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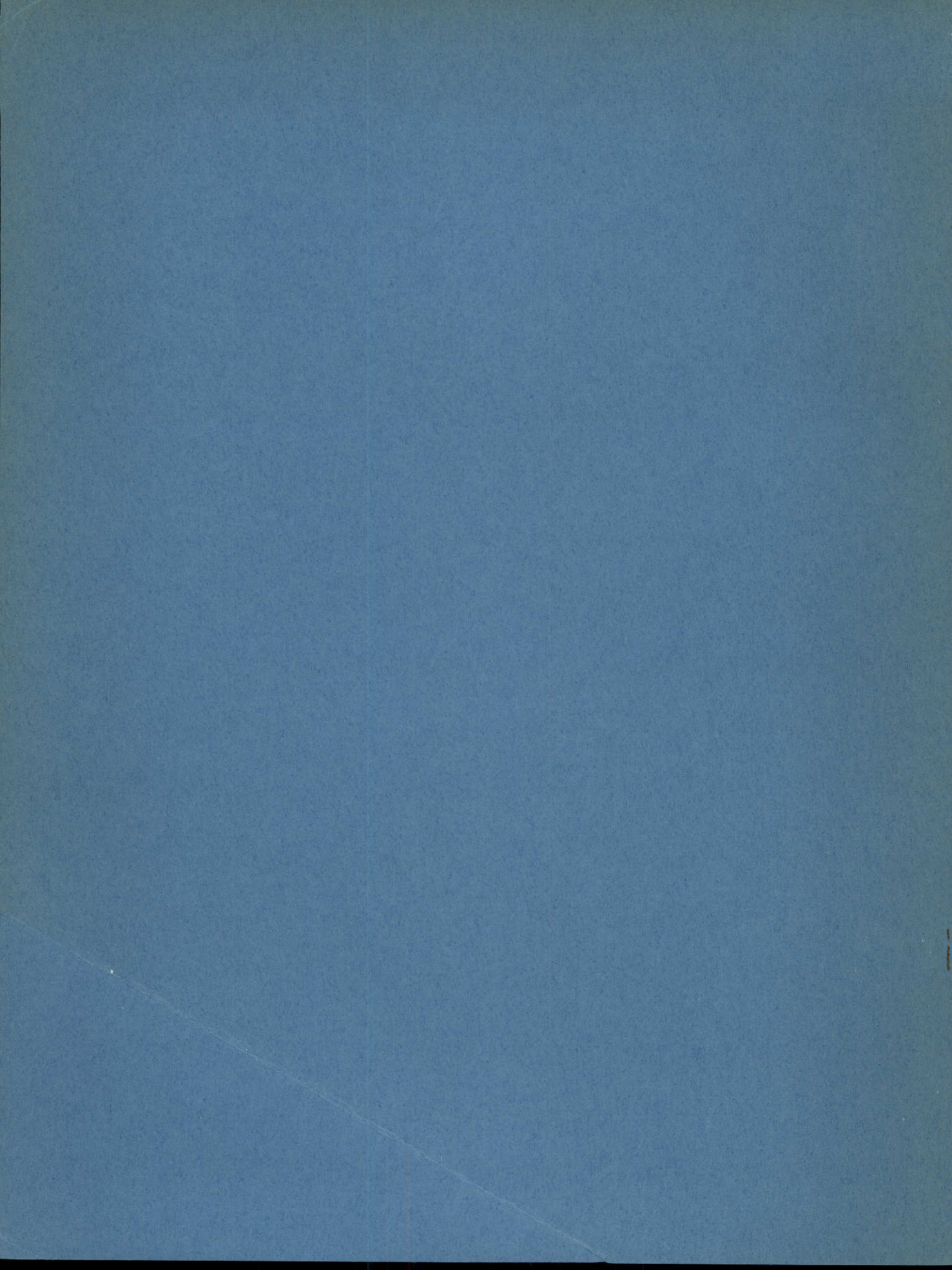
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U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
WEATHER BUREAU

KEY TO METEOROLOGICAL RECORDS DOCUMENTATION NO. 1.11

The Cooperative Weather Observer





U.S. DEPARTMENT OF COMMERCE
JOHN T. CONNOR, Secretary
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
ROBERT M. WHITE, Administrator
WEATHER BUREAU
G. P. CRESSMAN, Director

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Washington, D. C. - 1965

FOREWORD

The Weather Bureau's more than 12,000 cooperative weather observers perform a public service that is surely unequaled anywhere. Freely, these volunteers devote a total of about 1,000,000 hours each year to observing and recording the weather, and their records form a history of the climate of the United States.

Three decades ago, a group of outstanding scientists advised President Franklin D. Roosevelt that the work of the cooperative weather observers ". . . is one of the most extraordinary services ever developed anywhere and probably nets the public more per dollar expended than any other government service in the world . . ."

Business and industry, agriculture and aviation, and the general public rely on knowledge of climate. We all owe a great debt to the Weather Bureau's corps of observers whose unselfish efforts have built a national treasury of weather information.

JOHN T. CONNOR
Secretary of Commerce

MESSAGE FROM ADMINISTRATOR, ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION

The cooperative weather observers have a proud tradition of more than 100 years of voluntary public service. A number of families have kept weather records at the same place for several generations. Many individuals have observed the weather every day for 30, 40, or 50 years, and a dozen or so dedicated volunteers have served for more than 60 years.

A century ago, when Americans were settling western lands, they had little information on what to expect in the way of heat, cold, rain, or snow. In the act of 1890 establishing the Weather Bureau, Congress directed the Bureau to "record the climate of the United States."

Today, with the information gathered by cooperative weather observers throughout the years, we have a vast storehouse of records of our Nation's climates. The private citizen, traveling to a distant part of the United States, can check on average maximum and minimum temperatures there before packing his suitcase. A businessman considering expansion into new markets may seek information on climate before making his decision.

With all the advances of modern technology, including satellites and automatic stations for observing the weather, the services of the volunteer observers are more needed and more valuable than ever. It is private citizens who keep official records of the weather at more than 12,000 places throughout our Nation. These devoted men and women give us the detailed knowledge of United States climates that is essential to the solution of many problems of an increasingly complex society.

ROBERT M. WHITE
Administrator, ESSA

Preface

The *Key to Meteorological Records Documentation* series has been established to provide guidance information to research personnel and others making use of climatological data.

This issue is devoted to an explanation of early observational programs in the United States, with particular emphasis on the part played by voluntary observers in establishing the climate of our country. It brings up to date, as of mid-1965, the previous editions of "The Cooperative Weather Observer" which were published in 1951 and in 1960.

