a city forester in San Diego and had been interested in

eucalyptus, and he planted a lot of trees in San Diego that are now on the U.C. San Diego campus, in cooperation with Mr. Scripps. He grew eucalyptus after his retirement from the probation department in Santa Clara County. He got seed from Australia. He developed an arboretum of trees in San Jose. He had over 140 species there at one time. I have been measuring those trees that he planted since 1960 after we got back from the World Eucalyptus Conference.

A lot of people think that it is crazy to be interested in eucalyptus, but there are lots and lots of possibilities right now. More and more commercial concerns, particularly pulp and paper companies are becoming interested in eucalyptus. Jack Sweely, one of our forestry graduates has been working for the Masonite Corporation of Mendocino for five or six years now, testing frost resistant species of eucalyptus on cutover lands in Mendocino County. He had some very interesting things coming along there. Manna Gum (Luc. viminalis) has given the best results so far.

It is bad enough, as you know from a botanical standpoint, to work with different kinds of soils, with plants, tree shrubs and other plants, but when you also add climate to it, and many of the trees are very subject to frost damage, it makes things very complex. I remember in 1932 when we had the coldest weather in fifty years in Berkeley. We had a beautiful row of Scarlet Gum on Arlington Ave. They were all killed right to the ground. It was seventeen degrees in Berkeley, and they can't stand that temperature.

Fair: Did you plant eucalyptus because you felt it could be utilized in the future, or did you plant it directly for present use as a windbreak or as a means to prevent erosion on exposed slopes?

WM: Well, for many purposes. I did research work by checking many plantations. You may have seen some of my papers that I wrote in connection with this, such as Growth of Eucalyptus in California Plantations, 1924, or Eucalyptus Species for California, 1967.

In San Bernardino and Orange counties they had something like two thousand miles of eucalyptus windbreaks growing for the protection of citrus fruit groves. Harold Wahlberg in Orange county, and Henry Wilder in San Bernardino county, and I measured, in cooperation with the farm advisers of the counties, the speed of the wind with anemometers. The number of fruit that were dropped from the trees at winds of certain velocities were counted. How close the eucalyptus windbreaks should be together to prevent such damage was determined by this method. One of the things that we found out was that normally against a Santa Ana wind coming out of the mountains you could get

WM: almost 100 percent protection of twelve foot citrus trees out from five to seven times the windbreak height. (See: Protection of Citrus by Eucalyptus Windbreaks, by Woodbridge Metcalf.) When you get beyond that point you get increasing damage until you get to the next windbreak, and then you get a swirl of wind and a maximum loss of fruit and damage to the tree right next to the windbreak.

There are 550 species and some sixty varieties of Eucalyptus in Australia. There are about forty species planted by the University at the Santa Monica station in the early 1900's. Norman Ingham wrote the early bulletin in 1906 on eucalyptus for the University. The U.S. Forest Service put out some on utilization of eucalyptus wood shortly after that. This is one of the things that we are still working on, to find out what species from Australia are best suited for growing in different parts of California and the United States, and how they best can be used. They will grow fairly in some parts of Arizona , and some are making good growth in Florida.

Mr. Morgan Evans who is doing the ornamental planting for Disneyland in Florida, said to me the other day after a meeting in San Francisco, " I would like to talk to you about eucalyptus because I would like to use more of them if I can in Florida. Well, I told him that there are a few trees in Florida, but that he ought to see Elbert Shory, who is the research man in the Tropical Division for the Florida Forest Service. Elbert has been experimenting for ten or fifteen years with various species of Eucalyptus , the same ones that we have in California.

The Eucalyptus Boom

The early 1900's was the day of the big boom and interest in eucalyptus. T.D. Woodbury of the United States Forest Service wrote a bulletin from the USFS point of view on the possibilities of Eucalyptus in California, and Louis Margolin wrote another one.

Fair: The Forest Service was encouraging this boom? Did they feel it would be a new source of hardwood?

WM: The Forest Service and the University were working to find out what species would grow here and to determine if the wood had commercial possibilities when grown here in California. The boom was largely done by promoters who assumed many things which later proved to be false.

Fair: Who promoted the interest in eucalyptus?

WM: A number of eucalyptus companies. The Forest Service in 1904 issued a folio-sized volume from Washington by Mr. McClatchy, on Eucalyptus in the United States. Much of the information was gained from examining the plantations in California for there was more eucalyptus planted here than anywhere else in the United States. That was the earliest publication that the Forest Service put out.

But both the State Division of Forestry, the University, and the USFS were trying to exert some damping effect on this whole thing. The land companies were selling the land here in California all over the United States. I remember when I was in high school in Detroit there was an office of the Eucalyptus Land Company of California in downtown Detroit selling lots in California. There was not enough experimental evidence at the time for the results that they promised. They knew that the trees would grow, that is the Blue Gum Eucalyptus like the one out here that we are looking at, along the coast, and that they would grow very fast. But they did not know the quality of the wood. Tiemann, of the U.S. Forest Products Laboratory at Madison, Wisconsin, came out and set up a sawmill in the groves of the Berkeley Hill, now what is in the Berkeley city limits. He wrote a publication on the seasoning of the eucalyptus wood which was, and continues to be, a very difficult matter because the wood grows so rapidly. There was a lot of effort and time put in to produce publications which would show that some of the claims that were made by some of the eucalyptus companies were ill-founded. I don't know what effect they had because the boom played out in about 1912.

Fair: Why? Was there a lack of investors?

WM: Economic conditions. And also I think the effect of caution which the University and the Forest Service and the State Division of Forestry tried to emphasize: that this thing was largely experimental and nobody knew what results it would bring. The companies had advertised that eucalyptus was hickory's little brother, and that the hickory trees would all be gone from the midwest the way that the cutting was being done, therefore eucalyptus was going to come of its own.

A beautiful sawmill was set up in San Diego County, if you can imagine such a thing. I saw the mill.

Fair: Where is it?

WM: Oh, it never operated, but it was out toward Ramona. It was a big plantation in one of the valleys about eight or ten miles out of San Diego. I believe it was the Pratt Eucalyptus Company that built the mill, and they got a millwright, and a very good

WM: one from Maine. They sawed a few eucalyptus logs before the money ran out. They used to drive those big ocean rafts of Douglas fir logs from Pudget Sound and the Columbia River points to San Diego--150-200 foot rafts tied together with chains and towed by tugs. The logs were sawed in San Diego, and this mill tried to operate in this way for a brief time.

The eucalyptus promoters talked about having a mill all set up and ready to go, and they sold stock in the mills. In many of the places they sold land and agreed to plant the land with so many eucalyptus trees--800-1,000 trees per acre--and to take care of them for two years. The land was sold for \$150-200 an acre with this understanding. They sold a lot of land in Tulare County, and a lot of it was so alkaline that the trees never grew. You can still see the alkaline places where the trees died out. (laughter) So as I say the effort mainly made by the people who knew something about it was to check this wildcat speculation. The groves that you have probably driven through at San Juan Bautista--the highway goes right through the grove-- were a total of 700 acres at one time. I knew the man who planted it. He was an Englishman named Humphrey Pilkington.

Fair: What a marvelous name.

WM: Yes, isn't it. There was a man named Luther, who was the field man who oversaw the planting. I went around with him one time to look at the trees after I took over the eucalyptus project here at the University.

A lot of people from Wisconsin and Michigan, and Chicago, Philadelphia, and New York, who knew nothing about these things at all bought blocks of trees or stock in the various companies. The taxes commenced coming in and building up in connection with the property, and a lot of people just let these investments go. They didn't want to pay anymore without a return. Luther bought up a lot of this land at a tax sale, so that he eventually owned most of this grove. Then he sold some of the trees for piling for use in San Francisco Bay during World War I. There was something like 50,000 acres of eucalyptus plantings in California, but it was very widely scattered. The largest plantings were in San Luis Obispo County near the Arroyo Grande area. I knew the man who did the plantings there too. Mr. Brintuall was a retired banker from Chicago, and set up a eucalyptus-oil still on this property. I looked at the grove with him when he first came out here; it was about 700 acres at the time. He had set up \$100,000 to plant the trees and raise them, but he was up against disappointments in connection with it.

Fair: What was the eucalyptus oil for?

WM: Eucalyptus oil is a medicinal product for cough syrups, and used in the mining industry also. The question was, could he use the leaves (distillation was done with the leaves) of eucalyptus to make oil which complied with the U.S. pharmacopoeia, which was set up on Australian oil. The conclusion by the chemist was that it was impossible to economically manufacture eucalyptus oil in the United States from the trees that we had available, because they were low in the essential oil, pinene and eucalyptoil, and other fragrant oils. The Australian oil is made from a completely different set of Eucalyptus trees which are higher in oil content of the leaves. There are many books on eucalyptus that give the proportion of oil that is to be obtained from each species, for instance Blakely's . Some of these species are shrub type trees that can be harvested by machinery from second growth stands, and yield a much higher rate of return in oil than can the trees growing in the United States. Also there are the higher labor costs and land values in California are higher, and there is an uncertainty as to the climatic conditions here, and the entire problem needs more research.

Fair: That is very interesting. I had heard about the eucalyptus boom, but I didn't know the details of it.

Working With the WPA and CCC During The Depression

Fair: What kind of difficulties did you have during the Depression?

WM: Everybody had difficulties. They reduced our salaries for one thing, and we didn't get very much salary to start with either. Some of the men in the University get as much a month now, as I got a year when I came in 1914. They reduced the salaries by maybe 25 percent because the University didn't have the money during the Depression. But as far as interference with subject matter was concerned, except that work was directed toward assistance to the people who were suffering because of the Depression, it was like turning to war work.

Fair: Then your program was changed a little?

WM: Yes.

Fair: Do you recall if federal funds were cut back also?

WM: I really don't know.

Fair: I know from your annual reports that you did have some recreational areas built by WPA and CCC. I was wondering if you supervised this work, or helped lay out plans for new fire lines?

WM: We drew up the plans for the camp at Whitaker's Forest in Tulare County when State Forester, Mr. Pratt, had the state CCC camps comply with my request that they devote some time to the improvement of recreational facilities there, and also at Las Posadas in Napa County. He assigned the men, and J. B. Brown, who was extension specialist in agricultural engineering, designed the swimming pools for both of these places.

The CCC crew built the pools and also some of the cabins and a cook house, added to the facilities and did fire protection clean-up along the roads and trails at these forest properties.

The Las Posadas camp is in a state forest, which was given to the state by Mr. and Mrs. Anson Blake of Berkeley. After consultation with the Blakes, Merritt Pratt and I went up and looked at the property with them. It is on Howell Mountain, right adjacent to the Pacific Union College property.

Fair: Yes, I know where that is.

WM: At the Las Posadas camp on Moore Creek, we developed the water supply and the swimming pool, and the buildings, trails and fire clean-up. Mendocino had their own camp. Napa, Sonoma, Marin, Alameda and Contra Costa Counties all cooperated in the development of that Las Posadas camp. I know that Contra Costa and Napa Counties still go to the camp, but I don't know about the others. Now the State Division of Forestry has a fire protection headquarters at Las Posadas in the state forest.

Fair: The Blakes gave the Las Posadas land to the state parks system, but I have heard that there was some type of rub on this and that the land was not supposed to be developed. Was there some type of stipulation attached to this gift of property, and did you have difficulties establishing that camp because of this?

WM: Not as a park. They gave it as a state forest. This was an interim arrangement. Merritt Pratt and I went to the property with the Blakes, sat in their old summer cabin there, and talked about their giving the 880 acres to the state. Mrs. Blake first of all had suggested giving this property to the University. Well, the University didn't want it particularly, but Mr. Blake was very anxious that she get rid of it for she was not particularly well at the time and he felt that it was too much of a problem for her. (She owned the property.)

She finally drew up the deed and gave it to the state with a ten-year clause in it that the caretaker could remain there for

WM: ten years. During that time, there was a provision that the 4-H Club camp could be developed. So it took about ten years to get all of these details worked out. And it worked out eventually all right. Mrs. Blake didn't want to have more than 150 people at any time on the area.

Fair: How did you work around that?

WM: Well, most of the camps were not more than 150. They ran about that. But there wasn't any particular problem in connection with it except during that ten years in which the provision about the caretaker was in effect. The caretaker was not cooperative and I never knew what kind of information she got from him; her contacts were not with me but with the State Forester.

There was some question about the building of the swimming pool. The caretaker didn't want the swimming pool in the place where it was put; however, the CCC camp was there and they did the work on it for the 4-H Club camp, and it worked well. The 4-H Club camp is still there and still being used.

Fair: During the Depression, the only contact that you had with the CCC and the WPA was the men that Pratt assigned to your camp?

WM: We had very good cooperation there.

One of the other interesting things that was done under WPA was the development of the Mendocino Woodlands on Big River in Mendocino County. This was one of the recreation projects in the United States. They had a camp under WPA of somewhere between three and four hundred men from San Francisco up there. They built most of the roads and they built a lot of very beautiful buildings, but the man who drew up the plans for it was a national parks recreation man, and I couldn't see the theory of the whole thing from the beginning.

They built these beautiful little cabins with fireplaces, just a place to sleep, the fireplace and bedrooms, no cooking facilities, no toilet facilities. There was a unit cookhouse with a group of cabins here, and then a unit washroom--that sort of thing.

This was one of twenty-one such areas that were built throughout the United States. This was the only one in California. There was one in Oregon. I saw the one that they built in southeastern Ohio. The people who built them I am sure had very limited opportunity to know what people want. This one up here was supposed to be for families. Well, families don't want to go to a place like that. They never did.

Fair: What did they use it for?

WM: Well, I don't know how many hundred thousand dollars they spent on that place. It is part of Jackson State Forest now. There are five thousand acres in it. Remember that this land was bought on one of these hairbrained programs for buying up land from farmers who were presumably starving to death on land that wasn't farm land. They bought maybe five hundred acres, or something like that, of land on the Mendocino White Plains that people were living on and working at the mill at Fort Bragg. [laughter] They had put out orchards but they were not starving to death by any means.

It was one of these wild ideas. Then in order to make the Rural Rehabilitation Program sound reasonable at all, the government bought five thousand acres of cutover land from the Union Lumber Company and developed what is now Mendocino Woodlands section of Jackson State Forest. They put these camps there and worked for several years on the development of two organization camp sites. After the state took over the property, the two sites were leased, one to the Mendocino Woodlands Association in which the 4-H Clubs participate, and one to the Oakland Girl Scouts at Camp Timbertall.

Organizing the 4-H Camp at Whitaker's Forest

Fair: These are 4-H camps, right? at Whitaker and Las Posadas? Would you like to tell me about how and why the 4-H camps were organized?

WM: Well, you see, the 4-H Club program is a year-round program. And the summer recreation angles of it are, or were considered at that time, quite an important way of promoting the interest and the general enthusiasm of the boys and girls for the year-round program. We had these opportunities on certain lands in order to provide better facilities than had been available for camping by the 4-H Clubs. I came into Extension in February, 1926. I, of course, had worked closely with the people who were in charge of the various sections of the 4-H throughout the state: Waterhouse, Spurrier, and Ralston, and later, Paul Barker. These four were assistant state leaders of Agricultural Extension in the supervision of the 4-H programs.

So we talked about camps and camping when it became possible to put some time and energy into it. It seemed desirable to do this to promote first of all better understanding by the boys and girls themselves of some natural conditions in the woods, and an opportunity to give them some instruction in tree, shrub, and plant identification and the relationships in the mountain country between forest lands and industry and its part in watershed

WM: protection, and all of these things; in other words, simple forestry in the woods. I took the farm advisors from the five southern San Joaquin counties, Kern, Kings, Tulare, Madra and Fresno, up to Whitaker's Forest in the fall of 1926. It was decided that it was a good place to develop a camp and that they would be interested in promoting a camp program. The California Farm Bureau organizations in the five counties petitioned the Regents for permission to build the camp on this site, and permission was granted in February, 1927.

Fair: Was this the first camp?

WM: Yes, this was the first one. I had taken over the forest for the University [Comptroller's office] in 1915 and cruised the timber on this 320-acre piece of ground that Mr. Whitaker had given to the University in 1910. Nothing had been done on it until the forestry school came, and then Mr. Mulford asked me to find out what we had up there, to cruise the timber, run the lines out and set up five sample plots to determine the growth of Sequoia gigantea, a very fine second growth stand on this land that was logged somewhere between 1871 and 1876.

The first camps were held in 1927, with very limited facilities at the time because we had a minimum amount of money to do anything with. That was true for the first, well, for practically all of the time that I had anything to do with it. However, the various counties put up a relatively small amount of money. I think that we had only \$1500 to do everything that we did the first year.

The Wortman Lumber Company mill was not very far away so we got lumber at minimum cost and built the cookhouse. Everybody slept outdoors on the ground the first year and later on tent platforms. We had a dining platform and the first camps were held there in 1927. Improvements in the spring of 1927 included a cookhouse, dining platform, water supply and toilet facilities.

Director Crocheron would assign a little money at the end of each fiscal year for some of the needed things that were done there. And then when the CCC program came along in 1934, Mr. Pratt, who was very much interested in our cooperative work together, assigned a group of workers from the CCC camp at ^{MAXON} Maxim Ranch in Tulare County. The men built several cabins and they built the swimming pool (which they later named after me). So we got quite a lot done.

I remember Mr. Pratt said that of the thirty-five camps operating under the CCC program in California, he thought that the work that they had done in fire prevention at Whitaker's Forest along the roads and trails, and the development of the camp, was about

WM: as important as anything that they did in all of the camps during the depression years.

Madera County came to camp on Flag Day, June 14th, 1927. They had come up the night before, so I got a group of boys and we went out and cut a white fir and peeled it. It was set up as one of the exercises that first morning, and the flag was run up on Flag Day, 1927.

Then two years later we set up the camp at Las Posadas. The one at Whitaker's was done in cooperation with Bob (W.R.) Ralston, who was in charge of the 4-H Clubs in the area of the southern San Joaquin, and Waterhouse, with whom I sailed in the 1936 Olympics, was in charge in the north coast area. In the meantime Merced and Stanislaus counties got interested in getting a special use site in the Strawberry area in Stanislaus National Forest, and I worked with them on plans and development there. The farm advisors and 4-H Club leaders formed a camp development committee. The site is not very far from the Lair of the Golden Bear, the U.C. Alumni Association camp.

About the same time in Santa Barbara County, I went with a state ranger and Ed Smyth the farm advisor, and we picked out a site on the Los Padres National Forest at White Oak Flat. Well, naturally the 4-H worked up some consideration in the county for the camp, and the Rancheros Visitadores Trail Riders who are people who have the horse-back trips each year, calling at several ranches all the way through the county wanted a place to start from. White Oak Flat was the place that they thought was good, and so they put quite a lot of money into the development of the facility there. The ride is supposed to be in connection with the fiesta that they have in Santa Barbara to popularize old Spanish days and the ways of the Spanish landowners. This ride is conducted every year. Over several years the organization put quite a sum of money into the development of the facilities there.

Fair: How fortunate for you that you had support in developing the camps.

WM: As I said the other day, this is a matter of cooperation with a lot of people. Local ranchers did most of the work in the camps, and we in Extension could help in planning and stimulating interest. Mr. Doty of the Doty Ranch at Ellwood in Santa Barbara County, was very helpful in developing White Oak Flat.

Other 4-H Activities

Fair: Your actual involvement with the 4-H was your interest in building the camps?

WM: I was invited to many camps to conduct nature studies, tree identifying walks, and to lead singing, and I developed several campfire ceremonies which were popular. I had to travel widely to do it, and it was a pretty strenuous program during a good many summers as the camps all came within five or six weeks. I knew a lot of boys and girls; of course I never knew many of them very well, but at least they knew me. They invited me to come to a 4-H Club annual conference at Davis, and I led singing there. I took part in leadership training meetings for the leaders, along with the others: ~~Baker~~, Waterhouse, Ralston, and a few more.

Fair: Do you think that the 4-H program has changed a lot since you have been associated with it?

WM: I think that there has been a decrease in interest and support for the camping part of the program in California, in spite of a large increase in 4-H membership. I suppose it is one of the features of our changing civilization. These camps required a lot of detailed work, by not only me, but by a lot of people. I know that Director Crocheron was very interested in the program, and after he died the directors were not so enthusiastic about it. I think that there was an impression that some of farm advisor's staff in the counties were spending too much of their time in connection with it. So the emphasis has changed.