Acknowledgments

Thanks for assistance in preparing this bulletin go to cooperative observers themselves for much of the material; to various offices supervising the work of cooperative observers; particularly to the Weather Bureau State Climatologists who prepared the introductory state stories and many of the biographical sketches in Chapter Two; to my colleagues in the Central Office of the Weather Bureau for suggestions, criticism, and encouragement; and to Mrs. M. A. Clark for assistance in preparing the copy for publication.

J. H. HAGARTY

Office of Climatology, U.S. Weather Bureau

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CHAPTER ONE

History of the Cooperative Weather Observing Program

The Weather Bureau Cooperative Observer program is basically an arrangement whereby the Bureau furnishes instruments and guidance while the observer, without monetary compensation, takes and records daily observations of the weather.

The program in its present form dates back for over 100 years. However public service minded individuals have taken weather observations since the early days of the New World. A detailed résumé of the program may be found in reference [9]. Some noted individuals and organizations who have participated in, influenced, or encouraged this program are:

Reverend John Campanius Holm who, in 1644 and 1645, took the first known regular weather observations at Fort Christina near Wilmington, Del. [13, 15].

Dr. John Lining of Charleston, S. C., who because of his interest in the possible effect of heat and moisture on recurring epidemics of yellow fever, smallpox, and malaria took daily weather observations from 1737 to 1753 [2, 13].

Benjamin Franklin, in September 1743 the first man to track a hurricane along the Atlantic Coast using reports from postmasters [1].

James Madison, father of the fourth president of the United States, who maintained weather observations near Monticello, Va., from 1794 to 1801 [4].

Thomas Jefferson, third president of the United States, who kept an almost continuous record of the weather from 1776 to 1816 [4].

Dr. R. S. Barton of the University of Pennsylvania who, in 1807, suggested that the Linnean Society of Philadelphia ask the members to maintain instrumented weather sites throughout the country [6].

Dr. James Tilton, Physician and Surgeon General of the Army, who on May 2, 1814, directed all hospital surgeons of the U.S. Army to "keep a diary of the weather" [7, 16, 29, 31].

Josiah Meigs, Commissioner of the General Land Office, who on April 29, 1817, solicited weather observations from registrars in each of 20 Land Offices throughout the country [30].

The Board of Regents of New York State University who in 1824 encouraged the collection of data by professors and principals at various academies and colleges through the State [1, 21].

Simeon DeWitt, who had taken observations in Albany in 1795 and 1796 and later became Chancellor of the University of the State of New York, was very active in this program which resulted in observations with standardized equipment at 36 State Academies [20, 22].

The State Legislature of Pennsylvania which in the late 1830s placed \$4000 for "the advancement of meteorology" at the disposal of the Joint Committee on Meteorology of the American Philosophical Society and the Franklin Institute [1, 18, 32].

James P. Espy, designated by Congress in 1842 to be the first U.S. government meteorologist. Espy was interested in securing cooperative observers and in his 4th report to President Franklin Pierce, indicated that a total of 324 reports had been received during 1852 [1, 24, 30].

Joseph Henry, first Secretary of the Smithsonian Institution, proposed in 1847 "... an extended system of meteorological observations, embracing as far as possible the whole American continent." [14].

The U.S. Patent Office which joined with the

Smithsonian Institution from 1854 to 1859 in the collection and publication of meteorological data [9].

The Honorable Isaac Newton, U.S. Commissioner of Agriculture, who in 1856, endorsed a recommendation of the Smithsonian Institution that a more extensive weather service be established for the benefit of agriculture [31].

And finally, the U.S. Congress, which by joint resolution of February 9, 1870, directed United States military posts to take regular weather observations. [9].

The following table shows the number of weather stations by States in various years from 1800 to date. The numbers of stations for 1900, 1930, 1960, and 1965 were taken from published data while the count for the other years is from

early lists of weather stations. Although some of these stations are staffed by full-time Weather Bureau employees, observations at the vast majority of places are taken by volunteer observers.

While this booklet stresses the service of individuals with 30 years or more of service who are still serving, there are many retired or deceased observers who have in years past made a substantial contribution by long dedicated service. Also in many, many cases the observational responsibilities have been handed down from generation to generation within the same family.

In addition to individual cooperative observers the Weather Bureau relies heavily on other Government agencies, and on many firms and corporations, which, under a company name, have observed and reported the weather for years and years. A considerable proportion of the total

TABLE 1.—Number of weather stations in January of:

	1800	1825	1850	1870	1900	1930	1960	1965
Alabama	0	0	5	11	65	73	236	197
Alaska	0	0	0	0	0	78	149	164
Arizona	0	0	1	9	63	101	311	317
Arkansas	0	0	2	2	60	92	206	209
California	0	0	6	20	200	270	934	917
Colorado	0	0	6	3	84	118	269	286
Connecticut	1	2	6	3	14	14	76	64
Delaware	0	1	2	2	5	6	10	10
Florida	0	2	12	15	58	91	169	172
Georgia	0	0	3	6	78	64	217	200
Hawaii	0	0	0	0	0	223	309	268
Idaho	0	0	7	0	37	103	171	179
Illinois	0	1	2	29	91	95	230	220
Indiana	0	0	7	21	65	86	164	162
Iowa	0	1	4	32	141	126	226	225
Kansas	0	0	2	17	85	149	307	313
Kentucky	0	0	4	6	51	85	186	178
Louisiana	0	5	4	6	55	64	180	173
Maine	0	4	12	13	17	37	64	72
Maryland	0	4	5	5	57	51	84	78
Massachusetts	5	10	20	23	24	33	98	96
Michigan	0	2	7	19	127	136	190	191
Minnesota	0	1	4	13	69	84	202	216
Mississippi	0	0	4	10	55	96	187	178
Missouri	0	0	4	13	92	99	284	271
Montana	0	0	0	0	51	101	346	352
Nebraska	0	1	1	5	101	146	293	273
Nevada	0	0	0	0	42	56	142	143
New Hampshire	0	2	8	8	16	22	77	76
New Jersey	0	0	6	13	54	47	91	85
New Mexico	0	0	4	11	43	183	288	274
New York	1	4	59	53	76	113	369	337
North Carolina	0	2	4	10	61	96	287	210
North Dakota	0	0	0	5	50	100	185	186
Ohio	0	2	19	35	96	135	241	225
Oklahoma	0	0	4	1	38	100	250	250
Oregon	0	0	1	4	80	100	283	302
Pennsylvania	3	7	35	27	87	137	308	299
Rhode Island	0	2	3	2	6	3	7	7
South Carolina	1	1	4	3	53	56	113	107
South Dakota	0	0	0	2	60	95	184	192
Tennessee	0	0	5	10	75	78	310	133
Texas	0	0	14	14	92	249	742	766
Utah	0	0	1	0	55	106	264	277
Vermont	0	0	3	10	14	15	54	61
Virginia	1	3	7	16	52	56	203	183
Washington	0	0	2	6	78	192	249	264
West Virginia	0	0	2	3	48	94	146	145
Wisconsin	0	2	7	17	68	93	213	215
Wyoming	0	0	1	3	39	90	191	209
Puerto Rico	0	0	0	0	34	63	103	144
Total	12	59	306	536	3057	4900	11,398	11,071

number of cooperative weather stations is operated by such organizations. In some cases the duties of observing the weather rotate from one employee to another; in other cases a single employee is responsible for the observations. Long services by institutions and organizations are

recognized in reference [9] where there are 144 institutions listed which have been responsible for daily weather observations since 1900 or earlier.

The Weather Bureau extends its grateful thanks to these organizations and individuals for their help in defining the climates of our country.

HOW COOPERATIVE OBSERVERS' RECORDS ARE PROCESSED AND STORED

The daily observations that a cooperative observer makes are recorded by him on a form with space for an entire month's record. At the end of the month the form is sent to the National Weather Records Center, Asheville, N. C., where each day's observation is placed on a punched card. The cards are then used to make listings and comparisons. Data which appear inconsistent or erroneous are subject to professional review by a meteorologist, and erroneous entries are corrected or deleted.

After the records are checked the cards are used to prepare copy for the publication *Climatological Data*, thus making the records available to the public.

After this, the cards are filed for about two years, during which time they may be used for special tabulations or searched for particular combinations of significance to a specialized user. Before they are discarded they are placed on microfilm so that they can be recalled as needed in the future.

As of the end of 1965 an estimated 338 million cards containing weather data will be stored in the National Weather Records Center Archives plus an additional 170 million weather data cards on microfilm. These records are an invaluable national asset and are carefully preserved, since, unlike many other items, weather records increase in value with age [3].

HOW COOPERATIVE OBSERVERS' WEATHER RECORDS ARE USED

Since life on earth is dependent on the food we eat, the water we drink, and the air we breathe, it follows that the weather is an important factor in everyone's life. This is borne out by the varied and numerous uses made of data accumulated by cooperative observers.

Following are some examples of uses of weather records:

Evaluating and comparing the prospects of commercial vegetable growing in Arizona and in Florida. This study included comparisons of the frequency and duration of droughts, and of periods of high and low temperatures, length of the freeze-free season, and the distribution of rainfall as related to the growing season of various truck crops.

Planning hospital design and construction.

Making an industrial survey for a New Jersey area.

Correlating new home building starts with weather data.

Evaluating insurance liability risks, verifying and paying insurance claims.

Preparing a marketing booklet on Alaska.

Determining the climate of a town.

Studying the effect of weather on mortality in New York City.

Studying the relationship between rainfall and frost data and the growth characteristics of red pine trees.

Surveying community airport development.

Comparing and adapting existing types of school construction and building materials to extreme environmental and climatic conditions.

Studying climatic change; is the climate changing and if so, in what way?

Delivering fuel supplies.

Planting and harvesting crops; studying the growth of trees, studying the risks of freezing by specified dates, and studying the relationship between climate and altitude.

Selecting a retirement location, or a climate favorable to a particular health problem.

Computing snow-melt rates over a watershed for which dams are being planned.

Determining the need for company salesmen to have air conditioners in their cars.

Making drought studies and determining drought disaster areas.

The Weather Bureau is able to help requesters with these and other problems as well as to help

researchers in their attempts to learn more about our climates because thousands of cooperative observers have faithfully recorded the weather at various locations for decades and decades [8, 10].

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CHAPTER TWO

The Cooperative Observer Program by States

This chapter presents information about the cooperative observer program in each State. A biographical story is carried for each active observer in the State who has taken observations for thirty or more years.

Thirty years of daily weather observing means a contribution in time equal to about 275 working days, a truly remarkable contribution.

ALABAMA

Early weather observations in Alabama were taken at Erie 1824-1825; Huntsville 1831 intermittently to 1873; Fort Morgan 1835-1843; and Fort Mitchell 1836-1837.

Long continuous observations from one location are particularly valuable in studying climatic changes. A noteworthy Alabama example was provided by Dr. William B. Fulton of Dadeville who was cooperative observer from 1907 until shortly before his death in February 1961.

Some weather observers look upon their work as a hobby, some are interested in science, while all desire to do their bit and serve faithfully day after day and year after year. All cooperative weather observers have their vocations by which they are furnished a livelihood, and their weather observing work is a secondary consideration. There are few agencies, if any, that secure so many men and women who render such high-class service without remuneration.

Mr. James E. McCravy, Cooperative Observer at Bessemer, Ala., considers weather observing a fascinating hobby. His monthly reports are exceptionally neat and accurate. During the past several years Mr. McCravy has rendered an outstanding service as a cooperative observer in reporting severe local storms and other data to the Weather Bureau at Birmingham, Ala. This enabled that office to issue many timely and accurate warnings to the Birmingham area. On March 5, 1963, Mr. McCravy telephoned a report which permitted the Weather Bureau to issue a tornado warning while the storm was still

in progress in the Bessemer area. Mr. McCravy received a Public Service Award and letter of citation from the Chief of Bureau in 1963.

Mr. W. E. Elsberry, a chemistry and agriculture graduate of Alabama Polytechnic Institute (now Auburn University) started farming on Primrose Farm in 1908. Mr. Elsberry's family has lived in the same area for more than 100 years. His grandfather, Judge Clitheral, was the first Registrar of the Treasury of the Confederate States of America.

Mr. Elsberry started to keep rainfall records in 1912 to determine the effectiveness of tile drain on four acres of upland black-belt soil. When this project was over in 1922 he started keeping rainfall records for the Weather Bureau.

Although past the age of "three score and ten", Mr. Elsberry served as law librarian at the Montgomery County Courthouse until his death on May 28, 1965.

ALASKA

The earliest weather records taken in Alaska include Sitka in 1842, Kodiak in 1869, St. Paul Island 1872-82, Fort St. Michaels 1874-86, and Unalaska (Dutch Harbor) 1878-86.