They do hold some camps still. I don't think that they hold as many camps as they did. One of the things that was of concern to me was that the people constantly demanded more things in a camp. They don't want to live under pioneer conditions. They want a hotel-type institution, electric lights, facilities for baseball and other games, and less attention to hiking and pioneering. For ten years or more, Dr. Mary Olney of the University Hospital at San Francisco, who is one of the great personalities in the field of medicine and an expert on diabetes, started the diabetic children's camp. The first year she held the camp at Las Posadas at my suggestion, because the camp was close by. The next year because there was some objection on the part of some of the local people who knew nothing about diabetes--

Fair: They were afraid that it was a communicable disease?

- WM: Partly that, and partly some other things that did not amount to anything. So I suggested that they go to Whitaker's Forest. They used Whitaker's Forest Camp for ten years. The 4-H Clubs used the camp from about the 15th of June to the first of August, and Dr. Olney had the two sessions of the diabetic camp at Whitaker's forest during August. Well, then after I got out of Extension, they got into a series of misunderstandings, the background of which I don't know much about. But she and the Diabetic Children's Foundation applied to the Forest Service for a special-use area at Bearskin Meadow which is about ten miles from Whitaker's Forest. They developed a camp there and have been in that camp now for about eight years. (They have been camping for about eighteen years.) They have spent over \$ 350,000 in the development of that camp at Bearskin Meadow at Sequoia National Forest.
- Fair: That is by no means a primitive camp.
- WM: No. It is a very well developed and comfortable site. It is supported by volunteer contributions from a number of organizations in the Bay Area, people who are interested in the study of diabetics, and it gives the interns at the hospital a chance to live with, study, and understand reactions of diabetic children to insulin treatment and proper diet.
- Fair: Did the University object to an outside organization using Whitaker's Forest?
- WM: No, the 4-H Club Committee was glad to have them use the camp. It wasn't an outside organization because Dr. Olney is a member of the staff of the Medical Center at the University at San Francisco.

But as I say, they continually wanted--not only them but our people, the 4-H Club leaders and all who went to camp--wanted more and more in the way of camp facilities; and the State Department of Health has become more restrictive in its requirements for camps.

I think the diabetic people also wanted more and more things, better facilities. One of the things that they wanted was a kiln for making ceramic craft work, and so forth. After World War II, surplus materials were available and we got some used generators, to provide some light at the camp because there was no electricity there. Then they wanted to put in a high temperature oven and of course run it in the daytime. The gasoline driven generators were thus worked overtime and deteriorated rapidly.

WM: Then the next thing, they wanted Southern California Edison down there to run a power line into the camp. Well, it would cost \$28,000 to run the big power line into the camp. S. C. Edison said you can put up the \$28,000 to put the power line in here, or we will build the line and you will have a stand-by charge of \$100 a month. The University handled it in the latter way. So they are paying \$1200 a year for power in there and there is a very minimum use of it.

All of these things are problems. Although the camp was all torn down because of changing conditions, lack of local interest and leadership, and so forth, they still have the power; and I guess the University still pays the \$100 a month, and they only use power in the caretaker's house.

Now as I say, this is a feature of the changing scene in California and the rest of the world, I guess.

Fair: About the 4-H organization: I know that it has changed in the last few years, and I know that you have noticed it yourself. Do you think that part of this change resulting in the lack of interest in 4-H today is because so many people are no longer rural that there is no longer a need for the organization?

WM: There is much larger enrollment in the 4-H program but different emphasis. That question on the decrease in the proportion of the number of people that are necessary to provide the food for our affluent society undoubtedly has a very great influence on the attitudes of the young people coming up.

Mr. Ray Clausen was a 4-H Club member from up in Humboldt County. He is a very capable and interested Congressman in Washington, D.C., and he spoke the other day of some of the aspects of the redwood park controversy. I went up and spoke to him afterwards (I had led singing at the luncheon). He said, "I am glad to see you again. I sang with you as a 4-H Club member in Humboldt County."

Fair: You were talking about training some of the 4-H leaders, and that you held training sessions. How did you select the leaders for the 4-H groups and for the camps, and how did you train them? Did you have special training sessions for a week before the camp opened?

WM: We tried to do that. That was one of the developments, and one of the things that is very badly needed now, and ^{NOT} ~~now~~ only in the 4-H Club program because the 4-H program is less in need of it than the Boy Scout and Girl Scout programs. Too many of the leaders there come from the city, and they don't know anything about life in the woods, forest influences, fire prevention, and so forth.

EXTENSION FORESTRY PROJECTS

Extension Director B.H. Croucheron talks to the 4-H campers at the Alameda-Contra Costa camp, 1928



Metcalf measuring Manna Gum Tree, Euc. viminalis, near Dinuba California, 1937

Stripping a 36 year old cork oak at Chico Forestry Station, 1940. Ralph Waltz (r) George Greenan (l)



WM: I have a couple of granddaughters, one in Girl Scouts, and the other is in Camp Fire Girls. But I suppose there have been thirty years that I have been a counselor in nature studies, forestry and so on, for the Mount Diablo Boy Scout Council. Not so many of the boys take these projects, I suppose because they are difficult in a way for those raised in the city.

Fair: Well, it is also in many cases not socially "in."

WM: They call me up and say that they would like to take a merit badge in nature, soil and water conservation, forestry, and the like. I say, do you have the manual; they say, "Yes." Have you read it? "Yes." Have you selected what you want to do there? "Well, no." Well, I say, that is an important thing to do. There are a lot of ways you can satisfy this requirement, but I am not interested in doing anything for you until you decide what you want to do, what you want to learn. Make out an outline of it, and then I will talk to you.

The Cork Oak Project

Fair: Another of your projects was the planting of cork oaks and harvesting the cork. Can you tell me something about this?

WM: The most extensive planting of cork oaks was put in at the Chico Station in 1904. That is where we started the experimental stripping of cork from the trees in 1942. The trees had made good growth and we stripped cork from about 150 of the six hundred trees in the plantation.

Fair: Were these a native species or were they brought over from the Iberian Peninsula?

WM: They are from the Mediterranean area, and this is a very interesting historical thing too. The Spaniards apparently were never able to establish cork oak in this country. The acorns dried out and died on the way because of the length of time that it took to get the acorns from Spain or Portugal.

As far as we were able to find out, the earliest planting that was successful was from trees on the Kiser ranch about ~~three~~^{four} miles south of Sonoma in Sonoma County, about 1854. It was not until the time of the clipper ships that transportation was fast enough so that they got the acorns here. They may have been planted in South America and then brought them up, but I think that they probably came directly from Spain. Those trees are still there on the Kiser ranch, four large trees. I remember

WM: now we got about eight hundred pounds of cork from each of the trees.

The largest cork oak in the United States, as far as I know, is on the Napa State Hospital grounds. That tree was planted in 1873 on very good land. When we stripped it in 1944, I believe it was, the tree was fifty-nine inches in diameter and one hundred feet tall, and had a crown spread of over a hundred feet. We stripped it up for sixteen feet, and we got a little over half a ton of cork, 1050 pounds.

Fair: What were you going to use the cork for? Was this an effort to replace a commodity lost to the War?

WM: This was a cooperative thing between the Crown Cork and Seal Corporation, in Baltimore, Maryland, the University, the State Division of Forestry, and the U.S. Forest Service.

Mr. Charles E. McManus, who was president of the company, became interested in the growth of cork because they were one of the largest cork users in the United States. He held the basic patents on these Crown closures with a cork liner that are on pop bottles and beer bottles. He came to California some time around 1940-41 and he saw the cork oak growing in southern California.

He wanted to see whether it was possible to grow cork commercially in the United States. He commissioned George Greenan, who was the credit man for their western office in San Francisco, to represent the company and I represented the University; and State Forest nurseryman, Ray Doney, and the Forest and Range Experiment Station fellows, Palmer Stockwell and Nick Mirov, cooperated.

From 1942 until the end of the War and to 1947, the state grew about 300,000 trees, which Mr. McManus paid twelve and a half cents apiece for the state to grow. We distributed those through the state rangers and the farm advisors as widely as we could, to get people to plant them and look after them, all the way from San Diego clear up to Oregon.

At the same time, we were doing this stripping work. We stripped some five tons of cork from trees around different places where cork oaks had been planted as ornamental trees. People were very interested in cooperating in connection with it. George Greenan and I would go to a person who had a nice cork oak in their yard. We said, "Now we would very much like to strip this in connection with the experimental project. We can't guarantee that it won't hurt the tree, but we don't think it will. We have not lost any trees yet, but there is always a possibility." Most of these people were very interested in watching the work. When

WM: we started out on this project, we couldn't find anybody in the United States that had ever stood and watched anybody strip a cork oak.

Fair: You strip the tree completely around?

WM: Yes, completely around.

Fair: Doesn't that kill the cambium layer?

WM: The cork oak is the only tree in the world that grows an annual ring in the cork as well as in the wood. Under California conditions, the wood cambium grows in the spring until about the first of July, then the cork cambium starts to grow. And after the cork cambium is in full growth and those new cells are soft, you can make a vertical cut along the trunk of the tree and horizontal cuts through the bark, top and bottom. And then you take--I think there are some tools here. [Showed metal and wooden spuds for cork stripping]

Fair: I was wondering what that collection of tools on the shelf was.

WM: We designed some of these tools ourselves. This one is from an automobile springleaf. When we were starting to work on the trees, George Greenan sent to Portugal and got a Portuguese cork stripping ax; and we tried to use that, but we found that it damaged the cambium layer considerably.

Mr. Fanno was a saw manufacturer at Chico and we went to see him and ask, "You make pruning saws with the teeth on the inside of the curve. Do you think that you can make one with the teeth on the outside of the curve?" He said that he had never made one but he sure would try. And that is how we got that ^{NEW} ~~OUT~~ saw for making the vertical cut through the cork with minimum damage to the cambium.

Fair: That is an interesting stripping instrument that you have there with the long handle. What is that?

WM: Well, this is a standard implement in the east for stripping hemlock bark. We tried this, but here again it is too sharp and it damages the cambium layer. Eventually, we found that sharpened hickory axe handles were excellent.

Fair: Oh, that is a wooden mallet.

WM: Yes, a wooden mallet, once you get the cork started. Then we have one we used, the ^{FEAR} ~~POVE~~, a heavy handle sharpened and shod; and then we used these axe handles. They are very useful also. You see, that won't hurt the cambium very much, but it will force the cork away. The cork will crack away from the tree just like

WM: a ripe watermelon. Sometimes you are able to take a piece off that is eight feet long from completely around the tree.

In February, 1945, we loaded a ton and a half of cork and almost a half a ton of acorns that we had collected in California; and we distributed these, George Greenan and I, with a ten-ton truck and a driver from Baltimore, Maryland, who sent the truck out and loaded it and started back. We distributed the acorns to state forest nurseries in Arizona and New Mexico, Louisiana, Mississippi, Florida. I am one of the few people I think who is not in the trucking business who has gone from San Francisco to Baltimore in a ten-ton truck.

All of that cork was shipped to Baltimore and the Crown people allocated quite a little of it to Armstrong Cork Company, in Lancaster, Pennsylvania, for testing. We found that the California cork is, as far as virgin cork is concerned, practically as good as any European cork.

However, the highest quality cork from Spain and Portugal which goes into champagne corks is developed by continuous stripping of the trees from the time that they are about twenty years old, about every ten or twelve years. Some of the trees are eighty or ninety years, and the quality of the cork improves with each stripping. You have the highest quality on the older trees.

Of course, we had no opportunity to determine that in the trees here. I never did think that the project was a feasible thing economically in California because of high labor costs and high value of land which yields higher returns in agricultural crops.

Fair: Was it really good for the tree?

WM: It didn't hurt the tree any; it recovers remarkably well. When you strip the cork off, the cork cambium is light red to pink color and it gradually darkens during the next two or three weeks until it becomes almost black. Then new layers of cork cambium start underneath. In another eight to ten years, you can strip it again. That is the way it is done in Portugal and Spain.

From the economics of the thing, I always realized that Spain and Portugal were poor countries and they need everything they can to ship out. The United States has always used fifty to sixty percent of the world's supply of cork. They can, with the cheap labor that they have in Spain and Portugal, strip the cork, bring it down to the ships, and land it at U.S. Atlantic coast ports--or could at the time that we were working on it--for about five cents a pound. There are some five million acres of cork forest in Spain and Portugal and Northwest Africa.

WM: As a result of this research project, we know now where we can grow cork trees in the United States, mostly in valley and foothill areas in California. A lot of the trees still grow on the Davis campus around the quadrangle, beautiful trees. But practically all of the land that we have is too valuable for growing something else.

The Crown Cork and Seal Company spent about \$100,000 on this project and the Extension Service, State Division of Forestry and U.S. Forest Service contributed much time and effort. Palmer Stockwell made a trip to Spain to study cork forests and methods of cork stripping and utilization there. The results were interesting and significant, even if negative as far as commercial growing of cork in California and the United States was concerned.

Fence Post Dipping Project

Fair: Can you tell me something about the fence post dipping project?

WM: That was an effort to emphasize the importance of wood treatment with chemicals to make posts last longer.

Fair: Was this a war project?

WM: Not essentially. It was a development when they brought out pentachlorophenol, which is soluble in oil. The product is still very widely used, but this was just when it was beginning and nobody knew much about what it could do. We were trying to not only demonstrate the use of that material, but emphasize the use of other salts and methods of protecting wood against fungi and termites in buildings, and in fence posts, poles and wood materials used in the ground.

Fair: Did you give demonstrations on this?

WM: Oh, yes. We demonstrated the method of treatment, and also we put in some test plot areas of treated material using some California species. Eucalyptus and oak, and other woods that are not naturally resistant to rot, were used to see if simple methods of treatment for dipping would be effective. Now of course pressure methods of treatment are admittedly the best because you get more penetration. Top ^{CUP} ~~crop~~ treatment ^{might} ~~would~~ give significant protection against rot, and hot-cold methods using creosote and "Penta" are also standard.

About the same time, Cary Hill of the Forest Service was in

WM: forest products in the Forest and Range Experiment Station. He was secretary of the Bay Area Teredo Control Committee (the marine animal which destroys underwater wood) studying methods of treatment of piling all around San Francisco Bay. The Forest Service and the Industry, and others set up this Teredo Control Committee for the study of the situation around the Bay, and the development of methods of preservation to control the activities of the Teredo.

Fair: And you helped to work on this one too?

WM: I didn't work on this project, but it was about the same time. It was an indication of increased interest in the protection of wood against deterioration by fungus diseases, insects, and marine borers.

Fair: Did you go out to the counties to do the demonstrations of fence post dipping?

WM: Yes. The farm advisors held meeting of people who were interested in fencing, and we talked about the different methods of wood preservation such as salt methods, creosote and others. We put in test plots of treated posts in several counties.

California Christmas Tree Growers Association

Fair: We have not talked at all about the Christmas tree farms.

WM: That has really grown to be quite a thing now. I was a member of the original meeting in Santa Cruz when the Association was started. I think that was 17 years ago. I had worked before that with Mr. Black, who as far as I know, was the first Christmas tree grower in California. He lived in Franz Valley above Calistoga. I got him the first Douglas fir planting stock from Oregon that he put in an old abandoned vineyard that he owned there, in about 1934. He had a very nice plantation set out and coming along well, and then he died suddenly in 1941. His wife and daughter who inherited the property found that it was too much for them to handle, so they sold it. The man who bought it wasn't interested in the Christmas trees and just let them grow. I guess there is a young forest there now. However, we learned a lot from this plantation.

The Neilsons, Howard and his wife, of Santa Cruz, were elected at that first meeting as President and

WM: Secretary of the California Christmas Tree Growers Association, and have continued in that position ever since. They have done a wonderful job. He tried to get somebody to take it over this last year, but couldn't find any one. So the next meeting which is to be in January here on the campus will most likely elect a new president. There are a lot of members in the Association, as well as a branch in the Sierra counties and one in southern California.

Fair: What kind of advising did you do for the group? Did you help them select trees, sites, or what?

WM: Yes. As in connection with any other enterprise of that kind, the emphasis is on the economics of the situation, which is the adequate care for the kind of stock that is planted, the way that it is planted, and the care given it afterwards.

Fair: Were there new species created for use as Christmas trees?

WM: We started with Douglas fir, white fir, Monterey pine, and Scotch pine. Professor William Libby of the School of Forestry has been doing some testing of selected races of Monterey pine in recent years, during the last four or five years I am sure. Monterey pine has been selected for its rapidity of growth.

One of the things during the years that has been important is the method of pruning, shearing, and shaping the trees. Take the Monterey pines for example. If they are not pruned back and shaped they make inferior Christmas trees. We did a lot of demonstration work in planting, cultivating, and shearing in different counties. Much of the work was done in Santa Cruz County because most of the planting started there. Sonoma County is also an important county in Christmas tree production. We have held meetings in Sonoma and discussed the sources of stock, types of stock, and different species of trees, methods of planting, cultivation or weed control, and adequate care during the summertime to get the trees started. It is all a matter of getting started in the proper way by finding out all about what areas trees will succeed in.

I was just talking to Ed Gilden, the Extension Forester now. He has been carrying on the program with the Christmas tree growers since I retired, and he said that this bad weather of the past weekend was a major problem in connection with sales at "choose and cut" plantations, because people don't go out in bad weather to cut trees. [There was a period of severe rain storms two weeks before Christmas. ed.]

Fair: Oh, I see how that would effect the business that has such

Fair: a short marketable span.

WM: Now the people only have one more weekend, so the weather may cut down on the amount of sales. I think that the figures show that 250 thousand trees were sold last year from plantations. Of course the total number of trees sold in California is about four million. I started this study of imports into the state to find out where the Christmas trees were coming from. You have probably seen the publication that we did on Christmas trees in California.

What we don't know as much about is the number of trees from natural stands produced in California because we have no way of checking, really. Unless producers make up reports, or if the farm advisors and rangers send us figures. We have the reports from the railroads, so we know how many carloads were shipped and where they came from. The plant introduction stations on the highways have cooperated by keeping records of Christmas trees shipments by truck; how many trees in each truck, where they came from, and what the species were. So we have very good reports on that.

Oregon State University has done quite a lot of studies of what happens to trees in shipment from Puget Sound and other points to southern California, and has developed the utility of icing cars. Icing the railroad cars at the beginning, and then if they are shipped through the Central Valley under very hot weather conditions, again at Roseberg or perhaps Sacramento on their way to southern California, prevents the trees from deteriorating from the heat in the cars.

California Christmas Tree Growers Association has grown to a membership of over 300, with something like 2500 acres of plantations, and sales maybe of 110-115 thousand trees a year.*

* See supplement written by Metcalf in Appendix B.

Travelling

Fair: I know that you did extensive travelling. Can you tell me something about your travels in this state. What were some of the activities that took you around besides the fire demonstrations and the 4-H Camping program?

WM: I travelled on request from the farm advisors in the different counties, and in connection with the statewide efforts of various kinds that were going on both in 4-H Club work and in planting, or preparation of forestry programs. For quite a while there used to be over KFI in Los Angeles, a radio program prepared by the farm advisor, where he discussed such things as different agriculture, forestry, and soil conservation problems. Some of us in the state office here used to be asked to prepare one talk a month, or something like that for the program.

I had all of the windbreak problems down in southern California. With the farm advisors in Riverside, Orange, Los Angeles counties, I did a certain amount of test-plot work with anemometers, and picking up of fruit after heavy Santa Ana winds in the orange groves.

Fair: What were some of the exciting incidents of your travels? Did you ever have anything interesting or exciting happen to you as you were driving through the state?

WM: I don't know. I remember during the War when we had gasoline and tire ration cards. I had four tires blow out on one trip that I made, and I had to wait until the tires could be sent from the University Garage in Berkeley because I couldn't get any tires where I was.

Fair: Where were you?

WM: I was up in the foothills some place, up above Stockton or Jackson, or one of those places. It was one of those things. My annual travel by car was about 20,000 miles. Also I did a lot of travelling on my own time, particularly during the last ten or twelve years or so that I was in the Service. I used my vacation time to travel and to contact Extension foresters in other states. I think that I knew more Extension foresters than any other forester in the United States.