The Alaskan cooperative observer is frequently hampered by severe cold, often accompanied by rather strong winds. Darkness can be a handicap also for periods of from 1 to 3 months each year, and during this time it is necessary for the observation to be taken by flashlight. At a number of Alaskan stations with heavy snowfall it is necessary to relocate the rain gage upward as the snow depth increases during the winter.

As a result of the alertness of Mr. Thomas Carter, an observer at Wasilla No. 2 with but one month's experience, a new record rainfall of 1.30 inches in 25 minutes was established for the entire State.

The observers who participated in reporting the earthquake activity which affected Alaska on March 27, 1964 are too numerous to be listed. A

total of some 65 shocks and immediate after-shocks were reported by cooperative observers alone. Most of these reports contained accurate timing detail which was very helpful in later analyses of quake movement. It seems quite probable that a number of these observers performed outstanding services in other ways during this tragic development; but, if so, their activities were overshadowed by the numerous reports of such events which crowded the news distributing media.

A number of stations were badly damaged in the earthquake and tidal wave activity at that time. The most tragic development in this category, however, occurred at Point Nowell where the observer, Mr. Frank Erb, lost his life. The entire station equipment was washed away in the tidal wave following the quake disaster.

ARIZONA

Earliest weather reports in Arizona were taken by the Post Surgeons of Army forts established in the territory for the protection of its citizens. Fort Defiance, in 1851, was the site of earliest known temperature and precipitation records. Next was Fort Buchanan in 1857 and Fort Mojave in 1859. After the Civil War five other new forts began weather observations between 1865 and 1867.

Telegraph lines were built in 1872. Between 1872 and 1876 several weather stations were added at telegraph points. By 1880 several weather stations along the new Pacific Railroad began making reports.

The first voluntary weather observer (appointed in 1884) was E. L. Whetmore located near Tucson, Ariz. By 1889 there were 53 volunteer weather observation stations. Among them was Walnut Grove, established in 1889 by T. B. Carter and now maintained by his grandson, Cort Carter. Cort says "It has just become a pleasant chore that I take care of each month without thinking. In other words it has become just a part of the operation of the Ranch here."

Mrs. Ernest Burrus, observer at Burrus Ranch since 1943, says of her weather work "This has been a service to farmers in this area. It is gratifying to me to know that my infinitely small daily task is of value in so many ways."

There are varied reasons why an individual be-

comes an observer. With Mr. Willard L. Groene, who has been an observer in Ohio as well as at Paradise Valley, Ariz., the event that interested him was a tornado that struck his home on March 11, 1917 in Hyde Park, Cincinnati. In the case of Mr. Warren D. Judd, Fredonia observer, a different reason is given. Mr. Judd says "I asked for and received an appointment as cooperative observer with the Weather Bureau in July 1938. I wanted the satisfaction of knowing the correct summer and winter temperature and rain and snowfall for the area. I have enjoyed this work. When I am unable to do it myself, my children help out."

Organizations and institutions have been responsible for Arizona observations at a number of locations. At some of these places the same individual employee has taken the observations for years. Examples are the Ganado Mission station with Eugene M. Haldeman as observer; the Southern Arizona School for Boys at Sabino Canyon with observer Walter B. Ormsby; and the Magma Copper Company of Superior where Mr. B. Van Voorhis, now Chief Engineer, has taken observations since 1926. Mr. Van Voorhis says "We keep a large chart showing the monthly precipitation data along with record lows and highs. This chart shows each month and year since 1920."

The climate which was logged by these volunteer weather observers in Arizona was one of the foundation stones upon which the economy of the State was built. Their records were referred to by migrants who settled the mountains and valleys of the State, first as cattle raisers, then as farmers along main river valleys. As the area developed, weather records were invaluable in determining the size of irrigation works, dams, and bridges. The design of railroad beds, main highways, and drainage canals was based, in part, on records of rainfall that were accumulated from volunteer weather data. As the State grew, so grew the needs for weather data. Not only for major works mentioned above, but for street and sewer designs in newly formed and expanding cities and towns, for specific values of extreme temperatures in locating new citrus groves, and for developing new irrigated agricultural lands. With increasing population, reference to weather records for insurance claims purposes, civil court cases, and related matters have increased tre-

mendously during the past two decades. During the last 10 years the location of manufacturing plants in various areas of Arizona was based on the availability of specific weather records as well as other economic factors. The rapidly expanding electronics industry in Arizona since 1955 was, in part, the result of proof that weather factors were favorable for plant locations in a dry climate. Thus, weather records maintained by volunteer observers have been an important factor in the settlement and development of the State.

O. L. Barnes

Tempe

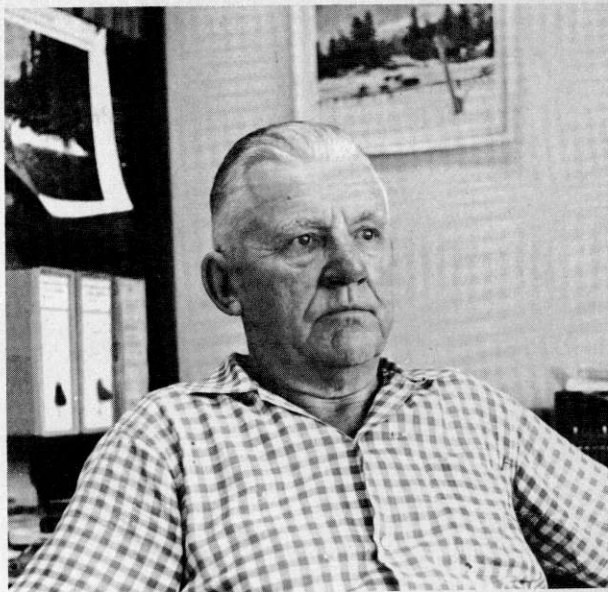
A small general farm near Prentiss, Miss. was the site of Mr. Barnes birth on June 1, 1902. He attended grammar school in a one-room school near Southern Switch, high school at Prentiss High School, and received a B.S. degree in Agricultural Education from Texas A. & M. College in 1928. Coming to Arizona in late June of 1928, Mr. Barnes held various jobs until April 1, 1930 when he became associated with the Entomology Research Division of the U.S. Department of Agriculture where he is presently employed at the Mesa Experiment Station.

What does it mean to be a weather observer? Mr. Barnes answered, "First, I just like to know what the temperature is or how much rain has fallen. Then, and probably more important, is the feeling that I am helping to gather information that will be of permanent value to our general society—locally, regionally, and nationally. Somehow, I feel a little better when I go out and look at the thermometers and the rain gage and come back and enter the records in the book."