The University used to bring twenty-five or fifty cars a year from Michigan before they started to assemble them out here. The University used Pontiacs for fifteen years or so, and we used to bring the cars back from there. I would drive to different states and contact the fellows there and

- WM: discuss the various forest extension problems in other areas. I also knew the Extension foresters from Washington D.C., ~~William~~ Arthur M. Sowder and Bill Williams.
- Fair: Where did you stay when you were travelling around? Did you stay with farm advisors' families, or did you have to stay in motels?
- WM: The year that I started, 1926, I remember talking to Tippet about travel costs. He said, " We have set up a thousand dollar fund that you can draw on for expenses during the year." I don't think that I overdrew it. My travelling expenses were usually pretty small, for I camped out some of the time when I did travelling in connection with the 4-H camps.
- Fair: Did you travel mostly by yourself?
- WM: Yes, mostly by myself. I drove 20-25 thousand miles a year in the University cars. In the beginning I had a pass on the Santa Fe Railroad, as did a number of people. I would take the train to southern California sometimes.
- Fair: Did you find it advantageous to be here in Berkeley rather than up north , or in the Central Valley? Could people from around the state contact you easily enough?
- WM: Oh yes. There is no question about that. This is the place where a person should be, for this is the headquarters of the University. I did a lot of travelling, and I sometimes wonder how I did it. I worked in almost all of the counties from San Diego to Modoc, on various aspects of Extension work: fire protection, forest management, planting, cork oak program, 4-H Club work, and the 4-H camping program. I didn't have a staff. I had to do most of these things myself with the help of the local farm advisors.
- Fair: Were the roads bad?
- WM: There are no bad roads now like there was then. In 1924 it took me twenty-one days to drive from Detroit to Berkeley.
- Fair: Are you kidding?
- WM: No, and we were driving from twelve to fifteen hours a day. There were only four miles of paved road in the whole state of Nevada. We plugged along at five miles an hour, mile after mile, after mile, through dust that deep. Nobody knows anything about roads like that anymore.
- Fair: How in the world did you travel twenty-one thousand miles a year?
- WM: That was later, and California roads improved each year.

- WM: We are fortunate in California because we have better roads than they have in a lot of states.
- Fair: Did you have a University car to drive the entire length of your career?
- WM: Yes. I can remember the first cars that the University Extension had-- old Model T Fords. I never learned to drive before coming to California. I never knew anybody who could drive a car, or for that matter anyone who owned a car, until after I graduated from the University of Michigan in 1912. There was nobody in college at that time who had a car, even in Michigan where the cars were made. I didn't learn to drive a car until 1916. I took over the eucalyptus project from the United States Forest Service, and with J.A. Mitchell who was one of the U.S. research foresters before the Forest and Range Experiment Station began, travelled seven or eight thousand miles a year visiting the groves of eucalyptus that had been planted in the eucalyptus boom days somewhere around 1900-1910. I travelled with him and I learned to drive his Dodge car in 1916. That was the year of the big floods in southern California when there wasn't a bridge left between San Diego and Los Angeles. Everything was washed out: railroads, highways, and everything else.
- Fair: The good old rainmaker Hatfield who was hired by San Diego to "make" rain really did do his job well. They had a lot of rain that year.
- WM: The first highway bond issue that the state voted created a narrow highway between San Diego and Berkeley. It was a very narrow road.
- Fair: You used to drive the old ridge route over the grapevine and the Tehachapis then.
- WM: Yes, I have been over all kinds of roads. I remember the first time that I went to Whitaker's Forest in 1915. Merritt Pratt and I went by train to Dinuba. We hired a car from a local man who had a Cadillac that could make the mountain road up there, and made arrangements to stay at the Forest Service ranger station nearby. We were there for ten days and then the man came and took us out again.
- Fair: That's certainly the slow way. Did you travel all year, or just during the summer?
- WM: I travelled at anytime there was need for my presence in the field.

California Conservation Council

Fair: I noticed in your annual reports that you attended hundreds of meetings a year for your different activities. Can you tell me what type of meetings they were. I know that there were fire demonstration meetings. Were there soil conservation meetings?

WM: I worked with the California Conservation Council for twenty five years.

Fair: What did you do at those meetings?

WM: I was president of it during 1955-56, and I also assisted for a number of years in getting out the outline of things to be carried on during Conservation Week by the different agencies. The idea of this organization, which was started by Miss Pearl Chase of Santa Barbara was to encourage people to practice conservation. Her dedicated and dynamic leadership over the years has made it an effective rallying point for many of the conservation agencies, and stimulated them to renewed efforts in putting their programs before the public each year in March. Miss Chase maintained an office for the Council in Santa Barbara with some assistance from the County Board of Supervisors and membership contributions from people throughout the state. She stimulated the writing of pamphlets on conservation and distributed thousands of these to schools and to other organizations which could make use of them. These were sold at small cost, but receipts were never sufficient to defray the cost. She and her brother Harold Chase and a few other dedicated people made up the difference.

Every effort was made to secure the interest and cooperation of all conservation agencies by enlisting their directors as vice-presidents or associates for the Council. The governor was urged to issue a Conservation Week Proclamation each week which was given wide publicity.

Have you seen one of the verses that I wrote which was placed on a poster to be distributed to all of the schools?

Fair: No.

WM: What Can I Do

What can I do in Conservation
 To aid my community, state and nation?
 I can use courtesy, thought and care
 In field or forest anywhere;
 Take what I need, but never waste,
 Curb my desire for frantic haste;
 Obey the laws for fish and game
 And help my neighbors do the same
 In handling forest, range or field,
 Plan skillfully for future yield.
 So live, that in a future year
 None will regret that I passed here.

Fair: That is marvelous.

WM: That was put up on a poster showing a picture of a boy and a dog going through a farm gate, with an outline of Mt. Shasta in the background. It was sent to every school in California during one or two of the observances of the Conservation Week.

Fair: That is really great.

WM: That is one of the things that I wrote. You may have seen some of the others such as "Save Space for Beauty!"* I sent that to Mrs. Johnson last year. I had written it ten or twelve years ago and it was issued by the California Conservation Council during one of the Conservation Weeks. When Mrs. Johnson initiated this beauty program for the country I sent her a copy of it. I thought she would be interested in the fact that we had been doing something like her program for the United States, here in California for many years. I have a very nice letter from her thanking me for sending it.

Fair: What were some of your other slogans that you wrote for Conservation Week during other years?

WM: Each year a sheet came out designating each day of the week, starting with March 7th, dedicated to some aspect of conservation: forestry, soil conservation, fire prevention, and so on. And for several years I helped in writing the little slogans that were used in the pamphlet that was issued for each Conservation Week.

* See Appendix C.

Fair: Do you remember some of the other slogans that you wrote?

WM: No, not particularly. One year I wrote a couplet for each of the days in Conservation Week.

Fair: I see that you are a poet as well as a forester.

WM: One of the things you might be interested in, I didn't bring a copy of it, but you will find it somewhere. I wrote about American speaks, "Bring me men," modeled on the first verse of the poem by Sam Walter Foster, "The Coming American." It is quoted on the Natural Resources Building in Sacramento--"Bring me men to match my mountains." I used that verse and then I wrote five verses more: Bring me men to match my forest, Bring me men to match my rivers, and so on. I can get a copy of it for you.*

Fair: Fine. We will include it in the transcript.

WM: Efforts were made to start regional chapters of the Council but without success. The California Conservation Council tried to reinforce and give opportunity to the different agencies to present their programs in another manner with emphasis on a statewide program. All of the different agencies did participate in arranging for that week by forming a program. We got a message to the governor each year and had him issue a proclamation about the week.

Fair: How did you combine your forestry duties with the Council?

WM: It is an educational effort promoted by the California Conservation Council and with a board of assistants or counselors made up of people from the Forest Service, the Park Service, the State Division of Forestry, and the governor, as well as the Director of Extension and the heads of various organizations. You can see it on that basis. The observation of Conservation Week comes on March 7-14th, starting on Luther Burbank's birthday.

Fair: Tell me some of the things that you have done for CCC Week. Have you given fire demonstrations, or have you planted trees?

WM: Yes. We fitted them in, but one person could do little. Every effort was made to secure attention to conservation subject matter by all agencies and schools. The information was sent out to the farm advisors in all of the counties. It is just like fire prevention week in the fall, which is a national observance promoted by the city, county, and state fire departments. We have promoted better understanding of conservation by that means in the fall too.

* See Appendix C.

Fair: Did you help your 4-H groups plan special conservation activities such as nature hikes?

WM: Oh, yes. We did a tree planting here and there, and cleaned up a fire hazard. They still do some of these things, and now the 4-H is quite active in local projects to promote beauty.

Radio Talks and Publications

Fair: Part of your program for fire prevention was carried on through different means of publicity. I understand that during the Second World War you gave radio talks. What did you talk about?

WM: KGO had a studio in Oakland. But in the beginning these talks were not considered to be very important. There were not very many radio sets and people didn't pay much attention to it, but we would get a request occasionally to give a talk on forestry.

I prepared a number of talks for presentation in the weekly series of programs that they put on KFI in Los Angeles on various aspects of the forestry program: growing trees, planting trees, harvesting trees, watershed protection, and so on. We did the same thing once in a while on T.V. After we got interested in the Christmas tree program, we put on a demonstration on television. That was the first program of that type that I took part in, showing different types of Christmas trees and what constituted a number one tree, or a poorer tree. And we told how they could be grown and improved in the forest under natural conditions by giving them room and shaping, and the handling in the plantations.

I don't watch television myself much, I would rather listen to the radio. Mrs. Metcalf looks at these doctor programs and things like that, which don't appeal to me at all. I can't be bothered with these problems, so I listen to the news; I am different.

Fair: You are so busy that I am sure that you can not take the time out to watch T.V.

WM: Well, I do quite a bit of writing in connection with these various interests, and I have been working on a publication on "Trees of the Berkeley Campus" for something like four years now. I think that it is going to be a very definite

WM: contribution to the Centennial observance, and I think that a lot of people are going to be interested in it.

Fair: I most definitely want to see a copy of it. I walk around the campus now, and after having read some of your papers on the trees on campus, I see if I can remember which tree is which.

WM: Of course we tried, with the Environmental Horticultural Division and some of the men who were here before, to keep at least the more interesting specimens labeled. But it is a very difficult thing to do because the little kids that come on campus throw rocks at them and break them off or cut them off with knives. We had about three hundred labels made two years ago, and they put a lot of them out; but I don't know how many of them are still there.

Fair: I have seen very few of them. I only remember one Toyon marked. You wrote a forestry news letter at times too, didn't you?

WM: Yes.

Fair: How often did you write this? Did you write the entire thing yourself or did other people contribute to it?

WM: The Extension Service gets out a number of different publications along different lines which go primarily to the farm advisors. They supply such information as they feel is germane in their counties to the local papers.

Now once in a while of course, an article that is of sufficient state-wide interest is sent out in the form of a press release from Berkeley. This again is a development over the years; things don't stay the same. But when we organized the Small Woodlands Council after 1950, the years that we had that as a medium of cooperation between all of those interested in small woodlands areas, we used to get out a newsletter on that, you see.

Small Woodlands Council

Fair: This was a part of Extension forestry?

WM: Oh yes. I was acting as secretary of it, and we would have meetings here. I came back from my 1950 sabbatical with the idea of setting up what we called a Small Woodlands Council. This was to include all of the agencies and all of the personalities in California who were interested in bringing about better management, better protection and better understanding of the problems of the

WM: woods in small ownerships. We carried that on for about five or six years. We issued a number of publications that you will find in the library. They had to do with suggestions for better management and protection.

We also had occasional meetings in the field to observe progress on the ground. Our office here acted as secretary and sent out the notices. I think that it was very helpful but I think that it has been allowed to evaporate now.

Fair: That is really a shame when something like that happens.

WM: A lot of things happen that way. You know if you don't have a person who is interested in doing something like this and willing to do the work, it is not easy to get things done. After I retired, I guess that nobody was particularly interested in carrying on. Maybe it is no longer necessary.

Fair: Yes, it is the leader that makes the difference.

WM: If you have a good secretary, you can get along very well, even if you don't have a good presiding officer. The secretary is really responsible for running the thing. But that is the way that it is. Times change, and things that seem important to one time are not so important to another.

Fair: Was the Council made up of people who owned small woodlots or was this a management program?

WM: No. This Council itself was made up of representatives of the different agencies that were interested in promoting better management, utilization, and information about the small woods.

Fair: What agencies?

WM: All of these agencies that we have been talking about: the University, the Forest and Range Experiment Station, the Regional Office of the U.S. Forest Service, Soil Conservation Service, the State Division of Forestry. We invited other people, Fish and Wildlife Service representatives and all, for the discussions of these problems.

I don't know that the Small Woodlands Council made much impression on the whole situation. The information had been growing about forestry since the organization of the Forest Products Laboratory and the spreading out of its work; because after all, when you start talking about products, it doesn't take you long before you get back to the forest from where these things come and the implications of proper care, protection, good management, and utilization. But it was one of the things that was a help in getting people to work together.

Fair: You worked in 1948-1949 on the development of small mills. Was this a forerunner of the Small Woodlands Council, or is it in any way connected with it?

WM: The program having to do with small portable sawmills came about through interest generated by the cooperating agencies to assist owners of small woodlands in thinning their young stands to improve tree composition and to increase growth, also to determine if such management practices could be carried on at a profit. All of the agencies cooperating in the Small Woodlands Council were interested in this and the Soil Conservation Service was able to purchase a very good portable mill for use by land owners in different forest counties who wished to conduct such test thinning of their stands and work up the products for ranch building construction or possible sale. The equipment was used on a lease basis under the direction of a Soil Conservation Service man in charge for several years, but I do not know if it is still available.

FORESTRY LEGISLATION

Fair: I have questions about legislation during the period that you were Extension Forester. We have spoken of Clarke-McNary quite often. How did the Fulmer Act influence you?

WM: Well, the Weeks law in 1911 was one of the marks of progress, like when you go back in history to the Magna Carta, the Mayflower Compact and the Declaration of Independence. These things are all a part of the developing knowledge and appreciation in democracy and our American laws.

Fair: Well, how did the Fulmer Act influence your work in any way?

WM: That had largely to do with better fire protection in the national forests. The Forest Service carried on these nation-wide studies of the lumber industry and the availability of merchantable timber, and impressions about how long this would last, and what it was necessary to do in order to get land back into production again. I think as a matter of fact that figures have shown that there is more timber growing in the United States today, as far as total volume is concerned, than we are cutting.

At the same time, there are millions and millions of acres of unused lands. A forester in Florida told me that because of fires in that state, five million acres need planting. We have about the same in California. Of course, we have a much bigger area than they have but then it is a more difficult area to do anything in because so much of it is so dry.

Fair: Did the Norris-Doxey Farm Forestry Program, help you with reforestation?

WM: This was one of the things that promoted the wind-break, the shelterbelt program.

Fair: Do you recall some of the discussion that took place when they were considering the Forest Practice Act?

WM: As to what the industry and land owners were willing to do in keeping land productive: You see, this was supposed to be a movement developed by the industry and land owners of the state, and then proposed to the Legislature. When it was passed, the administration of it was then turned over to the State Division of Forestry and the State Forester's office.

- WM: These meetings were held to get the ideas and the impressions of the landowners in the different places and in the industry, to find out what they thought was important and what things should be included in the Forest Practice Act. Everybody was invited to come.
- Fair: The public was invited?
- WM: Well, I guess that they were open to the public, yes. But mostly they were attended by the landowners and the timber owners. After the law was passed, it provided for Forest Practice Committees in the five different areas [see page 19], and each Committee was supposed to draw up definite requirements for management of lands to insure their continued productivity. When the Committees discussed these and passed them, they then became law in those areas. Now there has been one very controversial aspect of the law that I don't think has been resolved yet. The law has gone under some criticism because an owner could declare that he did not intend to use it for forest purposes; that is, he could have it removed from the provisions for the Forest Practice Act because he was going to use it for something else--grazing, subdivision, and so forth. Then all the timber could be cut off or the land burned and changed into grazing land or whatever. That is still a matter of controversy.
- Fair: What do you think will happen? How will this problem be resolved?
- WM: Well, they have just been discussing different solutions in the various meetings during the last year, I understand. (I have not been to the meetings.) But a method of tightening up the requirements in the Act which the Legislature would have to do had been considered. That may be the only way that it will be resolved.
- Fair: Do you think that will be a practical way to resolve the problem?
- WM: After all, the good faith of the people who own the land and their willingness to carry on conservation methods of management is a primary consideration. If they don't want to do this--take for example, the case of one of the owners in Nevada County. He had a forester make long time plans for the administration of the area, and this plan was approved by the Forest Practice Committee. The owners did conservative cutting on the land, leaving seed trees and managing it according to good conservation principles. Well, then the land was sold to another outfit which put it into a subdivision. They cut all the trees off of it and simply said that they were not going to use it for forest purposes anymore, even



WM: though it is in some of the best ponderosa pine producing areas in the state. So those are some of the things that happen. These are all problems that have to do with ownership of land. All of these laws are items in the progress through the years. Each law passed with provisions for better use of land for crops, grazing, watershed protection, timber production and forest recreation is a step forward for maximum benefits to the largest number of people. On the other hand restrictive laws which place high quality lands in a single category and prevent multiple use are to me of questionable desirability.

COOPERATION WITH OTHER AGENCIES

United States Forest Service

Fair: What was your specific relationship with the U.S. Forest Service? You have told me that you helped at the Experiment Station. Did the United States Forest Service ever request your services?

WM: During the various wars, when we had these committees for the saving of food and fiber for the war effort, all of the agencies were working very closely together. Richard Hammett of the U.S. Forest Service, the one who was credited with the creation of Smoky the Bear, and I, went to see the Board of Supervisors in Imperial County. We went south together on one of these trips trying to develop better understanding of the fire situation, better equipment and attention to fire danger. We went to the Board of Supervisors of Imperial and San Diego counties to talk about the things that they could do to assist in the general statewide fire protection efforts.

Claude Tillotson was here during the Second World War, and he and I and the State Forester, Pratt, worked very closely together in connection with fire prevention and other projects. Tillotson was the Clarke-McNary inspector for the U.S. Forest Service in the California Region.

Fair: Who were some of the people you worked with in the U.S.F.S.?

WM: Hammett, Tillotson, J. Price, and various supervisors of the national forests when we would go to the communities at the edge of their forests. They sometimes came to the meetings, and sometimes delegated the district ranger to come.

Fair: What about setting up fire districts? Did you have to contact the Forest Service at the time you were setting up the rural

Fair: fire fighting districts? Did the Forest Service object to you working in their territory?

WM: We did not organize new fire districts but worked in those already established. As I said, I don't think that there were ever any objections. After all, the problems were large and required cooperation and mutual understanding, as they still do today. The Forest Service has the primary responsibility for the protection of the land within the national forests and the state has the primary responsibility for the protection of the private lands outside the national forest, as well as the land outside the limits of the incorporated cities, or the limits of the incorporated fire districts; but both of the federal and state governments work with the local governments.

The local fire districts that we helped to organize are set up by the county board of supervisors who appoint the commissioners and appoint a time for the election of the fire commissioners of the district. The commissioners then report to the board of supervisors. Therefore the contact from a state-wide point of view is from the state forester's office through the board of supervisors. In many cases, the county board of supervisors turned over the protection of rural property within the county to the state.

This was all developed in the Thirties after we had generated additional interest in better state-wide protection. The State Forester has contact with the board of supervisors and makes annual or biannual arrangements with them for doing certain things. The state will appropriate so much money and they will put a ranger in to supervise and cooperate with whatever local fire districts might be in the county, and to handle the cooperation in that zone adjacent to the national forest lands.

Fair: Then you really didn't have much contact with the United States Forest Service rangers or work with their programs, did you?

WM: No, not particularly. The Forest Service was represented on these various committees so I had contact there. They received the information and wherever there were national forest lands involved in the areas where we were to give a demonstration, they usually appeared at the demonstration. If they wanted to assist in the demonstration or talk about local situations, they could, as did many of the local fire chiefs of the towns or fire districts where we were.

Fair: What kind of planting did you do with the U.S. Forest Service Forest and Range Experiment Station ?

WM: That is really a research organization developing better understanding of requirements of collection of seed, maturity of seed, and storage of seed. We had a refrigeration plant that used to be in the basement of Hilgard Hall; it was one of the first cold storage units that was available around here. I used to bring in seed and turn it over to them to store down there. They had these different temperatures: one was zero, one 40° and the other a little warmer. We carried out these tests for refrigeration of seeds with certain moisture content at different temperatures. We carried on germination experiments afterward to see how long the seeds would keep. For example in the cork oak project Nick Mirov, who was one of the silviculturalist at the station carried on some tests for the storage of cork oak acorns in moist sawdust. You can kill acorns by putting them in a bag and leaving them in this office here for two weeks. Mirov found that by storing them in moist sawdust at 41°, they could be kept for a year and still germinate very nicely.

Fair: How much work did you do with the Eddy Tree Breeding Station, or the Institute of Forest Genetics as it is now called. I understand that you helped to select the site for the station.

WM: Lloyd Austin was a graduate of the University, not in forestry, but in landscape. When Mr. Eddy from Everett, Washington, decided that he wanted to set up a station for the study of pines of the world, Austin asked me to go with him to select a site which would be considered most suitable for such experimentation. I spent a couple of weeks with him; we went around up in the north coast ranges, and up and down the Sierras, and we finally looked at this place at about 2000 feet elevation near Placerville.

Fair: Did you work with the station after that?

WM: Oh yes. When we were working on the cork oak project, Palmer Stockwell, one of the men at the station, was very much interested in it. In fact he was selected by the Forest Service to go to Spain to make some studies on the cork oak trees and cork utilization. Both Stockwell and Mirov worked on the germination and grafting experiments on cork oak. The cork oak was grafted on other California native live-oaks.

Fair: Quercus wislizenii perhaps?

WM: Yes, and Canyon Live Oak, Q. chrysolepis. But these experiments were done at the Institute of Forest Genetics.

Fair: Oh, then Quercus kelloggii?

WM: Yes, he tried it on black oak, but because it is a deciduous tree, the scions lived until winter and when the roots went into a rest period, the scion died.

Fair: What were your relations with the Soil Conservation Service? Did you work with them? I thought that you might have, because of your interest in prevention of erosion.

WM: When they set up the Soil Conservation Districts, I worked with a number of their people. They had a forester in the district and they had an experimental nursery. (Charles Kraebel was in charge of the station in southern California, that is, the San Dimas Field Station of the U.S.F.S. I worked with him in connection with experiments and studies that they are still carrying with erosion prevention.) The Soil Conservation Service started a nursery in southern California for growing stock and planting for windbreaks and erosion control in the San Fernando Valley. I worked there several times with their people as well as at the Santa Paula and Pleasanton sites. There was overlapping; there isn't any question of that under the Roosevelt policies, because the Soil Conservation Service was another agency paralleling the work of the Forest Service and the Extension Service, which were already doing work in erosion. But as Mr. Crocheron used to say, "There are enough problems so that a lot of agencies can work, and should work, without animosity."

Soil Conservation Service

Fair: Did you find that the Soil Conservation Service was particularly difficult to get along with?

WM: The soils division here on campus and the Extension man in soils were the people who made the contacts with the Soil Conservation Service as an over-all matter. I knew the people very well. John Barnes was contacted because he was in charge of the State Soil Conservation Service program until he retired. I knew him well and worked with him for a long time. He came with me on a couple of trips, and we used to meet at various times.

I was a member of the statewide committee that met each year to go over the proposals for soil conservation that were made from Washington, D.C., to see whether the statewide committee thought they were important enough to adopt in California. Then if they were adopted, it was for certain sections of the state. They might not be important in the Imperial Valley, for example, but very important in other places. These affairs were very

WM: complicated, but after all I think that there was a pretty good spirit in the whole thing. I never felt any particular animosity toward me or the things that I was trying to do. I was glad to work with these fellows whenever they wanted me to, or felt that it would be interesting. I went with the SCS in the field sometimes and discussed problems on the ground as to what they wanted to do, but after all that was the logical thing to do.

Fair: Can you remember anybody who was on the committee besides you and John Barnes? Was the State Forester on the committee?

WM: Yes, the Forest Service had representatives, the Division of Forestry, the Soils Division of Extension and the University did also. Representatives from all of these agencies were invited to come, but some of them didn't.

Fair: Do you recall the names of the people who worked with you on this committee?

WM: Mr. Pratt use to come to the meetings or send one of the deputy state foresters to the meetings. It was largely a matter of maintaining contacts and information.

Some of the proposals that the committee considered came from Washington D.C. This was true in a lot of these programs that came from Washington, although in many cases they were often arranged to accomplish results in the southern states and really didn't apply to California at all. We had to try to work out something that would yield some significant results in spite of the way the program was set up. A lot of these things were set up politically to favor the democratic south, and I don't think that there was any question about that. We have more crops in California than all of the rest of the United States put together probably; these programs were aimed at the small cotton farmer in the south.

It is like the program set up here in Berkeley, what they call the multi-purpose Senior Center. It isn't a practical thing, and it isn't what the people in Berkeley need. They are spending \$2500 a month on this thing. I am on the committee at the request of the City Council, but I have told them repeatedly that I don't believe in a lot of the things that they are doing. It is too darn expensive.

Fair: What years were you on this Soil Conservation Committee? Was it during the Thirties, Forties?

WM: It was shortly after it was set up, sometime in the late Thirties.

Fair: I saw some comment, I believe that it was in one of your annual

Fair: reports, about a cooperative project between you, the 4-H, the farm forestry bureau, and the Soil Conservation Service, and it was called the Watershed, Farm, Forestry Project. Can you tell me about this cooperative program?

WM: This program was an attempt to stimulate additional interest in an educational way more than anything else. The primary responsibility of the University and the Extension Service is keeping people informed about what is going on, as well as improving the present methods of doing things. Naturally, the farm advisors in the different counties were anxious to know what these proposals meant to their own people, or if it didn't apply to their own people, they would tell the committee that it didn't apply. The Soil Conservation Districts were set up with elected representatives in each of the districts. It is a very different setup than most other things in connection with agriculture. The SCS maintains technical advisors in a district, which might, but not necessarily, include a whole county, and might be coordinated with the farm advisors' work for the same people. These are some of the elements of competition, you might say.*

Fair: What were some of your projects with the State Division of Forestry? What were some of the things that you accomplished? I know that you worked a lot with Mr. Pratt. Did he ask your advice on matters or suggest projects that you might work on?

WM: The State Division of Forestry operates through a state ranger appointed by the State Forester to supervise fire protection and prevention efforts in that county. He reports to the State Forester, and naturally works in cooperation with the county board of supervisors and representatives of other agencies in the county-- farm advisors, agricultural commissioners of the State Department of Agriculture, local personnel of the Soil Conservation Service, local wardens of the Fish and Game Department, supervisors and rangers of the U.S. Forest Service in many foothill and forest counties, and so forth. The Extension Forester can and often does, work with all of these agencies on programs of mutual interest, particularly in times of crisis or emergency, but also on the furtherance of educational programs: projects on fire prevention, tree planting, recreational development and forest management such as we have already discussed.

Then you must realize that most of the foresters belonged to the Society of American Foresters. We would have meetings of the Society and discuss a lot of these things that were made subject matter for discussion in the Society. Because it is a separate thing entirely many of these things could be discussed and talked about, and brow-beat, things that you couldn't do at government policy meetings. That is one of the SAF's main advantages. Also it is a powerful force of understanding, and

*See Appendix B.

WM: so you wouldn't want to leave that out of consideration. Now the engineering societies and these other things are the same way, and it does aid in getting some of these things understood and assists in getting results.

Fair: That is really excellent. I didn't realize that was what was happening in SAF. I can see that it is a very valuable organization for the foresters.

Change at the University

Fair: Were you on the Academic Senate at the University of California ?

WM: Yes.

Fair: Did you go to the the Senate meetings?

WM: Not often because I was usually out on field work. I maintained membership in the Academic Senate because I had it before I went into Extension.

Fair: Did you notice how a controversy in the Senate among the administrators of the faculty affected Extension? Or did it affect Extension?

WM: Well, the policies of the University affected all parts of it. The College of Agriculture, the department of agricultural sciences, has always been a very powerful public medium in support of the University. The Extension Service played a very large role in that regard. Naturally the director of Extension and the vice-presidents in charge of Agriculture and the deans at Davis and Berkeley and Riverside are in a lot better position to answer that question than anybody else. This is particularly so in my case because I didn't go to these meetings for they were discussing things that had to do with the Berkeley campus. Extension has a much broader statewide responsibility and a broader emphasis than the local campus.

Fair: Do you remember the so called "faculty revolution" in 1919? This was when the faculty was attempting to get more power for the Academic Senate.

WM: 1919?

Fair: Were you on the Senate at that time?

WM: Oh yes.

Fair: But you were only an assistant professor at the time.

WM: I was here in 1919. That was right after the war.

Fair: Do you remember the Loyalty Oath controversy in the later 1940's ?

WM: I could never understand the opposition to it. I signed it, and I have signed it a number of times in different capacities such as when I was a member of the Forest Service .

Fair: Did they have problems with the farm advisors signing this?

WM: I don't think so. I think most of the farm advisors-- most of the people in Extension have too much sense and too much loyalty to the nation not to sign it. I think that most of this stuff was just bunk. I think that a lot of this present turmoil-- I don't have any use for these "activist" people at all. They had this turmoil on the campus when we were celebrating the fiftieth anniversary of the School of Forestry in December 1964. The "activists" tried to keep us from coming on to the campus. I guess I am just too old-fashioned to have much patience with such methods. It made me so darn mad, and a lot of the alumni couldn't understand it, and they can't yet.

Fair: It is so very disconcerting, and a very hard thing for outsiders to identify with.

WM: We are having a meeting of the School of Forestry Alumni on December 6th. One of the vice-presidents is going to talk to us about the student turmoil. He is going to try to make some of us understand something about it.

I heard another very good speech about the turmoil. The speaker said that most of the young people have absolutely no conception of what it is to work for anything. They have always been given anything that they wanted, and they don't know what money is worth. They have never had to work for anything. I think that this is largely the problem. I talked the other day to the Mayflower Society about logging and lumbering in pioneer days, and I said that the only thing that you can conclude by looking at any of the pioneer history of this country is that there was grinding toil involved in everything that everybody did. There wasn't any time to do much except work. The amazing thing about it was that the pioneers in those days set up educational institutions like Harvard and Yale, and when they could do so, with the assistance of Congress, they set up the land-grant colleges. Many of them didn't have the opportunity to get much schooling-- they were too darn busy cutting down trees to make a farm.

PRESERVATION VS. CONSERVATION

WM: Another thing that worries me is providing for expanding timber use in the United States. This year at our meeting of the Society of American Foresters at the Kaiser Center, we discussed multiple use of wild lands with particular reference to the changing scene: the very wide misapprehension and misunderstanding by the people who now live in the cities. 70 or 75 percent of the population of the United States live in metropolitan areas, and has little understanding of the rural, mountain and forest problems, except in many cases in a very narrow view of what you might call the preservationists.

The ideas of the preservationists are very dangerous. One of the men who represents the lumber industry says that there is definitely going to be a terrific shortage of building materials for all of the buildings that are required. Yet the government said that they propose to build a million houses in the near future, and somebody said that if they did that the lumber prices would double. If the government tried to build them with substitute materials it couldn't be done at a reasonable cost. After all the American home since pioneer days has been a wooden house, and the maintenance of adequate supplies of lumber depend on good management and good protection of forest lands.

Take for example the redwood controversy. The government and the preservationists want to put several thousand acres of very fine redwood lumber area into a national park. It is going to have a terrific effect on the entire economy of Del Norte County and the northern part of Humboldt County. They will be removing these acres from constructive use. There are many things talked about by the preservationists, yet they disregard the economics of the situation entirely.

Fair: Economics may not affect the members of these groups and so these problems are not taken into consideration when planning reserves and such things as parks.

WM: Well, there are limits to what even an affluent society such as ours can do in disregarding the needs for practical approaches to a lot of these problems. This is one of the things that we have tried to emphasize in the work of the Extension Service and the forest services. One of the things where communications have fallen down in recent times is that there is a lack of understanding of the importance of constructive multiple use of the forest lands, or that continuous timber production can be accompanied by recreational use.

WM: One of the men from the psychology department gave a talk at a meeting that I went to on people's reactions to scenery. It was a very complicated speech, I thought he used too many words for me, but they are trying to find out from a psychological point of view what people see in scenery when they view certain scenes: forest service people, housewives, students, and so on, and to find out how important what they see is to them. A lot of trouble, as I see it, is that many people who go out don't really see or appreciate rural and mountain scenery. They are in too much of a hurry. I often think about the time I stopped on the top of Redwood Mountain on the road overlooking the Sequoia gigantea forest below. There was a car from Ohio with a family looking over the view. I pulled up along side of them and I said, "Do you know what you are looking at?" They said no. "Well," I said, "Maybe I can tell you about some of the important things about this forest. These are some of the oldest trees in the world that you are looking at." I talked to them for five or ten minutes, and then they said to me, "This is the first time since we left Ohio that anybody had taken the trouble to tell us anything about this western country." They didn't have any idea of what they were looking at.

Fair: Many times I will be riding in a car with people and I will point out different trees or plants to them. They are either amazed, having never noticed the tree before, or else they just don't care.

WM: They just don't see them. I have said repeatedly to school children that I have met in connection with my work, be sure to notice things. I will say to them, "Isn't that a beautiful redwood tree up in the next block", but they have never really seen it. It might as well be a telephone pole. But that of course is what the Extension Service and all of these educational organizations are trying to do. They are trying to bring about a better understanding and comprehension of the things around them, that is that people can see if they will see.

William Penn Mott, now the director of the State Division of Beaches and Parks, was the park superintendent in Oakland, and also superintendent of the East Bay Regional Parks. I talked to him a little bit about this problem, and he said that one of the things that the parks system has very definitely in mind is to try to develop a series of state parks that are near places where people live. A small number of people in the United States ever get any place to see or understand the things in the open country-- particularly places far from home.

Fair: The thing that is so sad about this is that some of those people don't even care that they don't see anything.

WM: Oh no, most of them don't know what they are missing.

WM: I read an article in the paper not long ago where the writer was discussing what he considered to be important benefits of a certain area of forest and mountain country. He listed scenery, recreation, etc, but he never mentioned timber production or other constructive use for economic benefits. This was about an area in one of the national forests which was set aside for multiple use management, including timber production, watershed protection, grazing, and recreation. He never mentioned timber at all. This is very short-sighted. Quite a lot of the people who live in the city, such as the Sierra Club members, for example, have the same attitude. And it is a dangerous attitude I think, an exceedingly dangerous attitude, because as was brought out at our meeting of the SAF the other day, there is a definite chance that there will be a timber shortage in this country rather soon.

Fair: But they have been predicting that for fifty years.

WM: I know they have, and we have reached the point where there is a lot of young timber coming along, but it isn't of a marketable size. This vast housing program that they are talking about putting in the cities to rehabilitate slum areas is not going to be possible at a reasonable cost, unless you have timber to do this with.

The preservationists have tried to rewrite the definition of conservation recently in a way that a lot of people think that you shouldn't do anything with the country at all. You should just leave it alone. Well, that I think is a very short-sighted policy. As an example, a lot of land they took out of the Olympic National Forest and put into the Olympic National Park-- I don't think there was any reason in the world to do that. It was already under effective forest management.

Fair: Do you think that it was a political move?

WM: Why certainly. It was Franklin Roosevelt's idea.

Fair: Was he a preservationist?

WM: Certainly he was. There was no need for that move. The Supervisor of the Olympic National Forest is one of my very good friends, Herbert Plumb. I was up to see him in February of this year. That is another one of these things that get into politics. It is very unfortunate. In spite of the fact that many of the lumber companies are now carrying on excellent conservation programs on their lands for permanent management, which also allows recreational use in suitable areas, they are not thought to be capable of managing it properly.

CONCLUSIONS: ACCOMPLISHMENTS OF A CAREER

Fair: You told me earlier that Ray Clar was looking through your photograph file.

WM: Yes. Someone ought to go through this collection and repaste some of the pictures and titles because they are falling off.

Fair: We would like to have it put into the Bancroft Library where it would be repaired as well as being stored in dust-proof and light-proof containers. Some of the pictures are being ruined by being stored in the School of Forestry Library attic. We would like to have your permission to move it over to the Bancroft Library. If we can make arrangements with the School of Forestry Library, would it be feasible to move it?

WM: I will take it up with Dean John Zivnuska and see what he says.

Fair: The Bancroft Library is tops in preservation of material.

WM: That is fine. There are a lot of interesting pictures there, and I thought it would be a very interesting thing to go back to some of these places and re-photograph some of them after all of these years.

Fair: I have to tell you about a photo that I found in your file. You took it on the top on Mt. Frazier in the Tehachapis near Gorman. It was looking up toward the Cuddy Valley, west to Mt. Pinos. This area is still very rural, but your picture taken in 1927-- why there is just nothing there. I was amazed to see how much it has "grown up," for according to our population standards today, there is still nothing in the valley. It looks so serene. Your pictures capture the mood marvelously. I was talking to one of the boys who works in the forestry library who was looking for a picture of a forest fire. He chose one of yours because they are so dramatic. They really capture the essence of the scene. This is why I think it would be a valuable addition to the Bancroft Library where it would be seen by more people.

I would like to ask you to make a summary evaluation of your position of Extension Forester. What do you think is the chief value of the Extension Forester?

WM: Do you mean in California, or in general?

Fair: In California. Please comment on your work in California.

- WM: I think that it was a very satisfying sort of existence. I certainly enjoyed the work that I had to do. I wouldn't have traded jobs with anybody that I knew of. I was out a great deal of the time of course, I spent a lot of time in the field.
- Fair: What did your wife think of that?
- WM: Well, she seemed to get along with it all right. She used to say that she married me for present and absent... [laughter]
- Fair: Instead of for better or worse. What do you think the value of your position has been to the state? What have you helped to achieve during the last thirty-five or forty years?
- WM: I acted as a kind of a medium of cooperative endeavor along a lot of lines, keeping people informed about what was going on in the experiment stations, and the University as a whole. But that of course is the purpose of the Extension Service. I worked with a lot of dedicated and capable people. I feel it was very satisfying.
- Fair: How has the position changed since you retired?
- WM: I stayed on one extra year after I was sixty-seven because they didn't have anybody to take over the job. Ed Gilden came that year and worked into the job, and I retired on July 1, 1956. Jim Gilligan really took my place. He was here for seven or eight years. The thing that impresses me a lot is that nobody does the job in the same way in almost anything.
- Fair: Then the emphasis has changed?
- WM: Not only that, the whole situation has changed: more people, easier transportation, changing attitudes of what we call the affluent society, but I don't think that the job is any easier. There is the changing attitude of the administration also. There were two directors after Mr. Crocheron died, Earl Coke and George Alcorn, who has been director for ten years now. They don't have the same method of doing things. There has been much less emphasis on the camping program, and on the outdoor programs in general I think, than there was for a number of years. I have not kept in real close touch but many of these changes are part of the changing scene.
- Fair: What do you think was the most important way you helped Extension grow? What do you feel was your most important activity?
- WM: Oh that is a pretty hard thing to say. I got to know, or had contact with, more 4-H Club members than anybody else in the

WM: Extension Service. At least more 4-H members knew me. It was a very interesting thing to keep in touch with the younger generation. I tried to keep the various agencies informed, and cooperating in a way that would result in major progress. I guess that was as important as anything that I did.

Fair: What kind of future does Extension have? Is it going to be useful in the more urban society?

WM: Of course Extension has had a very important influence in the development of agricultural procedures, and in the production of agricultural crops in California. Naturally it has been influenced in recent years by the growth of corporation farms and the moving of the people to the cities. There is no reason why Extension in many of its aspects such as its work with boys and girls, and its work in better housing and better home management, can't all have a very great influence in the cities too, especially in this improved cities program that they are talking about. How they are going to undertake that program I don't know. It will be a big challenge and require a change of emphasis.

Fair: Were the corporation farms or the large company-owned farms being built up while you were still in Extension?

WM: No, I never had anything much to do with that angle of it. Naturally the agricultural economists had more to do with that. One of the aspects of that is fifty years ago, and before America was an agricultural economy, farming was a way of life. Starting back in Lincoln's time the USDA began assisting farmers because food production was of vital importance. Later it became evident that small farms were no longer economical. In other words you couldn't make enough money to raise a family unless you had another job. The tendency has been to increase the size of the farms.

Director Peterson of the experiment station said a year or so ago, "One of the problems is that we have to produce more and more food for an expanding population on poorer land." A lot of the best agricultural land has been taken over for airports and subdivisions and freeways. Four million acres of California are in towns ...

Fair: And under asphalt.