Ray L. Kenworthy

Apache Powder Co.

Sterling Run, Pa. was the location of Mr. Kenworthy's birth on August 11, 1901. He came to Benson, Arizona Feb. 13, 1931 expecting to stay only 3 months. He went to work for Apache Powder Company on Feb. 14, 1931 and has been with them ever since! He started his chores of weather observing on the day he began work with the Company. Quoting Mr. Kenworthy: "I have received a lot of personal satisfaction through the years I have taken weather, also have the feeling that I am contributing to a good cause. In addition to keeping the records for Apache I furnish much information to the Benson newspaper, Chamber of Commerce, and many people who are interested in the temperatures and rainfall. I



Ray L. Kenworthy

have compiled lots of data that I enjoy checking back over as the years go by for comparisons."

Mr. Louis W. Towle, General Superintendent of the Apache Powder Company says "Mr. Kenworthy has been a loyal weather observer for many years and we are pleased at recognition of his services by the Weather Bureau."

Milford L. Noon

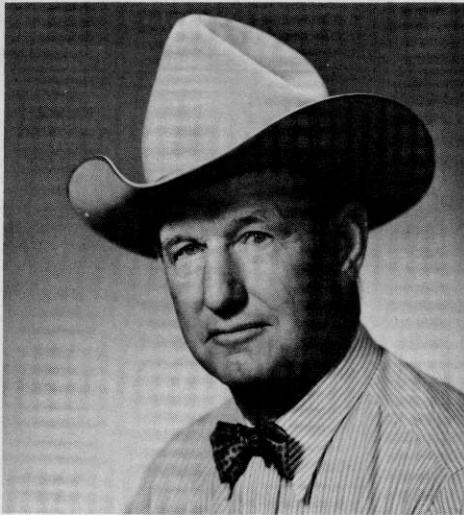
Nogales

The Noon family have been responsible for observations at Nogales since 1899 (with brief interruptions). The present observer, Milford L., has done this work since 1925. He is a life-long resident of Nogales where he is now an Immigration Inspector. He is also very active in the community and in addition to being a cooperative weather observer, is a first-aid instructor and volunteer fire fighter.

George B. Stephens

Stephens Ranch

Mr. Stephens was born on June 4, 1884 in Yolo County, Calif. Poor health in childhood forced him to move to the Douglas, Ariz. area in 1904. With improved health, George became interested in the cattle business with Mr. Slaughter on the Mexican side of the border. Becoming independent, he developed his own ranch, the "Lazy J" on an adjoining ranch (which is just on the Arizona side of the Mexican border). On his



George B. Stephens

80th birthday in June 1964, Mr. Stephens branded 161 calves! Taking official weather observations since 1928 has been a source of satisfaction to Mr. Stephens, and he found it rewarding to place gages in four other locations on his ranch.

Elijah Thomas, Jr. Pinedale

When Elijah Jr. was 3 years old his parents moved from Leeds, Utah where he was born on Nov. 24, 1876 to eastern Arizona where the family pioneered. In 1890 Mr. Thomas moved to Pinedale where his family ran sheep. He married Mary Anne Petersen in 1900 and they reared nine children. He developed a fine farm and planted an orchard. Gradually Elijah Jr. shifted from the sheep to cattle business. Weather is vital to ranching and Mr. Thomas became quite expert in reading weather "signs" and cloud meanings. He began official observations in 1913. Besides a busy life as a rancher, Mr. Thomas found time to participate in community affairs. He was a member of the school board for many years, and gave many years of service to the Latter Day Saints Church of which he was an active member and leader.

ARKANSAS

The cooperative observational program in Arkansas includes a total of possibly 250 observers at 215 separate locations throughout the State. The contributions made by this vast network of



Dr. Earle E. Graham

observers to the Weather Bureau's climatological, forecasting, and public service program is immeasurable. Many of these station histories date back to the turn of the century. Currently only one observer has a service period in excess of 30 years. However, certain institutions in the State of Arkansas have provided many and fruitful years of daily observations. Worthy of mention in this regard are the following:

The Benedictine Sisters of Jonesboro, Ark., have served as observers since 1897. These sisters have not only kept a continuous record of daily observations but have for many years relayed this data each morning to the Little Rock Weather Bureau for inclusion in a printed Daily Weather and River Bulletin.

The Benedictine Sisters of Pocahontas, Ark. have an observational program dating back to 1895.

The New Subiaco Abbey at Subiaco, Ark., has provide climatological data since 1897 and for a large portion of this time has made special rainfall reports to the River District Office of the Weather Bureau at Little Rock.

The Mena, Ark., observer, Richard W. St. John is the third generation of the St. John family to keep weather records for the Weather Bureau. Roy R. St. John, great uncle of the present observer began the work in the year 1910 followed by the father and grandfather who in part shared observational responsibilities until 1957. Richard W. St. John began his observational career upon the death of his father in 1957 and continues to the present time.

Dr. Earle E. Graham

Magnolia

The outstanding single contribution by an observer in Arkansas is that of Dr. Earl E. Graham whose personal official weather records go back to July 1, 1921, in Magnolia. On this date Dr. Graham not only began his long association with the Weather Bureau but he started a teaching career with the Arkansas Southern State College at Magnolia. He rose to the status of Dean of the college. Retired from the teaching and college work, Dr. Graham now enjoys gentleman farming and gardening together with his hobby of weather. Known as the "weather man" in Magnolia, Dr. Graham received the John Campanius Holm award in August of 1963 for distinguished and long years of service.

CALIFORNIA

A natural resource of first importance to California is the diversity of its climates. Found within her boundaries are the dry desert climate of the southeast and the humid regime of the northern coastal mountains. Temperatures range from the searing heat of the desert and the interior valleys to the usually cool pattern of the north coast and the cold winter of the high Sierra Nevadas. It is the cooperative observer who has documented these several climates through the years so that we can tell what they are. The records have many applications.

Consider, for example, the western portion of the San Joaquin Valley. This is an area with a desert-like climate. Few people live here, but for 50 years the operator of an oil company pumping plant maintained a cooperative weather record. Today plans are being made to bring in irrigation water, and the long and complete record from Middewater forms a basis for estimating the climate of the rest of that area so that growers will be able to make effective use of the newly opened agricultural area.

From time to time flooding has occurred in one part of the State or another, and the records of the cooperative observers are of vital significance in an analysis of these floods. Not only is it important to know what rain fell during the flood situation, but long records of more normal conditions are necessary if users are to evaluate properly the significance of the periods of high rainfall. Damage suits in some flood damage cases amount to several millions of dollars.