WM: So it is all a part of the changing scene. You ask where is Extension going? I don't know that anybody knows. It is like this turmoil in connection with the University-- who knows what is going to happen here. Somebody said the other day that the only solution at San Francisco State is to close it down, close the buildings and either sell the place, doing away

WM: with it entirely, or else close the buildings and wait for five years until the whole thing dies down, and then start all over again.

Fair: Do you think that will work?

WM: I don't know.

Fair: This has been a most interesting series of interviews. I have enjoyed it very much.

WM: I too have enjoyed talking with you. Well, it is half past eleven and I must be going. We are going to do the singing for Christmas at an Orinda convalescent hospital where my good friend, Bob Raiston, is recovering from a recent illness.

APPENDIX A

DUTIES OF THE EXTENSION FORESTERS:

Excerpts From Annual Reports and Plans of Work

Detail of work done by the Extension Forester during 1947 at Whitaker's Forest. Taken from the 1947 annual report, on file University Hall, Berkeley. 95

- 8 -

Annual Report
Extension Foresters

<u>Source</u>	<u>1st Decade</u>	<u>2nd Decade</u>	<u>Total</u>
3-Counties 4-H Camp Fund	\$4,731.79	\$3,828.32	\$8,560.11
Individual Counties	3,135.00	290.00	3,425.00
Total County Contributions	\$7,866.79	\$4,118.32	\$11,985.11
U.C. Agricultural Extension	\$2,514.67	3,473.63	5,988.30
U.C. College of Agriculture	1,447.50	5,122.57	6,570.37
U.C. Whitaker's Forest Income	281.50	4,170.71	4,458.21
Total U. of C. Expenditures	\$4,243.67	12,766.91	17,016.88
State Forester, CCC Program	\$6,080.00	9,500.00	15,580.00
TOTAL	\$18,196.76	26,385.23	44,581.99
Average expenditure per year	\$1,819.67	2,638.52	2,229.00

These figures indicate a gradual shift in the cost of improvement and maintenance of the forest from the cooperating counties to the University of California, and as might be expected, a gradual increase in expenditure because of demand for improved facilities. Some of the counties were able to contribute very little during the war years because of difficulty of travel, and Kern County withdrew entirely from the cooperative maintenance program during the current year as they have found a suitable camping place within the county in the Greenhorn Mountains which requires less travel. The increase of interest on the part of the other counties and several participating organizations has been an important feature of the past year.

Income from the forest for the first decade was very small and consisted mainly of stumpage sales of down sequoia logs for posts and stakes. Rental of the camp sites gradually increased and from 1939 some mature timber was sold each year. These sales increased in volume from 1944 on because of strong local demand for timber. Stumpage prices were materially advanced when the contract with Wortman & Wortman was renewed in February 1947 and the last of the mature timber was removed during the current year.

Income figures may be summarized for the above period as follows:

First decade 1927 through 1936	\$502.60
Second decade 1937 through 1946	9,823.00

TOTAL \$10,325.60

Forest Operations in 1947. As noted in the annual report last year, the stumpage prices for mature timber were increased in the revised sale contract with Wortman & Wortman to \$5.00 per M. for sugar pine, \$4.50 for ponderosa pine, and \$3.00 for white fir and cedar. A few merchantable logs of down sequoia also brought \$5.00 per M. Logging was carried on under this contract from June through August in the area east of Eshom Creek. One new logging road was opened up from the point below the 4-H Camp headquarters to the old road near Kern Tree which may prove to be useful as a forest road in the future. Logs were loaded at four landings as follows: 1) near the 4-H Club camp fire circle, 2) on adjacent Forest Service land near the southwest corner of the property, 3) near the road below Bruin Camp water supply tank, 4) below the county road at a point about 100 yards west of the sharp curve at Plot #2.

For the most part the logging was carefully done and there was little damage to the second-growth stands. Most of the slash was lopped, but some snags still remain to be felled and some brush must be disposed of by burning during the spring. The logged area is in very good condition for reproduction, but unfortunately there was a complete lack of cone production during the year except for Sequoia trees which as usual had a large number of hold-over cones with excellent seed.

The old Sequoia which was killed by lightning in November 1946 was worked up into posts and a number of overmature incense cedars were cut for posts and shingle bolts. Thinnings in the overdense young timber stands were carried on to provide material for construction of the pole shelter over the 4-H camp dining platform and sale for farm telephone poles. Trees with broken or defective tops or those unduly crowded or damaged in logging were thus utilized with some stumpage return and decided benefit to the remaining stands. These timber operations may be summarized as follows:

Mature timber sale to Wortman & Wortman:

Sugar pine	-	125,280	board feet at \$5.00 per M.			
Ponderosa pine	-	28,410	" " " 4.50 " "			
White fir	-	357,100	" " " 3.00 " "			
Incense cedar	-	3,550	" " " 3.00 " "			
Redwood old logs	-	3,970	" " " 5.00 " "			
Total	-	518,310	" " " - - - - -			\$1,863.88

Besides this monetary return, the timber operators contributed about \$350 worth of lumber which was put to very good use in the construction program during the year and carried out some grading with a bulldozer outfit at the site of the new 4-H camp cook house.

Returns from Minor Forest Products:

1069 white fir Christmas trees @ 5¢ per ft.	\$231.70
3580 ft. telephone poles @ 2 $\frac{1}{2}$ ¢ per ft.	89.50
Grape stakes and miscellaneous	19.36
December 1946. - - - - - Total - - - - -	\$340.56
2182 #1 Redwood posts @ 6¢	130.92
186 #2 " " @ 3¢	5.58
5 Gate posts @ 25¢	1.25
505 Incense cedar posts @ 3 $\frac{1}{2}$ ¢	17.68
9800 Cross arms @ \$3.50 per M.	34.30
Miscellaneous sales	20.00
Year 1947 - - Total - - - - -	\$209.73
Total minor products - - - - -	\$550.29
Total income from forest products - - - - -	\$2414.17

Rentals:

Tulare Camp Fire Girls (June)	92.00
Diabetic Children, Medical Department (August)	200.00 (Receivable)
Tulare Teacher's Institute (September)	50.00
Miscellaneous Cabin rentals (May-October)	242.88
Total - - - - -	\$584.88
Total Income 1947 - - - - -	\$2999.05

From the 1936-37 annual report prepared by Metcalf. This is an outline of the activities that Metcalf was engaged in, and those that he felt were especially important. Taken from the 1936-37 annual report, on file University Hall, Berkeley.

1936
1937

586

are in working out problems on several of their project areas.

Program of Work.

Outline of the extension program in forestry:

1. County program of forestry:
Continuing educational effort to promote effective action on an all around program for protection, conservation and wise development of wild lands in each county.
 - a. Rural and forest fire protection.
 - b. Maintenance of watershed areas in effective condition for maximum production of water by constructive management.
 - c. Development of recreation areas and facilities.
 - d. Improvement and maintenance of demonstration forest areas.
2. Protection and improvement of second-growth timber stands and constructive use of foothill lands.
3. Windbreak planting, the care and management of windbreak trees and the planting, care and utilization of trees on farms.
4. Forestry for California boys and girls.
5. Better utilization of forest products on the farm and in the home.

The program of work has been discussed from time to time with various members of the United States Forest Service, the State Forester, personnel of the Forestry Division of the University of California and others. On the assumption that additional funds might be forthcoming under the Norris-Doxey bill, suggestions for expansion of the program along several lines were made in May to Director Ward and discussed with him and the other extension foresters at the Spokane Conference. At the close of the year the staff of the Forestry Division of the University was asked to consider this program at a special meeting called for the purpose. The general feeling seemed to be that additional attention should be given to the management of second-growth timber stands regardless of character of ownership and to the whole subject of management and protection of watershed areas in better and productive condition, because of the fundamental importance of both these matters to the welfare of agriculture. An additional meeting with the State Forester is contemplated in the near future to further develop these suggestions.

A sample of Metcalf's activities during the middle of his career. This is an outline of proposed work for the year 1939. Taken from the Program of Work, 1939 on file in University Hall, Berkeley

California Extension Specialist Project
Forestry
Program of Work 1939

February 1939
 First week Office - Correspondence - Lake County Senior 4-H
 Measurement of Trees
 Second week Economic Conference - Santa Cruz
 Conferences on Conservation Week and Rural Fire Institute
 Third week Office - Preparation of Material for Conservation Week to Send Out
 Senior 4-H Club Meeting
 Fourth week Office Calls on Soil Conservation and State Ranger Cooperation
 Meetings of Conservation Committee and Forest Practice Committee
 Prepare Program of Work

March 1939
 First week Office - Measurement of Trees in Berkeley
 25th Anniversary Celebration of Forest School
 Second week Whitaker's Forest 4-H Camp Committee
 Conservation Week - Act as Chairman for Alameda County
 Third week Preparation of Material for Rural Fire Institute
 County Economic Conferences
 Fourth week Office - Send out Forestry Notes
 Correspondence

April 1939
 First week Rural Fire Institute - Davis
 Second week Office - Materials for Summer Camps
 Third week Economic Conferences
 Fourth week Office - Send out Notes to Field

May 1939
 First week Rural Fire Demonstrations
 Second week Check on Improvement Work Plans - Whitaker's Forest
 Third week Windbreak Meetings and Conservation Tour - Southern California
 Director Preparedness Check-up
 Fourth week Conferences with Farm Advisors and Rangers
 Send out Notes to Field
 Tour - Butte County

June 1939
 First week Prepare Trail Markers and Outlines for 4-H Camps
 Second week Check on Improvement Work - Whitaker's Forest and Las Posadas
 Third week 4-H Club Encampments
 Fourth week 4-H Club Encampments

July 1939
 First week 4-H Club Encampments
 Second week 4-H Club Encampments
 Third week 4-H Club Encampments - Forestry Tour - Santa Cruz County
 Fourth week 4-H Club Encampments

Asia
Specialist Project

Year of Work 1939

August 1939

- 1st Week - Home Department Camps
- 2nd Week - Home Department and Farm Bureau Camps
- 3rd Week - Vacation
- 4th Week - Vacation

September 1939

- 1st Week - Vacation - 4-H Club Convention, Davis
- 2nd Week - Vacation
- 3rd Week - Office and Check on Controlled Burning Experiments
- 4th Week - Whitaker's Forest on Experimental Utilization

October 1939

- 1st Week - Office - Correspondence and Preparation of Materials
- 2nd Week - Demonstrations at Howard Forest and Eldorado Project Area
- 3rd Week - Fire Protection Demonstrations - Southern California
- 4th Week - Inspection of Plantations and Windbreaks - Los Angeles County
Measure Trees - Ventura and Santa Barbara Counties

November 1939

- 1st Week - Check Over Fir Timber Sale and Outline Plans for Closing Camp at Whitaker's for the Winter
- 2nd Week - Office
- 3rd Week - Measurement and Write-Up of Trees
4-H Club Achievement Programs
- 4th Week - Office

December 1939

- 1st Week - 4-H Club Leaders' Conference
Plans for Conservation Week 1940
- 2nd Week - Office and Compilation of Data
- 3rd Week - Annual Report
- 4th Week - Office and Preparation for Annual Conference

January 1940

- 1st Week - Annual Conference
- 2nd Week - Check Over Program of Work with Forestry Division and State Forester
- 3rd Week - Make Cooperative Plans with Forest Service and Soil Conservation Service
- 4th Week - Office - Send out Notes to Field

February 1940

- 1st Week - Plans for Rural Fire Institute with Fairbank and Southern California Agencies
- 2nd Week - Plans for Maintenance and Improvement Work at University Forest Properties
- 3rd Week - Office - Forest Practice and Conservation Committees
- 4th Week - Send out Notes and Material for Conservation Week

APPENDIX B

PROJECTS OF THE EXTENSION FORESTER

CALIFORNIA
4-H CLUB FORESTRY PROGRAM

OBJECTIVES:

1. To develop an understanding of the importance of forests to our economy and to society.
2. To study the wide usefulness of forest products in our daily living.
3. To understand the relationship of forests to water supply, forage plants, wild life and recreation.
4. To acquire a knowledge of valuable trees and shrubs from the standpoint of commerce, windbreak, shade and beauty.
5. To learn how to grow and propagate forest species.
6. To appreciate the hazards to the forest -- insects, disease, fire and mismanagement.
7. To observe and practice methods which improve the usefulness and value of the forests.

A CHRISTMAS TREE GROWERS' SONG

-by-

Woodbridge Metcalf
(to the tune of Jingle Bells)

I

O'er the roads we go, To see plantation trees;
Back and forth you know, It really is a breeze.
In Cadillac or Ford, To make just one more stop;
The Farm Advisor shows the way - We'll get there though we drop.

Ref. Jingle Bells, Jingle Bells, Jingle all the way
We want to see the Christmas trees, and how to make them pay.
Jingle Bells, Jingle Bells, We are on the way.
We're the folks who grow the trees - The C. C. T. G. A.

II

We plant our trees each year, And follow all the rules,
Laid down by those who know, We work like blasted fools.
When days are dry and hot, with rain long overdue
Our worries are increased a lot - Perhaps they won't live through!

Ref. Cultivate, Irrigate, Kill competing plants,
Fertilize, Analyze, Don't leave things to chance
Springtime, Summer, Autumn - We are busy every day;
Never a dull moment for the C. C. T. G. A.

III

We gather now and then, To learn how trees will grow,
When planted, sprayed and sheared, Quite properly you know.
We study soils and bugs, and sale psychology
So Christmas trees will bring us in Some PROFIT - possibly?

Ref. Jingle coins, Jingle coins, Jingle in the till,
We hope the folks will come en-mass, And buy them with a will
Jingle Bells, Happy Days, Are not far away
For those with good plantations in the C. C. T. G. A.

To the many good friends in the
California Christmas Tree Growers' Association

Woodbridge Metcalf.

What is the American Christmas Tree
As we celebrate Christ's nativity?

It's the towering tree on the White House Lawn,
With lights that blaze 'till the Christmas dawn,

The majestic Grant Sequoia tall
In Kings Canyon Park mid the snowflakes fall.

It's the outdoor tree in your yard and mine,
With the colored lights that gaily shine,

And it's forty million other trees
Standing trim and straight in the autumn breeze,

Of many kinds, both old and new,
In natural stands and plantations too.

From New England's hills on rocky ground
Through this broad land to Puget Sound.

It is Balsam and Spruce from Ontario,
Red and white Pines from the states below,

And Scot's Pine, now the favored one
From Atlantic shores to Oregon.

It is Silver-tip Fir from Sierra's heights,
And Douglas Fir to bring delights

To boys and girls from everywhere,
And the Christmas joys with them to share.



A Roadside Rest, Palm Park on Cabrillo Boulevard,
Santa Barbara, California - Karl Obert, photo

SAVE SPACE FOR BEAUTY
CONSERVATION FOR COMMUNITIES

Woodbridge Metcalf

Keep a little space for beauty
When you build the highways wide;
Plant some trees and shrubs beside them;
They'll be looked upon with pride.
Leave some groves, with picnic tables
Here and there in friendly shade,
Where the hot and weary traveller
Can enjoy the sylvan glade.

Save a little space for beauty
Mid the city's roar and stress;
Here the parks and trees and footpaths
Will suggest the wilderness.
Give each home a floral setting;
Plant some streets with sturdy trees;
Civic pride and gracious living
Are achieved in ways like these.

Now with added millions coming
As the busy seasons roll,
There is need for pleasant vistas
As a solace for the soul.
Let each builder add some beauty,
And we all should do no less
Than to recognize the duty
That we banish ugliness.

PLANTING EUCALYPTS

by

Woodbridge Metcalf
Extension Forester University of California

OBTAINING STOCK FOR PLANTING

Planting stock of several Eucalyptus species is usually available in flats of 100 trees at moderate cost from a number of California nurseries. Avoid buying trees larger than about 12 inches tall grown in pots or cans as they may have a cramped or damaged root system. You can also grow trees from seed.

COLLECTING SEED

A sure way to grow trees well-adapted to your locality is to gather seed from trees which have made good growth and development in that area. Most eucalypts produce good seed every year and ripe capsules are available much of the year.

These should be collected when plump and fully mature, but before they have opened to expel the tiny, chaff-like seeds. Spread the capsules in a thin layer on cloth, or in a tight box in the sun, or in a dry room. They will open in a few days. Gentle shaking will expel the tiny seeds and a considerable volume of chaff. In a few species, the plump, black or brown seeds are easily recognized; in others, chaff and seeds must be sown together.

It is best to test seed quality by placing a small amount between moist blotters under a jar for a few days at room temperature. If no germination takes place within a week or ten days, the seed is of too low quality for use. Seed of a few species may be available from local seed dealers, but many species will have to be obtained from Australian seed dealers. An ounce or less will usually produce several hundred seedlings, if the seed is well matured and freshly collected.

PROPAGATION

The simplest method of growing seedlings is to use seed flats about 18 inches square and 4 inches deep filled with a good quality sandy-loam soil, well-mixed with peat moss and screened to remove lumps. After firming the soil with a smooth board, the seeds can be broadcast over the surface and very lightly covered (not more than 1/16 inch) with medium sand, or fine, clean sawdust.

May to August is the time for sowing seed, as the trees will then be the right size for planting the following spring. Watering must be done very carefully, using a fine mist spray. Sometimes it is done through a light cloth placed on the soil, to avoid washing out seeds. The flats should be set in a shady place, often under lath or cloth protection, and be given special attention, in order to maintain the moisture content of the soil until trees are well started. Shading from hot afternoon sun is usually necessary.

When the trees are from two to three inches tall they should be carefully transplanted with a small trowel to other flats or to tar-paper pots or cans where they will have sufficient room to develop. Used No. 10 or similar tin cans punctured to provide drainage make very satisfactory containers. The transplanting must be done in a shady place, well-sheltered from the wind, and with as little disturbance to the roots as possible. The flats or containers should be placed in a lath house or other protected area until planting time next spring. Frost protection is essential during winter months, as seedlings are easily damaged.

PLANTING

The planting site should be carefully prepared by ploughing or disking, sometime in advance of setting out the trees. Weed control is very important. On slopes too steep for ploughing, soil should be dug from a spot about 18 inches square, pulverized to remove lumps, and carefully firmed around the ball of earth when trees are set. Contour terracing may be advisable if the soil is apt to erode. The best planting season is late winter or early spring after danger from frost is over. Quiet overcast, and cool weather is ideal for planting. Never plant during hot, dry or windy weather.

Remove trees from the flat or container and plant with as little disturbance to the roots as possible. Trees should be set at the same level they occupied in the container. Water applied after planting will firm the soil, and give the plants a good start.

CARE OF THE PLANTATION OR WINDBREAK

On level ground or moderate slopes, the usual square planting distance (about eight feet) makes it possible to control weed and grass competition with mechanical equipment during the first two growing seasons. If oil or other chemical weed control is used, extreme care must be taken not to injure the trees. On steeply sloping ground, it is usually necessary to control competing vegetation by hand cultivation around each tree. On many dry sites, some irrigation during the first dry season will be necessary. In citrus areas, windbreak maintenance requires the same cultivation, irrigation, and fertilization as is given to the orchard. Ornamental eucalypts, though hardier than many trees, respond to good treatment and reward the planter with rapid development of foliage and an attractive display of flowers.

WHY PLANT EUCALYPTUS TREES?

Eucalypts have been planted in coastal and lowland districts of California for more than a hundred years and have added greatly to the beauty of the landscape. They provide effective wind protection for citrus and other orchards, and shade for livestock in many hot, dry valleys. Of the more than 500 species, about 25 are in rather wide use, 50 are occasionally seen, and more than 200 species are now growing at Los Angeles State and County Arboretum. Though blue gum, manna gum, red gum, gray gum, and desert gum are the most widely distributed species, there are many small ornamental forms (mallees) with attractive flowers which deserve testing in gardens and parks, and for use as noise barriers along main highways.

Fast growing trees which reach large size, such as blue gum and manna gum are now being used as a source of semi-chemical pulp and, in the future, will probably be more widely planted in coastal areas than in the past. The wood of these and several other species has been widely used for fuel, and can be made into excellent charcoal.

SPECIES IN COMMON USE IN CALIFORNIA

		<u>W. F. Blakely Number*</u>
Blue gum	<u>Eucalyptus globulus</u>	248
Red gum	<u>E. camaldulensis</u> (rostrata)	197
Forest Red Gum (Grey Gum)	<u>E. umbellata</u> (tereticornis)	178
Desert Gum (Moitch)	<u>E. rudis</u>	204
Manna Gum (Ribbon Gum)	<u>E. viminalis</u>	277
Red Box	<u>E. polyanthemus</u>	558
Sugar Gum	<u>E. cladocalyx</u> (corynocalyx)	121 So. Calif.
Red Ironbark (Mugga)	<u>E. sideroxylon</u>	541
Narrow-leaved Ironbark	<u>E. racemosa</u> (crebra)	514
Swamp Mahogany	<u>E. robusta</u>	67
Yate	<u>E. cornuta</u>	96
Bushy Yate (Lehmann's Gum)	<u>E. lehmanni</u>	97
Lemon-scented Gum	<u>E. citriodora</u>	53 So. Calif.
Silver-leaved Mt. Gum	<u>E. pulverulenta</u>	245 " "
White Ironbark	<u>E. leucoxylon</u>	542 " "
Red-flowering Gum	<u>E. ficifolia</u>	36
Yellow Box	<u>E. melliodora</u>	550 " "
Sydney Blue Gum	<u>E. saligna</u>	60 " "

SPECIES DESERVING FURTHER EXPERIMENTATION

Maiden's Gum	<u>E. maideni</u>	261
Eurabbie	<u>E. bicostata</u>	250
Giant Gum	<u>E. regnans</u>	369
Gum-top Stringybark Ash	<u>E. gigantea</u>	370
Messmate	<u>E. obliqua</u>	362
Apple or But But	<u>E. stuartiana</u>	225
Gray Ironbark	<u>E. paniculata</u>	537
Tuart	<u>E. gomphocephala</u>	98
Broad-leaved Kindlingbark	<u>E. dalrympleana</u>	236

*A Key to the Eucalypts, by W. F. Blakely. Aust. Forestry & Timber Bu. '55

University of California Agricultural Extension Service. July 31, 1956

Reprinted July, 1960

PINES FOR CHRISTMAS TREES AND HOLIDAY DECORATIONS

By Woodbridge Metcalf, Extension Forester
University of California, January 1955

Traditional Christmas trees in the United States include balsam, white, red, noble and Douglas firs, white, black and Norway spruces, and a scattering of other species depending on locality. In recent years, however, there has been a definite swing to pines, especially where these trees are grown in plantations. In the Middle West and eastern states Scots pine, red pine, and jack pine are in great demand and many farmers obtain a substantial return from plantations on land otherwise poorly suited for agricultural production. It has been well demonstrated that sandy soils planted to pines at concentrations of from 1200 to 1800 trees per acre yield satisfactory returns five to seven years after planting.

During the past five years a number of test plantings have been made in California and some very satisfactory pine Christmas trees have been grown in the central coast counties. These have sold well on the ranch to buyers who cut their own trees, and in limited amounts when displayed at retail outlets along with Douglas, white, and red firs. It has been demonstrated that pine trees of good form and density sell at prices about equal to those received for good quality Douglas and white firs.

Monterey pine, *Pinus radiata*, is native along the coast south of San Francisco Bay to Cambria in San Luis Obispo County. It also does well as an ornamental and windbreak tree in coastal areas as far north as Humboldt Bay and a few trees are said to be growing in southern Oregon. Some trees have reached large size as ornamentals in southern California, but it is not really at home under interior dry conditions. It has made excellent growth at the Institute of Forest Genetics at Placerville, but that is about the upper limit of elevation as it will not survive very cold weather. A plantation at Chico in Butte County was killed out by the severe freeze during the winter of 1932 when the temperature in that area dropped to approximately 10 degrees above zero.

The most extensive stands of Monterey pine are on the Monterey peninsula where Christmas trees have been cut in limited quantities from openings in the forest for many years. Only recently have they been set out in test plantations and offered for sale

in retail yards handling Douglas, red and white firs. These tests have indicated great promise from this species as a Christmas tree. It grows more rapidly than any other pine, but in spite of this, develops a dense and very attractive Christmas tree form with multiple whorls of branches growing at intervals about one foot up the stem. The dark green color of the foliage is desirable and the upright "candle type" tips of twigs offer distinctive decorative possibilities at Christmas.

Monterey pine apparently makes its best growth in the central coast counties on sandy or sandy-loam soils with adequate moisture at least during the first growing season. Plantation trees in Monterey, Santa Cruz and Sonoma Counties have developed into excellent Christmas trees in two to four years after planting as one-year seedlings. Those at the Schleth plantation near Petaluma were given frequent furrow irri-



Young 3-year-old Monterey pines, *Pinus radiata*, on the Schleth plantation at Petaluma, California. These trees were irrigated in 1953 but not in 1954.



These seedling trees were planted in April, 1953 and photographed in September, 1954. Many of these Monterey pines were sold from the Schleth plantation at Christmas, 1954.

gation during the first growing season (1953) and averaged 33 inches in height in January 1954. Without irrigation they continued their rapid and symmetrical development the second year and about 80 percent of them were five to seven feet in height at Christmas 1954. About half the trees in the plantation were sold this year to those who came to the ranch to choose and cut their own tree at prices averaging 60 cents per foot. Small lots of Monterey pines displayed for test sale in retail yards in Berkeley during the 1952 and 1953 seasons brought prices intermediate between those received for Douglas and white fir in the same yards, averaging 75 cents per foot or \$3.00 per tree.

Monterey pines grow more slowly on clay soils and do not have such regular growth and attractive form and density. However, they respond well to pruning and shaping. There is every reason to suppose that with such care they will develop into excellent Christmas trees on several soil types all along the central and north California coast.

Bishop pine, *Pinus muricata*, is another coastal pine species which offers good possibilities as a Christmas tree, particularly on sites exposed to the full sweep of winds off the ocean. Nat-

ural stands of the tree are found from near Lompoc, Santa Barbara County, to Trinidad north of Eureka in Humboldt County. The needles are a little shorter than those of Monterey pine and the color is somewhat more gray-green, but vigorous and bushy trees of both species are very similar. In 1954 two test lots of Bishop pines were displayed for sale in yards in Berkeley. One small lot from a natural stand following the 1945 fire near Trinidad was sent down by the Hammond Lumber Company. These trees were somewhat thin in foliage and had long internodes so that they lacked bushiness and density. Only 60 percent of the lot of 25 trees was disposed of at an average price of \$3.00 per tree. Another lot of 234 trees was brought in by a farmer from the Point Arena area and displayed for sale in one of the same yards. These were much bushier trees cut from a windy area exposed to the ocean. All but 20 of these trees were quickly sold at an average price of \$3.00 and the retailer said he would be glad to have a larger lot of them next year.

Beach pine, *Pinus contorta*, is a small tree with short needles borne two in a cluster. It grows on and near sand dunes near the ocean from Mendocino County north. It has a bushy habit of growth with a desirable dark green color. Its small, prickly, persistent cones give it an unusual and attractive appearance. A major difficulty in trees from natural stands is that their thick growth interferes with symmetrical development. Thinning in young stands materially assists the development of good quality trees. During the last two years test lots of Beach pines from Jackson State Forest have sold very well. These trees were mostly from tops of trees ten to fifteen feet in height and contained numerous cones. The four to six foot trees sold at prices averaging \$3.00 per tree. There are many coastal areas north of San Francisco Bay which can produce this species perhaps in mixed stands with Bishop pine and Monterey pine as all three thrive on slopes exposed to steady, cool ocean winds.

Lodgepole pine, *Pinus contorta latifolia*. This tall, slender tree occurs in dense stands in moist meadows and the edges of mountain lakes at elevations above 6000 feet along the main range of the Sierras and north. It is often called "Tamarack" pine in California. Here again the usual density of natural stands interferes with the development of good Christmas tree form, but this can be corrected by early thinning to give the best trees room for growth. It was reported that 8000 Lodgepole Christmas trees were cut in the Bend, Oregon area for Christmas 1953, but it is not known where these trees were shipped. A few trees of this species were sent to Berkeley for experimental sale in December 1953. Most were of

such poor form and density that less than half were sold.

Knobcone pine, *Pinus attenuata*, is a species which grows on poor, shallow soils in a number of low elevation areas in California. A notable characteristic is the large numbers of curved, knobby, persistent cones which give the tree an unusual and often attractive appearance. Natural stands which usually come up after fires are so dense as to prevent development of symmetrical Christmas trees. However, a few very attractive decorated trees of this species have been noted during the past few years. It may be that this tree will make possible the use of areas too poor and sterile for the production of any other species.

Scots pine, *Pinus sylvestris*, is a tree of several climatic races native in Europe and now widely planted and used as a Christmas tree in the Middle West and adjacent Canada. It has short, gray-green needles and a stocky, dense form which makes an ideal small Christmas tree. The oldest plantations of this species (65 years) are at Chico Forestry Station in Butte County where some trees have reached heights exceeding 100 feet. The first trees of this species were available this year from the Nielsen plantation in Santa Cruz County where many were sold "on the ranch" for about \$1.00 per foot for larger specimens and \$3.00 for smaller ones. One difficulty with Scots pine is its tendency to fade in color during the winter under some climatic conditions. This has



Scots pine, *Pinus sylvestris*. These trees are 4 years old and were planted in the Crest Ranch Christmas Tree Farm in Santa Cruz County. Trees from this row sold at the ranch for \$1.00 per foot in December, 1954.

not been serious in California. The tree does well on light sandy soils and should be suited to a rather wide range of conditions in central and northern California.

Austrian pine, *Pinus austriaca*. This species from central and southern Europe has longer needles than Scots pine and an attractive, bushy habit of growth as a young tree. A few trees present in ornamental plantings indicate that it should succeed about as well as Scots pine. A very good plantation of Austrian pine at the Chico Forestry Station is in better form at 60 years than the plantations of Scots pine mentioned above. It is similar to the red pine, *Pinus resinosa*, of the Lake States and will probably sell as well as that American tree if grown in plantations. The foliage of red pine has sold in recent years for \$12.50 a ton for prunings from plantations of ten to twelve years old in the middle western states. This is stumpage price for branches without cones.

Sugar pine, *Pinus lambertiana*, is such a valuable timber tree in California and Oregon that young trees are rarely cut as Christmas trees, although they are very attractive when of good density. The short, blue-green needles are borne in bundles of five, and the regular whorls of horizontal branches give young trees a fine symmetry. The long-stalked cones, however, are very popular when used with foliage of Ponderosa or other pines for door medallions and other Christmas decorations. Good cones often bring 25 to 50 cents each as they come from the forest. These are made up with a bit of color and a ribbon with two or three short pine branches and often sell at retail from \$1.50 to \$2.50.

Western white pine, *Pinus monticola*, is another of the five-needle pines. It is a close relative of sugar pine but usually found at somewhat higher elevations in the mountains. Its cones resemble those of sugar pine, but are only about half as large. They are often borne in clusters of two to five at the ends of the long, horizontal branches. These branches with cones are very popular as Christmas decorations and in recent years have sold at retail for from 50 cents to \$1.50 depending on the number of cones. Because of the high mountain distribution of this tree and the difficulty of collection, demand for these cones usually exceeds the supply.

Ponderosa pine, *Pinus ponderosa*, is one of the most widely distributed western trees and occurs on a wide variety of sites. Its long needles grow in bundles of three. The cones are symmetrical, four to five inches long, and often are borne in great quantities. The very similar Jeffrey pine, *P. jeffreyi*, has larger cones, usually a definite blue cast to the foliage and a sweet, vanilla-like fragrance to the bark. Branches of both these trees are used in making wreaths, plaques and other Christmas decorations. Branches with cones retail from 50 cents to 75 cents.

Even without cones they bring \$50.00 to \$75.00 per ton in truckload lots delivered at retail yards. These branches are commonly used in making plaques as a background for a single sugar pine cone. Symmetrical and densely foliated Ponderosa pines are appearing in increasing numbers as Christmas trees, particularly in southern California.

Coulter pine, *Pinus coulteri*, is one of the most drought-resistant of all native pine species and is found in the South Coast Ranges and in southern California mountains with a very extensive forest stand in the Julian area of San Diego County. Its twigs and needles are heavier than those on Ponderosa but similar in appearance. Its yellow-brown cones, armed with heavy, hooked spurs are ten to sixteen inches long, and are the most massive of any pine cone. They are favored as fireplace decorations since they are too heavy for use in plaques and wreaths. A few symmetrical young specimens are sold as Christmas trees in southern California where they bring about the same price as Douglas and white firs. Coulter pines grow well in plantations and some are being planted for Christmas tree use.

Aleppo pine, *Pinus halepensis*, from the Mediterranean region is the only pine which seems adapted for growing in the heat of low desert country with irrigation. Its foliage consists of two-needle clusters of short, light green leaves which give the tree an appearance similar to that of a light-foliaged white pine. The crown is apt to be rather flat-topped and bushy. It is not an ideal Christmas tree type. However, the stalked cones of moderate size are persistent on the branches, and the tree is so adaptable to dry situations that it will no doubt find acceptance as a Christmas tree.

Japanese black pine, *Pinus thunbergii*, grows well in the central coast area of California and deserves wider use for the production of Christmas decorations. Its short dark green needles occur in clusters of two, forming dense masses of foliage in which the silky white buds are an attractive feature. The small symmetrical and unarmed cones are borne in large quantities. If handled carefully they persist well when used in hangings and door decorations. The green cones of the next year are present in whorls in contrast to the brown, open cones of the present season.

Dwarf pine, *Pinus mugo*, from Europe is widely used as a globe-shaped ornamental which rarely reaches Christmas tree size. Its tiny cones are favored for use in wreaths and table decorations as are cones of several other pine species from the eastern and southern forest regions.

In general, pines succeed best on well-drained sites of sandy or sandy-loam soils, though some will do well on heavier soils if other conditions are favorable. Many of them grow rapidly to Christmas tree size and respond well to pruning for improvement of shape and density of foliage. Some of them have good fragrance to the foliage which is also very resistant to needle drop if the trees are kept standing in a container of water during the period of use.

Pines are hardy under many plantation conditions and usually grow faster than fir or spruce trees. They are so adaptable that they deserve a place in many Christmas tree plantations in California.

APPENDIX C

CALIFORNIA CONSERVATION COUNCIL

AMERICA SPEAKS - B R I N G M E M E N

The first verse by Sam Walter Foss. Two other verses written in 1958 and read at the meeting of the John Muir Memorial Association at the Muir Manor, April 27, 1958. Two other verses added and read at the annual meeting of the Association in Martinez, 1960, and the final verse written 1962 and read at the meeting at Muir Manor, April 21st, 1963.

Woodbridge Metcalf, Berkeley, California.

1. Bring me men to match my mountains,
 Bring me men to match my plains,
 Men with strength and dedication
 and new eras in their brains.
 Bring me men to match my prairies,
 Men to match my inland seas;
 Men whose thoughts shall pave a highway
 Up to amplet destinies;
 Pioneers to cleanse thoughts marshlands,
 And to cleanse old error's fen.
 Bring me men to match my mountains - BRING ME MEN.

2. Bring me men to match my forests;
 Match my Redwood, Pine and Fir;
 Men who'll utilize them fully
 And grow others where they were.
 Bring me men who study methods
 For improving present ways,
 So the benefits of forests
 Will persist through future days;
 Men whose skill and power and knowledge
 And will live through years again
 In the broad and fertile woodlands - BRING ME MEN.

3. Bring me men to tame my rivers,
 From the mountains to the sea;
 Storing water for the millions,
 For their crops and industry;
 With the watersheds above them
 Clothed with forests green and cool,
 And the rainbow trout a-leaping
 In each calm and limpid pool;
 Men to build the dams and power plants
 With wonderous skill and ken
 For the progress of my people, - BRING ME MEN.

Written during the 1950's; sent to Mrs. Lyndon B.
Johnson at the time of her beautification of America campaign

SAVE SPACE FOR BEAUTY

Keep a little space for beauty
When you build the highways wide;
Plant some trees and shrubs beside them;
They'll be looked upon with pride.
Leave some groves with picnic tables
Here and there in friendly shade,
Where the hot and weary traveller
Can enjoy the sylvan glade.

Save a little space for beauty
Mid the city's roar and stress;
Here the parks with trees and footpaths
Will suggest the wilderness.
Give each home a floral setting;
Plant the streets with sturdy trees;
Civic pride and gracious living
Are achieved in ways like these.

Now with added millions coming
As the busy seasons roll,
There is need for pleasant vistas
As a solace for the soul.
Let each builder add some beauty,
And we all should do no less
Than to recognize the duty
That we banish ugliness.

Written by Woodbridge Metcalf
Extension Forester Emeritus

A California Conservation Leaflet

A CALIFORNIA TREE ALPHABET

by: Professor Woodbridge Metcalf

- A** is for **ABIES**—the firs red and white.
For **BRISTLE**-cone too up on Monterey's height.
Likewise for **ARBUTUS**, the red barked **MADRONE**.
Called "Robin Hood's tree" for its brilliance of tone.
- B** for **BIG CONE SPRUCE**—tree of the south.
Inhabits steep mountain sides; stands severe drought.
Also for **BETULA**—**BIRCH** of the west.
Which grows along streams near Sierra's high crest.
- C** **CHAMAECYPARIS** with pendulous leader
And fragrant white wood is the **PORT ORFORD CEDAR**.
Then, too, **CASTANOPSIS** with leaves colored gold.
CHINQUAPIN tree or small shrub, if truth's told.
- D** **DOUGLAS FIR**, giant tree of the north
And gray **DIGGER PINE** which in foothills stands forth
Also for **DOGWOOD** with flowers large and white.
When spring brings full bloom—a most wonderful sight!
- E** is for **ENGELMANN SPRUCE** tall and straight.
North of Shasta a group; nowhere else in the State.
And for tall **EUCALYPTS** from the Antipodes.
Throughout all our lowlands, most common of trees.
- F** for **FREMONTIA** golden in bloom;
For **LOWLAND WHITE FIR** in deep canyon's dark gloom.
For **FRAXINUS** - **ASH**, with leaves "Feather compound."
It's "canoe-paddle" fruits are on mother trees found.
- G** for **GIANT SEQUOIA** so long-lived and tall
Throughout the wide world, the most ancient of all:
GOWEN CYPRESS inhabiting plains near the sea
And exotic **GREVILLEA**, a park and street tree.
- H** is for **HEMLOCKS**—one north near the coast.
But of **BLACK HEMLOCKS** beauty the high mountain boast.
For **HIGHLAND LIVE OAKS** in the foothills so dry.
And **HOLLY** whose red berries gladden the eye.
- I** **INCENSE CEDAR**, small leaves in flat sprays.
Its trunk in soft, brown, fibrous bark it arrays;
ISLAND IRONWOOD, has leaves deep cleft, like a fern;
And to **ISLAY** for glossy green beauty we turn.
- J** is for **JUNIPERS**—Natives are four.
To find, the high mountains or deserts explore.
For gay **JACARANDA** with flowers of blue,
And **JUGLANS**—**BLACK WALNUT** with compound leaves
too.
- K** is for **KNOB CONE PINE**, hoarding its seeds
Until, after fires, they come up like weeds.
In the timbered Sierras, **KELLOGG** or **BLACK OAK**
Is a tree "under-story" admired by the folk.
- L** is for **LODGEPOLE** or "TAMARACK" pine—
Two leaves and small cones with a needle-like spine.
LITHOCARPUS, the **TAN OAK** we use tanning leather,
It grows with the **REDWOOD** and likes foggy weather.
- M** **MONTEREY CYPRESS** and **MONTEREY PINE**
Are useful for windbreaks and plantations fine.
Our **MAPLE** has broad leaves and fruits in a "key,"
And in warmest of deserts, the **MESQUITE** you'll see
- N** is for **NUTMEG** with large, fleshy fruit,
A Yew family tree which sprouts well from the root,
And numbers of others—too many to name—
(The alphabet's limited size is to blame.)