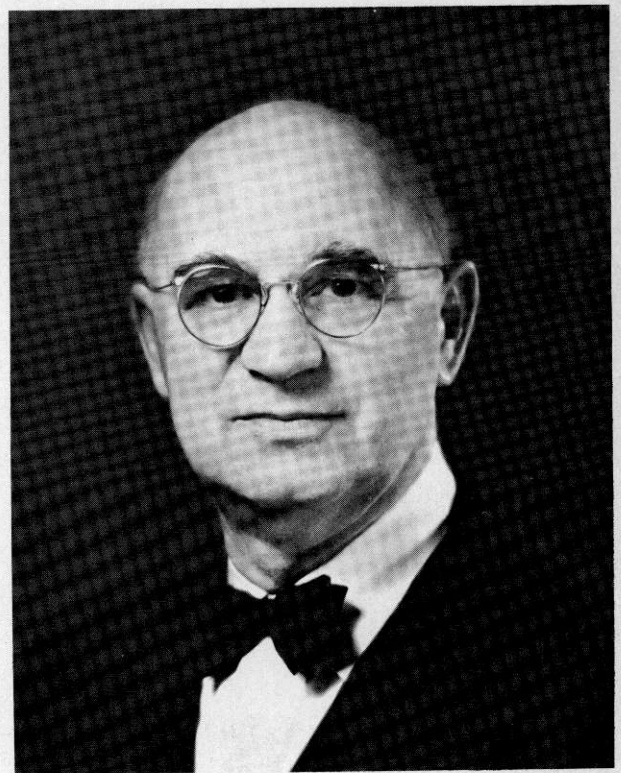
Of interest in delineating the climate of an area are the infrequent extremes that suggest the outside limits of weather that can be expected. Typical is the high temperature of 134° F. observed at Greenland Ranch on July 10, 1913. Snowfall amounting to 60 inches was reported in a 24-hour period on January 18 and 19, 1933, at Giant Forest. The total for a season was 884 inches at Tamarack in 1906-07. Some of the heaviest precipitation rates are 1.03 inches in 1 minute at Opids Camp on April 5, 1926, 11.50 inches in 80 minutes at Campo on August 12, 1891, and 26.12 inches in 24 hours at Hoeegees on January 22, 1943.

Without the help of the cooperative observers who make their readings regularly each day we would have no information on which to base an estimate of these extremes.

Howard R. Allard

Willows

Mr. Allard has been the official observer in Willows since 1926, continuing a record started in 1878. For 36 years he was with the Irrigation District until his retirement in 1956, and since that time he has served as a city official in Willows. He has taken an active position of leader-



Howard R. Allard

ship in the community, in his church, and in the several branches of the Masonic lodge. At Willows, as at many stations, the weather observations have been a family project.

Ernest J. Anderson

Orleans

Mr. Anderson became the observer at Orleans in 1932, continuing a record that started in 1885. For his outstanding work he was given the John Campanius Holm award in 1964.

Robert E. Burton

Santa Cruz

Mr. Burton has operated this station since 1931, except for the war years when he was on duty in the Pacific with the U.S. Navy. During that time he served on Ponape and operated a weather station there. His wife, son, and a neighbor operated the Santa Cruz weather station during that period.

As a special project Mr. Burton has devised equipment for estimating the amount of dew deposited on redwood trees and has found as much as 40 to 60 gallons of water per acre on some nights. He received the John Campanius Holm award in 1964.

At the present time Mr. Burton is a County Supervisor for Santa Cruz County.

Carlos A. Call

Fort Ross

In 1907 Mr. Call succeeded his father, who had been observing precipitation at Fort Ross since 1874. A storm in November of 1874 gave a measured total of 18.06 inches of precipitation in 24 hours, and probably the amount was more than 20 inches. The gage ran over at one time during the storm. Mr. Call has sent us copies of data extracted from the records of the Russian colony that manned Fort Ross as early as 1840.



Robert E. Burton



Carlos A. Call

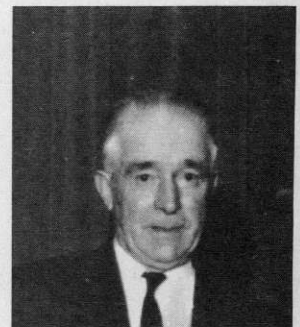
The 91-year record within the family and the 58-year record by Carlos Call are outstanding not only for their length but also for their quality. Mr. Call was chosen in 1960 to receive the John Campanius Holm award and in 1965 the Jeffers award for outstanding service as a cooperative observer.

Walter Cantrall

Jess Valley

Mr. Cantrall was born in Jess Valley and has continued to live there to the present time. He has been the sole observer at this station since its establishment in 1929, and the record is not worthy for the total lack of missing data.

Shortly after this station was established Mr. Cantrall assisted Water Resource officials in the selection, measurement, and marking of a new snow course that is still in use more than 30 years later.



Walter Cantrall

Edward C. Gerlach **Lone Tree Canyon**

Mr. Gerlach has been the observer ever since this station was established in 1933. It is in an area of precious little rainfall, where an accurate measurement of what little does fall is of vital importance. He is interested in community activities and has donated land to the Rod and Gun Club for their Rifle Range.

Leroy Kemp **Squirrel Inn No. 2**

Mr. Kemp was first appointed as the official observer in 1929, although he had in fact been taking observations for several years prior to this, both at Squirrel Inn No. 1 and No. 2. He visited the San Bernardino Mountains for a summer vacation in 1924 and has remained there for 40 years. During that time he has worked for the Squirrel Inn, the School District, and the Fire Protection District, among others, retiring in 1960. For many years he has sent in special weekly snow reports during the winter for the *National Weekly Weather and Crop Bulletin*.

Archie C. Leach **Campo**

Mr. Leach is a rancher who was formerly with the Engineering Department of the city of San Francisco. His engineering background and his present interests lead to close attention to the accuracy of his precipitation records. He has operated the Campo weather station since January 1926.

This station experienced a cloudburst on August 12, 1891, that produced 11.50 inches of precipitation in 80 minutes. The intensity of the storm is documented by newspaper accounts of the damage done.

Edwin L. Paulson **St. Helena**

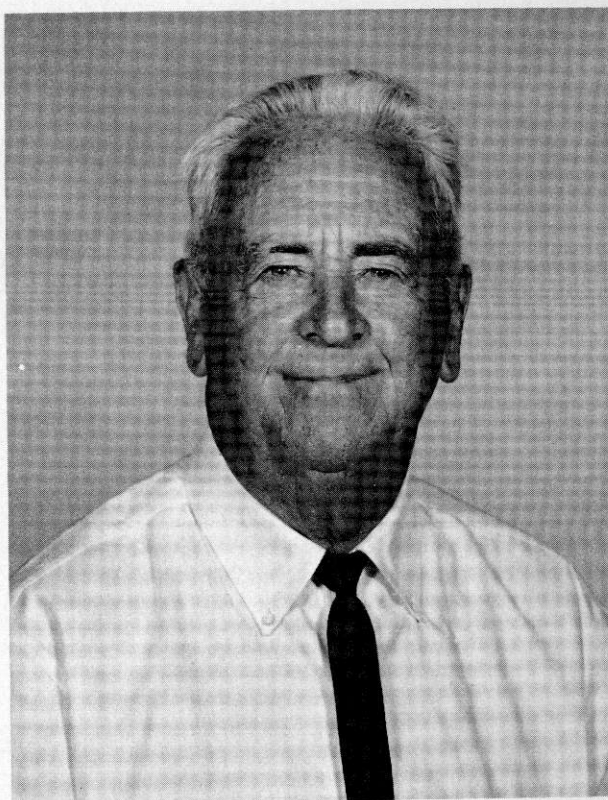
Mr. Paulson was born in St. Helena, and except for brief periods of work in other communities he has lived there to the present time. He became a printer in 1902 and worked at that trade until he retired in 1955. He has been the weather observer at St. Helena since 1921, continuing a record started in 1907. His station was one that was chosen to test the dial thermometer a few years ago, and Mr. Paulson received the John Campanius Holm award in 1961. He lives on his own ranch with his two brothers.

Roger C. Rice **Los Banos**

Mr. Rice is a licensed civil engineer, employed as watermaster and chief hydrographer for the network of irrigation canals serving much of central California. Prior to his present employ-



Leroy Kemp



Edwin L. Paulson

COLORADO



Roger C. Rice

ment he was with the U.S. Geological Survey and with Southern California Edison Company, serving at various times in Washington, D.C., San Francisco, Honolulu, Kansas, and Arizona. He has published a number of articles in his field, including one that appeared in the *Monthly Weather Review*.

Mr. Rice has been the official observer at Los Banos since 1931 and has done an outstanding job of summarizing weather records that go back to 1873. In 1962 he was awarded the John Campanius Holm award for outstanding service.

William B. Temple Covina Temple FC 193

Mr. Temple, a leader in civic affairs in the Covina area, is continuing a precipitation record started by his father in 1902 and assumed by him in 1930. In recent years the citrus orchard that surrounded his home has given way to a subdivision that has built up in the area.

Darwin M. Ting Escondido

Mr. Ting has been the observer at this station since February 1935, when he replaced Mr. Moon, who had served for 41 years. Mr. Ting is a pharmacist and owns and operates his own drug store.

K. R. Warren Whittier City Hall

Mr. Warren is an official of the Whittier Water Company and reports rainfall information to the Los Angeles County Flood Control District as well as to the Weather Bureau.

When Colorado became a State in 1876, weather observations were being made, or had been made, at about 30 locations. These ranged from the prairies in the east to the mountain mining towns and cities and included a rather unique location at the top of Pikes Peak. Most of the stations were manned by volunteer observers of the Army Signal Corps or the Smithsonian Institution. The rather limited knowledge of the climate of the new State was based on weather records beginning in the 1850's at a very few locations, with most of the early records starting in the 1860's or 1870's. The number of stations increased to 95 by 1890, when the Weather Bureau was established and the early volunteer groups were the start of the Weather Bureau cooperative observers. Thus was begun the task of measuring and evaluating the widely diversified climates of the State, building over the years a body of knowledge of great importance to the development and settlement of the new area of the nation. The total of over 250 observers in the State at the present time provides the potential for improvement in our information for many areas not yet well assessed climatically.

Many observers have served faithfully over long periods, through droughts and blizzards in the plains and heavy snows in the mountains. While particular acts of devotion to the service under unusual circumstances are noted for special commendation, the backbone of our body of knowledge of the climate is the faithful day-to-day effort of all the observers, through ordinary weather as well as the more dramatic or unusual situation. We are grateful to each and every observer for each and every time he has gone out to his shelter or his gage to add another bit of information, small perhaps but important, since the whole of our knowledge is comprised of all the bits added together.

Several observers have contributed almost 30 years of service in Colorado. Mr. Ralph J. Ayer (Ayer Ranch station) started in as observer in January 1936, on the ranch established by his grandfather in 1882. He was born in 1889, is a graduate of Colorado College, and has worked for the Soil Conservation Service. Mr. Guy M. Stealey, whose family was one of the early settlers in the area of the White River, served as observer at the Marvine station from 1936 until

his death in February 1965. He was born at Greenland, Colo., in July 1878. Other observers with nearly 30 years of service are Mrs. I. F. Shutt at Northdale, Mrs. Emma (and J. R.) Liska at Lake City, and Mr. D. M. Donohoe at Walden.

Long service by families includes, in addition to the Boothroyd family at Waterdale, the Chesebro family at Hawthorne since 1908, now continued by Miss Laura Chesebro, and the Green-Lindstrom family at Le Roy, started by Charles Green who served from 1889 to 1939, continued by his son-in-law Albert Lindstrom to 1962, and by Gilbert Lindstrom after 1962.

Observational services by a number of institutions, public and private, some over very long periods, are an important contribution to our knowledge of the climate in a number of areas of the State. In some instances individuals assigned as observers at these stations have given long service and made valuable personal contributions. There are 19 such stations in Colorado with more than 30 years of service. The longest records at these stations have been furnished by the Colorado Experiment Station at Rocky Ford, where observations were started in 1892.