Coast
Redwood

(over)

- O** is for **OAKS**—**VALLEY, BLUE, CANYON, POST,**
Broad-spreading **LIVE OAK** that grows near the coast.
And the **OLIVE** brought in from its home o'er the sea
Is in dry situations a fine highway tree.
- P** **PONDEROSA**, our best pine for lumber,
And of **PALMS** in the south we find a small number,
For quick growing **POPLARS**, three species there are,
BLACK, FREMONT and **ASPEN**, the last known afar.
- Q** is for **QUERCUS**, the oak's classic name.
The strength of oak timber has won worldwide fame;
We have thirteen species—if named you might tire,
All valuable chiefly for wood for the fire.
- R** is for **REDWOOD**, the lumber to last,
And for reforestation—its sprouts grow so fast.
RED ALDER—a tree of the coast mountain streams,
And toothhills in spring glow with **RED BUD'S** dark gleams.
- S** for **SITCHENSIS**, the monarch of spruces,
Its strong yet light wood has a wide field of uses;
For **SUGAR PINE** truly the king of its race,
And mottle-barked **SYCAMORE** famed for its grace;
- T** **TORREY PINE** which is famous afar,
Yet its range most restricted to bluffs near Del Mar,
For **THORNAPPLE** too south of Oregon fair
And sturdy **TESOTA** in desert's white glare.
- U** **UMBRELLULARIA**—**BAY TREE'S** broad crown
Its leaves, spicy, fragrant, have won it renown.
And **TEXAS UMBRELLA** was certainly made
To grow in warm valleys to furnish cool shade.
- V** for **VELUTINA**—**ASH** of the road.
And brilliant **VINE MAPLE** from rock-slide abode;
Green-twigged **VELVET WILLOW**, leaves silver below,
And for volume of wood which well-kept forests grow.
- W** **WESTERN RED CEDAR** from Oregon's border
For shingles, drop-siding and poles is in order.
WAX MYRTLE has berries like green stippled gems,
WHITE ALDER lines streams with smooth, gray-mottled stems.
- X** "Unknown quantity"—Tree you don't know?
Go look it up! So your knowledge will grow.
And for **XYLEM**—the wood made of fibers quite various
Which meets man's requirements in ways multifarious.
- Y** is for **YUCCA**—the **JOSHUA TREE**
Its ungainly form in the deserts we see;
And in cool shady canyons, the slender stemmed **YEW**
With its red waxy berries so charming to view.
- Z** is for **LIFE ZONES** where different trees grow,
From the floor of the valley to timber line snow,
Likewise for the **ZEALOTS** who study dendrology,
And those who have patiently read this "anthology."

Ponderosa
Pine

Palm



Oak

BOOKS: *Trees of California* (natives), W. L. Jepson, illus. 244 pp. *Manual of Pacific Coast Trees*, (natives & ornamentals), McMinn and Maino, illus. 410 pp. *Ornamental Trees*, Maino and Howard, illus. 219 pp. *Interesting Trees in California*, Woodbridge Metcalf, U.C. Agric. Extension.

THE CALIFORNIA CONSERVATION COUNCIL co-operates with Federal and State Departments, Schools and other Agencies in sponsoring: Conferences, California Conservation Week and Year-Round Outdoor Good Manners Campaign.

CONSERVATION COUNCIL LEAFLETS:—Set of 20 or more items, 40c, plus 10c for mailing. Separate leaflets at 3c, 2c, and 1c each. Send for free copy of current Program Guide and Leaflet List. Address:—

CALIFORNIA CONSERVATION COUNCIL, 912 Santa Barbara Street, Santa Barbara, California. Leaflet No. C-928 1c—3rd Printing. XXXM 1-57

3-7-61

APPENDIX D

MERITS AT RETIREMENT

The annual yearbook of the University of California forestry students, Timber, dedicated their 1957 issue to Fredrick Baker and Woodbridge Metcalf, two recent retirees connected with the School of Forestry.

"WOODY"



Woodbridge Metcalf

The year 1914 was indeed a lucky one for California. In that year "Woody" joined the faculty of the Division of Forestry, as the School was then called. For the next few years he taught courses in Forest Protection, Silviculture, Dendrology, and Forest Nursery Practice. One of his responsibilities while teaching was to take charge of Whitaker's Forest, a 320-acre tract in the big tree country of Tulare County.

With the advent of World War I, "Woody" assisted the state extension service in organizing some 330 vital fire companies for the protection of forests, food, and forage needed for the war effort. It would be well to mention that this action laid the foundation for a nation-wide protection program during World War II.

In February 1926, "Woody" was appointed Extension Forester for California, and began a program which was a model of cooperation in forestry education among farm people.

With the assistance of M. B. Pratt, state forester, he developed Whitaker's Forest into a rural youth campsite, a demonstration forest, and an ideal retreat for adult farm people.

From 1928 to 1934, "Woody" shared in initiating an intensive campaign of rural fire prevention. It has been conservatively estimated that 150,000 people have been taught fire prevention through this program. Through his efforts, over 2,300 farm fire fighting companies were organized and trained in prevention and suppression of fires.

Among his many accomplishments is "Woody's" ability to lead group singing. He will long be remembered as the able and enthusiastic song leader at the Forestry Club meetings. Throughout the length and breadth of the state he has been much in demand for song leading or performing as master of ceremonies among professional groups, farm people, and business meetings.

"Woody" enjoys tree and plant identification, particularly in the case of eucalyptus, about which he is the nation's expert. Because of his knowledge on this subject, he was named head of the U. S. Delegation to the World Eucalyptus Conference in Rome last October.

One can see that "Woody" has been an important man in the conservation of California's forest resources. His record in California has been an enviable one, of which we can all be proud.

It is our hope that we, the foresters of tomorrow, may follow the examples set for us by these two outstanding foresters of today. We find it an honor to dedicate this yearbook to you, "Bake" and "Woody".

-- Oliver Kolkmann, '57

Weekly STATE OFFICE LETTER



June 28, 1956

Woodbridge Metcalf Retires	Exhibit Suggestions for Home Advisors
Forest Diseases Timber Tip	4-H Foods Project
Forest Products Lab May Have	A Summary Of Federal Price Support Programs
"Box Stretcher" Answer	Farmer's Gas Tax Refund
College Entrance Advisors	Notice of Correction
"The 4-H Trail" Scores Again!	Personnel Changes

TO THE STAFF:

WOODBRIDGE METCALF RETIRES

After over 42 years of service with the University of California "Woody" Metcalf enters on July 1 the realm of perpetual sunshine and happy days. No longer will projects, programs, policy and procedures be pressing upon him.

He joined the then young school of forestry in October of 1914 as one of three members of the faculty. For ten years he taught courses in forest protection, silviculture, dendrology and forest nursery practice.

He was appointed extension forester in 1926. Since that time he has contributed much to the education and appreciation of people of the value of forests to civilization. He is a conservationist of note and the recipient of many awards, honorary memberships in scientific and popular forest and conservation associations.

He may be remembered longest and with intense appreciation by the 4-H Clubs of California in his forest education pursuits.

Perhaps we may summarize our appreciation of the service he has rendered to California by quoting from a scroll which was presented to him recently at a recognition luncheon given in his honor --

To

Woodbridge Metcalf

Noted conservationists, eminent forester, inspiring teacher, loyal citizen, as a token of admiration and friendship upon retirement after 42 years of dedicated service to the University of California. Our best wishes go with you.

May your days be bright and
your years golden

George B. Alcorn

June 28, 1968

FRIENDS HELP FORESTER METCALF CELEBRATE 80TH BIRTHDAY, 54TH ANNIVERSARY AT UC

BERKELEY--Woodbridge Metcalf, California's first Extension forester, made the numbers count last weekend, celebrating his 80th birthday, his 54th year of association with the University of California, and his 12th year in "active retirement" from Agricultural Extension.

More than 120 of his friends in the University, the Berkeley community, and California's forest industry joined in "Woody's" birthday observance Sunday evening at Spenger's. At least a dozen of his hosts, former students, teachers, and associates, recalled the "good old days" at the University, in forest "cruisings," or in 4-H activities.

Metcalf, who earned a master's degree in forestry at the University of Michigan, came to the University of California as the third faculty member in the newly established Division of Forestry in 1914. After more than a decade of teaching-- and after earning a master's degree in forestry from UC, he was named the University's first Agricultural Extension forester in 1926, and held that post until his retirement.

During his 42 years as an active UC professor and Agricultural Extension staff member, Metcalf taught forestry courses, led fire prevention work, promoted Christmas tree planting, helped develop a 4-H camp at Whitaker's Forest, was an active church man and Red Cross leader, and in recent years has been a prominent senior citizens' leader.

And although he officially retired June 30, 1956, his retirement "didn't take." Metcalf has remained active in forestry writing, speaking and counseling, and

-more-

has continued to participate in forestry school staff conferences. He also has continued in 4-H activities, especially in singing leadership at conferences, and has worked on in conservation, the study of eucalyptus trees, and only last year expanded and revised an AES publication on eucalyptus species, a field in which he is renowned worldwide.

The forester has kept up his active affiliation with the California Christmas Tree Growers Association, which he helped organize, and often has been a speaker for the organization. He still is active in his church, First Congregational of Berkeley, and sings in its 9 o'clock choir.

Metcalf and his wife, the former Norah Clements of Bala, Ontario, celebrated their Golden Wedding anniversary in September 1964. His wife, two daughters and son and three grandchildren attended the birthday party this week.

Among those who paid tribute to Metcalf for his teaching, leadership, friendly personality, his family devotion and his wide acquaintance "all over the world" were the following:

A. E. Wieslander, Dr. Henry Vaux, the Rev. Spurgeon Mayfield, Ed Gilden, Dr. John Zivnuska, and Dr. Knowles Ryerson, all of Berkeley; Howard Nielsen, Santa Cruz; Bob Colwell and Myron Krueger, all of Walnut Creek; Mrs. Robert Cockrell, Kensington; Jim Mace, Placerville, and W. C. Metcalf, his son, from Sacramento.

Krueger, a former UC professor of forestry, who retired from the University staff at the same time as Woody Metcalf, served as master of ceremonies. The birthday party was planned by a special committee from the UC School of Forestry and Conservation.

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May 22, 1957

The American Forestry Association
919 Seventeenth Street, N.W.
Washington 6, D. C.

Gentlemen:

The staff of the School of Forestry of the University of California wishes to place the name of Woodbridge Metcalf in nomination for one of the American Forestry Association's 1957 Distinguished Service Awards.

Metcalf has been a beloved and highly respected member of this staff for over 42 years. From his beginning here as an assistant professor in 1914 and through his long, faithful service as Extension Forester from 1926 to his retirement in July 1956, his has been a life of cheerful and enthusiastic dedication to the profession of forestry and the teaching of conservation.

The details of Metcalf's training, professional career, and technical contributions are listed in the appended material. The highlights of this career are many. Among them is a record of over 60 publications, of both a technical and popular nature, which document his contribution to basic knowledge of several little known tree species; his work in developing the techniques and the economics which provided the base of the present industry of plantation grown Christmas trees in California; his efforts in organizing early rural and forest area fire protection organizations; and his contributions to the literature of conservation on the layman's level which has reached thousands of school children, service clubs, garden clubs, and other related organizations.

Recognition of the effectiveness of his scientific and organizational contributions is abundant. Outstanding confirmation of his scientific abilities came in 1954 when he was elected to the grade of Fellow in the Society of American Foresters. In the words of the Society, this election is "the highest membership distinction that can be conferred by the Society; this grade is awarded in recognition of outstanding achievement". In 1956 he was appointed chairman of the United States Delegation to the World Eucalyptus Conference, Food and Agriculture Organization of the United Nations in Rome, Italy and subsequently traveled as guest of forester friends in Turkey, Italy, and Spain inspecting eucalyptus growing sites and utilization plants.

Though substantial, this technical contribution is but one aspect of the larger impact which Woodbridge Metcalf has had on the general field of resource conservation. In a sense the technical contribution is that which a capable and intensively interested man

might make within the normal call of duty. The accomplishments we wish to emphasize most for the Committee's attention are those of planting and nourishing the seedlings of ideas and attitudes in the minds and hearts of youth. This is a contribution more difficult to document and measure than the former, but nevertheless is and will continue to bear fruit that will far outweigh the importance of the immediate technical achievement.

Metcalf's interest in youth, and one of his most important expressions of this interest, was initiated with his earliest days here at this University. Among his first responsibilities was the development of research and management at Whitaker's Forest, a University owned property in the heart of the giant Sequoia country of the Southern Sierras. Because of his interest in youth and its need for understanding of the basic aspects of management of natural resources, he combined the building of a 4H camp with the development of the management and research program of the forest. These camp facilities were humble in the beginning, built to a large extent with his own hands and those of nearby interested farm groups. The unique move quickly developed interest until today that particular forest accommodates over a thousand youth campers per summer, all of which have the opportunity to live in a managed forest and as part of the program learn the fundamentals of good conservation as established and taught by him. The idea of conservation camping quickly spread to other localities until at present seven or more such camps exist for 4H use and a good portion of the 4H members of California attend. Church, scout and medical therapy groups use the facilities of these camps and in addition have developed many others of their own. In most, the lessons of conservation are taught as Metcalf has outlined them.

The development, the fostering of development, and the program planning and participation in these camp programs, might be considered the ordinary thing for one of such deep interests as Woodbridge Metcalf. However, the extraordinary is the way in which he puts across his conservation message. Metcalf's most effective method of teaching in such informal atmosphere is through the use of languages of universal appeal -- poetry and song. Today 4H members, school children, and scouts and other groups sing his songs and read his poems of conservation.

Metcalf's poems and conservation messages are widely distributed in the conservation literature of the California Conservation Council, and through them reach thousands of school children, service clubs and local conservation groups. His songs are published widely in 4H song books and used by forestry groups around the nation.

Woodbridge Metcalf has always considered forest and range fires a personal enemy. His personal campaign took the form of organizing over 300 rural and forest community fire protection groups during World War I. Many of these organizations still exist, others formed part of the solid fire protection core of the California Division of Forestry. During World War II he worked with local citizens' fire protection groups which substantially reinforced the organized facilities then available. As a strong adjunct to this effort, his youth

work took a special form of visiting and arranging fire protection demonstrations in many of the rural and urban schools of the state. While the subject of many of these meetings was the stopping of structural fires of incendiary origin, every meeting contained at least a poem relating directly to natural resource conservation.

Metcalf's interest in youth and conservation has taken him to many parts of the country and the world. He has taught and sung conservation in 4H camps in many states and has led singing for national 4H groups such as the National 4H Club Congress in Chicago. As a member of the U.S. star boat crew of the 1936 Olympic Games he sang his message at evening gatherings of the world's finest athletes.

Even though 4H and youth work in general has not been a major part of Metcalf's assignment as Extension Forester, his personal contribution has been great enough to merit the Silver Key Award for 25 years' service to 4H work, and at retirement was given a plaque for "Meritorious Service to 4H".

Since its inception, Metcalf has been an active leader in the affairs and activities of the California Conservation Council. Through many years of forceful participation as Chairman of Conservation Week activities, as President for the last 3 years and as a long-time member of the Board of Directors, the organization has grown in membership, the quality of leadership, and in impact on the people of this state. Metcalf's hand shows clearly in the scope and breadth of the organization's program as well as its literature.

It is our firm conviction that the principal product of his effort and life -- the attitudes and feelings of the minds of youth toward conservation, and the methods Woodbridge Metcalf developed and used to bring these changes -- are worthy of a most distinguished award for "outstanding service above and beyond the call of duty in conservation of our renewable resources".

Sincerely yours,

The Staff of the School of Forestry

(to be signed by each member)

WE PRESENT

Woodbridge Metcalf—The Conservationist

"LIFE is for living," said Woody, when asked how he had done so much in conservation in so little time. Woody, to his thousands of admirers and friends, is Woodbridge Metcalf, California conservationist par excellence, who carries the title of extension forester.

Born at Grosse Point, Michigan, June 23, 1888, he had the good fortune of being raised on a small farm readily accessible to good schools, advantageously located on the shores of Lake St. Claire. These influences in his youth cast the die for his future, because as Woody recalls, Miss Lillian Conover, a teacher at the Detroit Central High School, gave him his first interest in forestry, the opportunity to collect tree specimens for classroom study. The lake and its surrounding forests gave him an opportunity to take canoe and sailboat trips, and to commune with nature.

Later, inspiration for his chosen profession came when he met Professor Filbert Roth upon registering at the University of Michigan in the fall of 1907. "My whole college experience was lightened by his enthusiasm and wonderful teaching ability," says Woody. Then, at the end of his sophomore year in 1909, he was a member of the first class of University of Michigan Biological Station camp at Douglas Lake. Here he was stimulated in doing field work under the guidance of Professor Jacob Reighard, zoologist, and Professor George P. Burns, botanist. This station gave him his first interest in organized camping as an educational medium, a program he has developed to a high degree in California.

He was graduated from the University of Michigan in 1911, and received a master's degree in forestry from the same institution in 1912.

After two summers of cruising timber on the Snoqualmie National Forest in Washington, in the fall of 1912 he directed a planting crew in the reforestation of the Barlow Pass burn in the same area. Beginning January, 1913, he worked in Ontario and Nova Scotia for the forestry branch of the Canadian Pacific Railroad making timber surveys and fire damage appraisals. Here

he met Norah Clements of Bala, Ontario, whom he married September, 1914. Their honeymoon was a trip to Berkeley California, where he joined the faculty of the University of California a connection he has refused to sever in spite of attractive offers.

With his teaching responsibilities, Woody assumed charge of Whitaker's Forest, a 320-acre tract in the big tree country of Tulare County, and two forest units near Santa Monica and Chico. Then came World War I, and Woody took a hitch teaching military mapping in the S. A. T. C. At the same time he assisted the state extension service in organizing some 330 farm fire companies for the protection of forests, forage, and food—a project which was to lay the foundation for a nation-wide program during World War II.

In February, 1926, he was appointed extension forester for California and began a program which is a model for cooperation and forestry



WOODBIDGE METCALF

education among farm people. With the late M. B. Pratt, state forester, he developed Whitaker's Forest into a rural youth campsite and a demonstration forest and an ideal retreat for adult farm people. During the twenty years of the camp's development 15,000 farm boys and girls, plus some 5,000 adults, have lived and learned conservation at Whitaker and enjoyed a refreshing swim in the properly named Metcalf pool. Under his leadership the California youth camp idea has grown until at the present time some 35 4-H club camps are held each year in the forests, where approximately 6,000 boys and girls receive inspiration and education in the various phases of conservation in the Metcalf way.

Between the years of 1928 and 1934 Woody shared in initiating an intensive campaign of rural fire prevention. Through this program, it is conservatively estimated that 150,000 people have been taught fire prevention. When World War II came he shouldered the job of emergency farm fire leader and through his efforts over 2,300 farm fire fighting companies were organized and trained in prevention and suppression of fires. It has been estimated that ten million dollars worth of resources were saved by this project.

Who's Who in California lists him as an outstanding forester and public servant. Not being satisfied with his conservation activities alone, Woody has for twenty years been chairman of the Disaster Preparedness Committee, American Red Cross, Berkeley Chapter. Through his leadership an efficient disaster preparedness plan has been developed and maintained. For fifteen years he has been chairman of the building committee and a monument to his efforts is the Red Cross Building of 12,000 square feet of floor space which houses all the normal activities of the chapter, marked "paid in full."

In 1933 the sport of his youth took hold of him. He and an extension colleague sailed in yacht races in the International Star Class at Long Beach where they won the world championship for that class. In 1936, they won the American Olympic finals at Sayville, L. I., thus qualifying for the Olympic races at Keil, Germany, where they finished fifth in their class of

twelve star yachts. This travel gave Woody a chance to visit forests of Germany, Denmark, Switzerland, France, and England.

The past three years he has served as general chairman of the California Conservation Week and has been helpful in arranging the excellent programs resulting.

As a sparkplug in the state's program to produce more cork, Woody has been largely responsible for the nearly 200,000 potted cork oak seedlings distributed during the past decade. This activity resulted in his being a guest of a cork firm on a trip last year from Berkeley to Baltimore, during which tons of acorns were distributed through the southern states.

A resume of Woody's life would not be complete without mention of his ability to lead group singing. He is a natural, and people say he's the best in the country. At the University of Michigan he was leader of the University Glee Club in 1911-1912 as well as one of the "song birds" during his four college years, and it was on a club trip to California that made him desire to locate there. Throughout the length and breadth of the state he is much in demand for song leading or performing as master of ceremonies among professional groups, farm meetings, or business people. As one farmer put it on watching Woody in action, "He makes you feel good inside."

Woody enjoys tree and plant identification, particularly in the case of eucalyptus, about which he is the nation's expert. He has compiled a long list of outstanding native and exotic trees in California. In recent years he has pioneered the treatment of local woods with new preservatives for use as fence posts.

Conservation—as it applies to resources or human beings—and Metcalf are inseparable in California. Whenever one goes in that state he finds Metcalf's friends. Boys, girls, adults, state leaders, county leaders, professional folk, firemen—they all know Woody or have heard of him as a friendly man, an ardent conservationist, and a great teacher.

J. WHITNEY FLOYD,
A. M. SOWDER,
Senior members, S.A.F.

APPENDIX E

BIBLIOGRAPHY

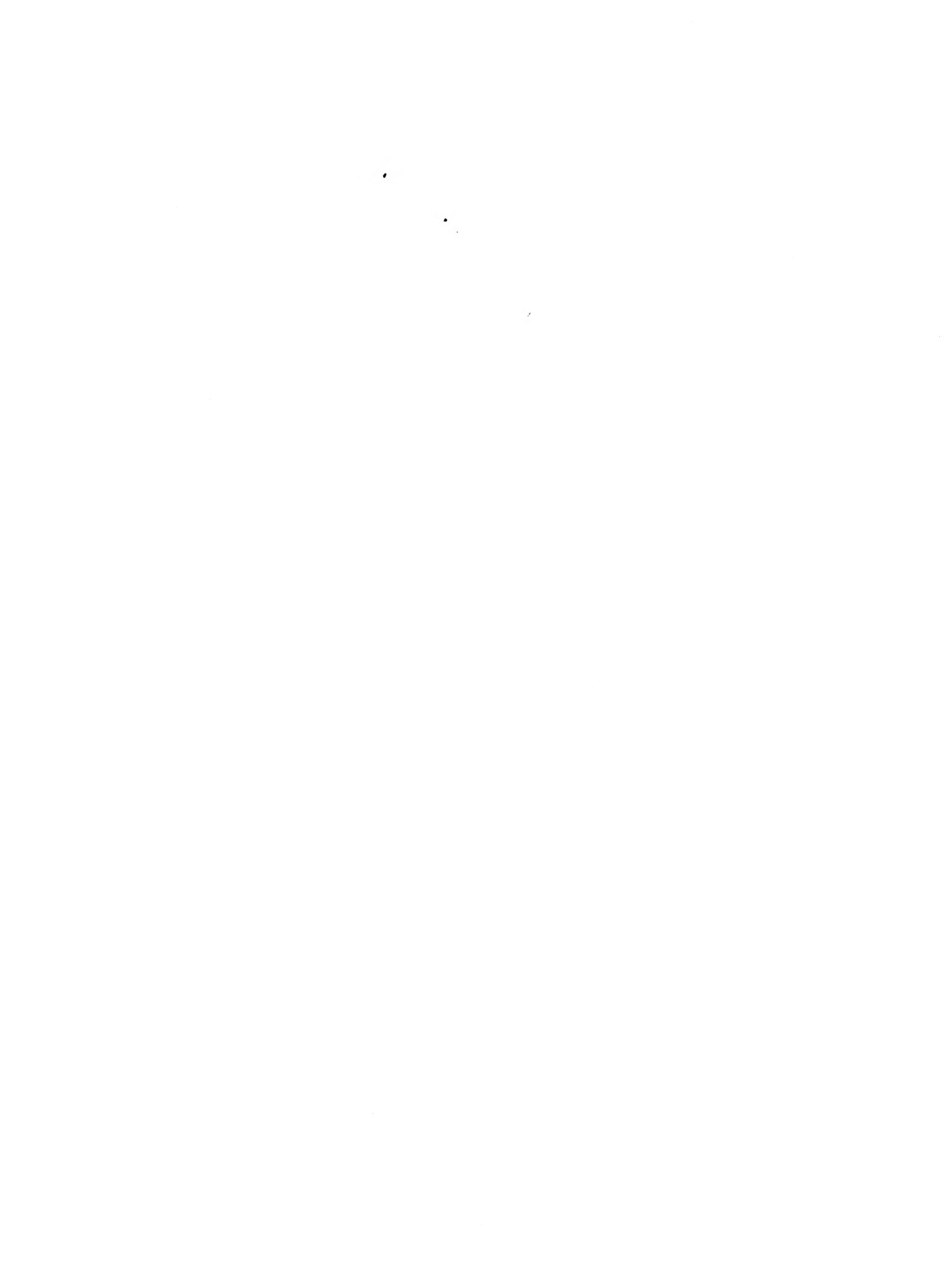
BIBLIOGRAPHY OF WRITINGS BY WOODBRIDGE METCALF

Extension Forester, University of California

- 1918 County Organization for Rural Fire Control - 1918 - by Woodbridge Metcalf, University of California Press - 28 pages, illustrations, tables. California Agricultural Experiment Station, Berkeley - Circular 202.
- 1918 Fire Protection for Grain Fields with Special Reference to Fire Protective Appliances for Grain-Harvesting Machinery, by Woodbridge Metcalf. California Agricultural Experiment Station, Bulletin 295.
- 1918 Fire Protection for Grain Fields - 1918 - Metcalf.
- 1919 Grain & Hay Fires in California. Leaflet 64, May 1919.
- 1921 Wood for Land - Proposed Redwood Experiment Station - a paper presented to Forestry Staff, University of California, by Woodbridge Metcalf, August 17, 1921.
- 1921 Notes on Bishop Pine (Pinus muricata) - Reprint from Journal of Forestry, Vol. XIX, No. 3. December 1921.
- 1922 Forestry Among the Giants - reprint from American Forestry Magazine for November 1922, article by Woodbridge Metcalf. (2 copies of article)
- 1923 County Organization for Rural Fire Control (Part II, Circular #7, California State Board of Forestry) by Woodbridge Metcalf.
- 1923 How a Bigger Pine Shielded a Monument of California's Early Pioneers - news item by Woodbridge Metcalf - April 1923. (2 copies)
- 1923 Wood Plays an Important Part in the Construction of World's Largest Stadium - news item by Woodbridge Metcalf - April 23, 1923.
- 1924 Artificial Reproduction of Redwood (Sequoia sempervirens) - reprint from Journal of Forestry, Vol. XXII, No. 3, Dec. 1924 - p. 873-893 - by Woodbridge Metcalf.
- 1924 Growth of Eucalyptus in California Plantations by Woodbridge Metcalf. Calif. Agr. Exp. Station Bulletin 360.
- 1925 Artificial Reproduction of California Nutmeg by Woodbridge Metcalf. Reprint from Journal of Forestry, Vol. XXIII, No. 1, Jan. 1925.
- 1926 Fostering Timber Growing by Deferring Taxes by Woodbridge Metcalf. An article for the Tax Digest, Pacific Mutual Building, Los Angeles. Dec. 6, 1926.
- 1926 Fumigating and Sterilizing Tree Seed by Woodbridge Metcalf. Reprint - Journal of Forestry (1926) (About 1926)
- 1927 A Camp Fire Lighting Ceremony for 4-H Club Camps by Woodbridge Metcalf. Mimeograph.
- 1928 Gethsemane Cypress Trees by Woodbridge Metcalf. Article - Jan. 19, 1928.

- 3 -

- 1941 Growing Cork Oak Trees in California by Woodbridge Metcalf and R. S. Waltz. Experiments with Cork Oak in California
- 1942 Cork Oak Planting in California - In Cooperation with the University of California and the State Division of Forestry, Department of Natural Resources, sponsored by the Crown Cork and Seal Company, Inc., by Woodbridge Metcalf.
- 1942 Care and Use of Hand Fire Fighting Equipment - Lesson II of Emergency Farm Fire Protection Project. Agricultural Extension Service pamphlet.
- 1942 Ready for the Dry Season - "To Help Protect Rural California From Enemy Attack By Fire" by Woodbridge Metcalf. Extension Service Review of July 1942; Volume 13, No. 7.
- 1943 Growing Cork Oak (Quercus suber) in California by Woodbridge Metcalf. Reprint from Western Shade Tree Conference, 1943, 19th Proceedings of...
- 1943 The Propagation and Care of Cork Oaks (Quercus suber) by Woodbridge Metcalf. Agricultural Extension Service mimeograph. Application Blank for Cork Oak Trees. Authorization for Cork Oak Planting Stock (Postcard)
- 1944 California Cork Oaks by Woodbridge Metcalf and George D. Greenan. Arbor Day in California - 1944 - Cork Oak Tree Planting.
- 1944 Reference on Conservation of Natural Resources (Revised 1944) by Woodbridge Metcalf and others.
- 1944 Talk Made Before Board of Forestry by Woodbridge Metcalf (Cork Oak, Eucalyptus, Howard Forest and Hunker's Forest) on May 11, 1944.
- 1944 Demonstrations on Stripping of Cork Oak Trees - 1944.
- 1945 Simple Methods of Treating Fence Posts with Pentachlorophenol by Woodbridge Metcalf. Mimeograph.
- 1946 A 4-H Club Ceremonial by Woodbridge Metcalf. (Used at the State 4-H Club Convention, Davis, 1946)
- 1947 Memorandum on Forestry Extension in California - January 1947 by Woodbridge Metcalf
- 1947 Milling Trees, Stumps, and Brush, Including Poison Oak by Woodbridge Metcalf. Mimeograph.
- 1947 The Cork Oak Tree in California by Woodbridge Metcalf. Reprint from Economic Botany, January-March, 1947, Vol. 1, No. 1, pages 26-46.
- 1947 References on Trees and Forests by Woodbridge Metcalf. 6-page mimeograph. Books on Trees, Special reference to California.
- 1948 Youthful Years of the Red Tree by Woodbridge Metcalf. Reprint from Pacific Discovery (Vol. 1, No. 3, May-June, 1948, pages 4-10), a bi-monthly publication of the California Academy of Sciences, San Francisco.



- 2 -

- 1928 Digger Pine - A Tree Weed Which May Be Valuable by Woodbridge Metcalf.
An article. March 15, 1928.
- 1929 Hill Fire Protection Near Berkeley, California.
- 1929 A Campfire Ceremony for 4-H Club Camps by Woodbridge Metcalf. Mimeograph.
- 1929 Cork Oak - A Forest Tree with Possibilities in California - prepared by Woodbridge Metcalf for Special Committee on Cork Oak Cultivation of the Sacramento Region Citizens Council.
- 1930 Illustrations of California Trees: Part I - Conifers; Part II - Hardwoods by Woodbridge Metcalf. A mimeograph.
- 1930 U.C. Graduate to Plant California Trees in Turkey - a news item by Woodbridge Metcalf.
- 1931 Demonstration Forests for California by Woodbridge Metcalf. A mimeograph. 5 pages.
- 1931 A Camp Fire Ceremony for 4-H Clubs, 1931 - by Woodbridge Metcalf. A mimeograph - 5 pages.
- 1932 Rural District Fire Organization. 1932. Rural Fire Protection as Recommended by the California Rural Fire Institute in 1932. P. 3-9.
- 1932 A Short Fire Lighting Ceremony for 4-H Clubs - 1932 by Woodbridge Metcalf. A mimeograph of 3 pages.
- 1933 Tank Trucks for Rural and Forest Fire Fighting by Woodbridge Metcalf. Reprint from Journal of Forestry, Vol. XXXI, No. 5, May 1933.
- 1933 The Mystery Method of Lighting the Camp-Fire by Woodbridge Metcalf. A mimeograph - 1 page.
- 1936 The Influence of Windbreaks in Protecting Citrus Orchards by Woodbridge Metcalf. Reprinted from Journal of Forestry, Vol. XXXIV, No. 6, June 1936.
- 1938-1941 Monthly Forestry Notes by Woodbridge Metcalf - Jan. '38-Oct. '41. Mimeographs.
- 1939 Eucalyptus Trees for Shelter, Fuel and Ornament by Woodbridge Metcalf. A mimeograph. Oct. 1939. 5 pages.
- 1939 Forestry for 4-H Club Camps: I. Life in the Forest Community; II. How to Recognize Trees, Shrubs and Flowers; III. Things to See Along Forest Trails; IV. Contributions of the Forest; V. Woodmanship by Woodbridge Metcalf. Mimeograph of 5 pages.
- 1939 List of References on Conservation by Woodbridge Metcalf and others.
- 1940 Some California Trees of Outstanding Interest by Woodbridge Metcalf. Reprinted from the Proceedings of the Seventh Western Shade Tree Conference, Los Angeles, California, May 23, 24, 25, 1940.

- 4 -

- 1948 Raising Coniferous Forest Tree Seedlings from Seed by Woodbridge Metcalf and R. P. Grah. 5-page mimeograph. A.E.S.
- 1949 Timber Growth Studies - Tree Growth in Whitaker's Forest, Tulare County, During 33-Year Period: 1915 to 1948 by Woodbridge Metcalf. Article in California Agriculture for August 1949; Vol. 3, Number 8. Published by the University of California College of Agriculture, Agricultural Experiment Station.

Clippings from Pacific Rural Press - Woodbridge Metcalf - 1946-1949.

PUBLICATIONS OF WOODBRIDGE METCALF -

1. 1950 Eucalyptus serves many purposes. U.C. Agric. Ext. Ser. Bull. August 1950.
2. 1952 (with R.F. Grah) Growing Christmas trees for California. U.C. Agric. Ext. Ser., 14 pp. May 1952.
3. 1953 Christmas trees in California, 1953. U.C. Agric. Ext. Ser. 1953.
1955 *Interesting Trees in California, 1955. U.C. Agric. Ext. Ser. 82, 7 pp.*
4. 1955 Pines for Christmas trees and holiday decorations. Berk. U.C. Agri. Ext. Ser. pp. 1-4 Jan. 1955.
- * 5. 1955 Calif. Christmas trees - 1954; production, shipments. Utilization markets. Berk. Agric. Ext. Ser. U.C. 1955. 21 pp.
- * 6. 1955 Old Whitaker comes home. Los Tualres, 23: 1, 3. June 1955.
- * 7. 1955 Ornamental plants for low-elevation desert areas of southern California. By Mildred E. Mathias, Marston H. Kimball, et al. Berk. 1955. 35 pp. Calif. Agric. Exp. Sta. Bull. 750
8. 1956 Interesting trees in California Berk. U.C. Agric. Ext. Ser., 227 pp. 1956.
9. 1956 Planting Eucalypts. U.C. Agric. Ext. Ser. Berk. 3 pp. July 31, 1956.
- * 10. 1956 The christmas tree situation in California. Berk. Agric. Ext. Ser. U.C. 1956. 25 pp.
- * 11. 1956 Wood preservation for freshly cut fence posts, (And Ed. E. Gilden) U.C. Agric. Ext. Ser., Berk. 1 pp. 1956.
12. 1956 Eucalyptus species for California. U.C. Agric. Ext. Ser., 14 pp. Oct. 1956.
- * 13. 1957 A California tree alphabet. Santa Barbara, California 1957 (Calif. Conservation Council. Leaf. No. C-928) 2 p.
- * 14. 1957 Save space for beauty. (Verses of Calif. Cons. Council) Santa Barbara, Calif. Cons. Coun. 1957. 2 p.
- * 15. 1958 The trees of Walnut Creek, Contra Costa County, Calif., Berkeley, 1 v. (various pages) (no copy available)
- * 16. 1958 Some trees of the Berkeley campus, University of Calif. 8 pp. No copy available
- * 17. 1959 (R.Z. Callahan) Altitudinal races of Pinus ponderosa confirmed. J. For. 57 (8):500-502. 1959.
- * 18. 1959 Native trees of the San Francisco Bay region. Calif. Natural Hist. Guide No. 4., Berk. U.C. Press, 1959. 72 pp.
- * 19. 1959 Trees and forests in a changing world. National Shade tree Conf. Prod. 1959. 185-191 p.

- 2 -

20. 1960 (The) Eucalyptus grove on the Berkeley campus of the University of California. Calif. For. and Forest Prod. No. 23, 3 pp. Nov. 1960.
21. 1961 (with Mildred E. Mathias, Marston H. Kimball, Robert S. Ayers, Chester L. Hemstreet and Dean D. Halsey) Ornamentals for low-elevation desert areas of southern California. Calif. Agric. Exp. Sta. Ext. Ser. Circular No. 496, 35 pp. February 1961.
22. Growing coast and Sierra Redwoods -- outside their natural range. U.C. Agric. Ext. Ser. OSA # 102.
23. 1963 The influence of windbreaks in protecting citrus orchards. Jour. For. 34(6): 571-579. June 1936
24. 1963 Native California Plants for ornamental use. U.C. Agric. Ext. Ser. Pub. AXT-99. Pp. 1-9. July 1963

INDEX

- Alcorn, George, 91
Austin, Lloyd, 81
- Bainer, Dean Roy, 31
Barker, Paul, 52, 55
Barnes, John, 82-83
Black, Rex, 22-25
Blake, Anson, Mr. and Mrs., 50
Board of Fire Underwriters of the Pacific, 37
Burnsides, F. P., 37
Bush, Loren, 31, 37
- California Conservation Council, 69-72
California Forest Protective Association, 24-25
California Rural Fire Association, 36
Chase, Howard, 69
Chase, Pearl, 69
Christmas tree farms, 62-65
Civilian Conservation Corps (CCC), 49-53
Clar, Raymond, 20-21
Coke, Earl, 91
Colgan, Richard, 17
Conservation, 87-89
Control burning, 40
Crocheron, B. H., 1, 13, 35, 53, 55, 89
Crown Cork and Seal Company, 59, 61, 62
- Davis, Virgil, 17
Diabetic Children's Foundation, 56
- Eddy Tree Breeding Station
 See: Institute of Forest Genetics
Erosion control, 33
Evans, Morgan, 46
Extension Service
 See: University of California
- Fairbank, James, 12, 14, 29, 32
Farm Bureau, 14
Fire protection:
 demonstrations, 28-34
 development of, 35
 equipment, 29-31
Forest Practice Act
 See: Legislation
Forest Practice Committees, 77

- Forest products, 48-49
- 4-H camps, 50-58
 - Clubs, I, 91-92
 - programs, 50-58
- Fritz, Emanuel, 18-19
- Fulmer Act
 - See: Legislation

- Garhardy, Carl, 17
- Gilden, Ed, 64
- Gilligan, Jim, 11
- Gilman, Herb, 20, 23
- Grah, Ruddi, 9-10
- Greeley, Col. William, 20
- Greenan, George, 59-61

- Hammett, Richard, 79
- Hill, Cary, 63
- Hill, Leroy, 16
- Homans, Morris, 35
- Hunt, Dean, 35

- Ingham, Norman, 44
- Institute of Forest Genetics, 81
- Isle, Ray, 11

- Jackson State Park, 52
- Jones, Burl, 13-14

- Kotok, E. I., 16
- Krable, Charles, 16

- Las Posadas 4-H camp, 50-53, 55
- Legislation:
 - Clarke-McNary Act, 2-5, 24, 38, 76
 - Forest Practice Act, 19, 76
 - Fulmer Act, 76
 - Norris-Doxey Act, 76
- Libby, William, 64
- Lorenzen, Coby, 43
- Lowdermilk, Walter, 20, 33

- McManus, Charles, 59
- Marsh, Warren, 22, 23
- Mason, Dave, 17
- Mendocino Woodlands, 51
- Merriam, Governor Frank, 25
- Mirov, Nicholas, 59, 81
- Mott, William Penn, 88
- Mulford, Professor Walter, 35, 53

Olney, Dr. Mary, 55

Pardee, Dr. George, 21

Peterson, Maurice, 92

Plumb, Herbert, 89

Pratt, Merritt, 21-26, 36, 50, 53, 68, 79, 84

Price, J., 79

Private industry:

forestry, 17-18, 24, 27-28

Ralston, Robert, 12, 52-55, 93

Roosevelt, President Franklin D., 89

Rosecrans, William, 22

Rural Fire Institutes, 5, 37

equipment committee, 29-30

public relations committee, 31-32

Shory, Elbert, 46

Sinclair, Don, 16

Small Woodlands Council, 73-75

Society of American Foresters, 84-85, 87

Soil Conservation Committee (state), 83

Soil Conservation Districts, 82, 84

Soil Conservation Service, 82

Southern California, 42

Southern California Association of Foresters and Fire Wardens, 36

Spurrier, --, 12, 52

Stalnaker, R. H., 31, 37

State Board of Forestry, 19-25

Stephens, Governor William D., 35

Stevenot, Fred, 36-37

Stockwell, Palmer, 59, 62, 81

Swails, Bob, 17

Sweely, Jack, 45

Tillotson, Claude, 79

Tippett, J. B., 13

United States Department of Agriculture, 6

United States Forest Service:

college relations, 46-47, 59, 79-82

forest and range experiment station, 10

industry relations, 59, 63

state relations, 38-39, 47, 59

University of California:

Agricultural Extension Service, 1-15

Agricultural Engineering, 11

Forestry Specialists, 12-13

Berkeley campus, 1-15

Davis campus, 11

Policies, 85-86