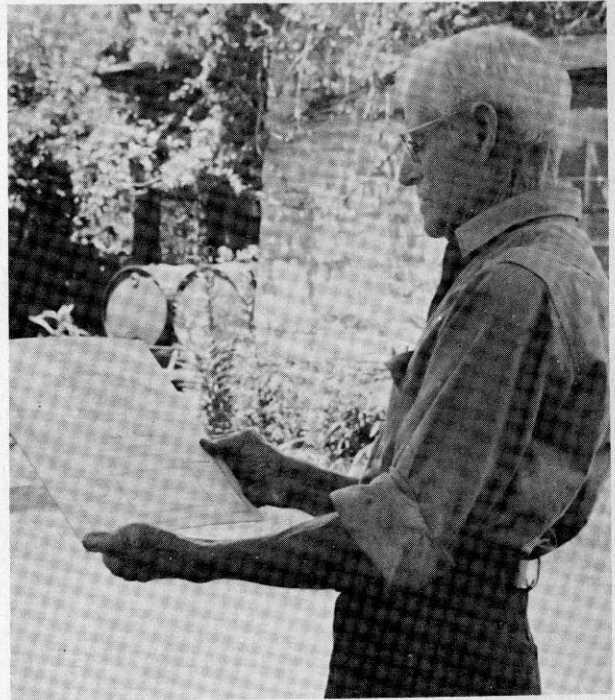
One Colorado observer has more than 30 years of service. He is Mr. Philip H. Boothroyd of Waterdale.

Philip H. Boothroyd

Waterdale

Mr. Boothroyd, observer at Waterdale since 1932, says, "I was born on September 13, 1879, in a log house on the banks of the Big Thompson River in the foothills of Larimer County about 9 miles northwest of Loveland, Colo. I completed eight grades in county school walking 1 mile to and from school. Completed 3 years of Civil Engineering course at Colorado Agricultural College (now Colorado State University). For 3 years I worked on cattle ranches and timber camps in Wyoming and Idaho. For 4 years spent fall and winter months on my parents' Waterdale stock ranch and remainder of those years as foreman and/or recorder with the Southeast Alaska Boundary Survey.

"In 1912 I married Edith Beardsley, a teacher from Greeley, Colo., and in partnership with my brother took over my parents' ranch and herd of registered Angus cattle. In 1946 sold all but 20 acres of the land I owned and became an active agent for Farmers Union Insurances for which I had served as a part time agent since 1932. On



Philip H. Boothroyd

January 1, 1964, I retired as an agent and my wife and I are living in the house my father built in 1883. After my father's death in 1932 I took over as observer of the Waterdale weather station which my father had operated since 1895. Keeping these records and relaying them to interested parties has been a source of pleasure to the family and friends. We have four sons, now married and living in four different States. One of them, while home, helped considerably in keeping and compiling weather records."

CONNECTICUT

By way of reply to Mark Twain's complaint that nobody does anything about the weather except talk, there are 62 cooperative observers who are taking and systematically recording weather observations at locations spotted throughout Connecticut. While some of the observations are made by employees of power companies, water bureaus, industrial plants, and institutions of learning, the U.S. Weather Bureau is in large measure dependent on the work of a substantial number of individual weather observers. They come from all walks of life to provide informa-

tion of value to the business, industrial, and agricultural communities. Private citizens benefit too. So a farmer, a plumber, a student, a college professor, a mill owner, a waterfowl breeder, or a housewife is apt to become known locally as "the weatherman." Together, they make a team which is building a series of uninterrupted records over long periods. Their records help establish the climate of Connecticut.

Some observers regularly telephone and mail weather reports and river gage readings to the Weather Bureau's River District office in Windsor Locks. These data, together with similar information gathered from neighboring States, make possible the flood warning service for New England. During the growing season several observers mail reports weekly to the State Climatologist. The information is the basic material used in the preparation of the various crop and market letters which are useful to the farm community. Many observers quickly inform Weather Bureau offices when unusual or violent weather events occur at or near their stations. Some have outdone themselves in dangerous weather situations. All are unpaid; but they have one thing in common, a mutual interest in the weather. To some, like the mill owner, this interest alone provides the incentive. To others, such as the farmer and the forester, the weather is a close associate of their occupations. All deserve citations of merit but this publication particularly lists only those individuals who have already contributed 30 years or more of service.

Nevertheless special mention will be made here of a site maintained through the years by succeeding generations of the same family. Up at Cream Hill, in Cornwall, Theodore S. Gold has succeeded his father Charles L. Gold as official observer. The late Mr. Gold started his official observations in July 1896. His son took over in August 1940. Mr. Theodore Gold credits his grandfather for encouraging his son Charles to become a cooperative observer when the idea first came to his attention. Some years ago Mr. Gold suggested that the Weather Bureau designate "Cream Hill Farm" as the observer for the Cream Hill station, and thus let it have a long continuous history, rather than a succession of observers—"my father, myself, perhaps someone else later." This is now the official designation for the station. Cream Hill Farm has had an almost perfect rec-

ord in taking daily observations but, of course, a number of persons have been involved. In the words of Mr. Gold, "My father, my brothers, my mother, myself, occasionally a trusted employee, all took observations from time to time during my father's tenure. My wife and children have helped me cover the station. For some years while I was serving in Washington, D.C., as part of the immediate Office of the Secretary of the U.S. Department of Agriculture, my wife largely maintained the records. It is fascinating work and I hope that we can keep it up for many years to come. Mobility may be a part of modern culture and living, but I firmly believe that there are great values in 'staying put', in being part of one community, of one way of life, of one 'place'. These values I feel and enjoy. I hope they can be part of the heritage of my family into the future—not just for the sake of my family, but because I believe such a heritage to be good for the country and for mankind."

Edward C. Childs

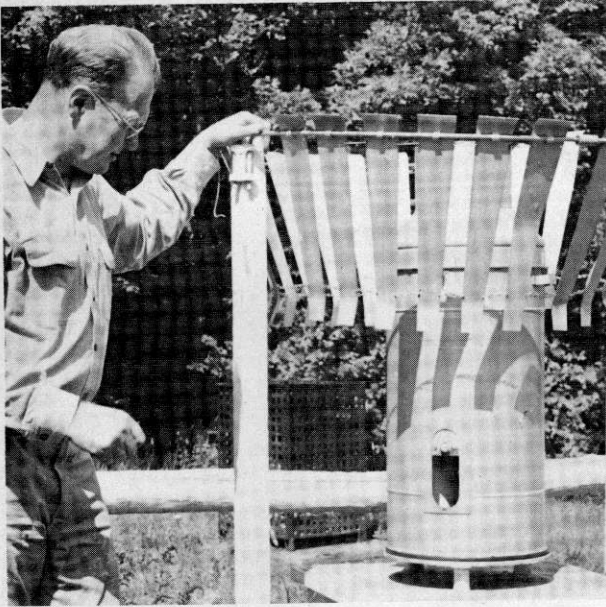
Norfolk

Over in the "ice box" of Connecticut, at Norfolk, where annual snowfall averages over 100 inches compared with 30 to 60 inches elsewhere in the State, Edward C. Childs has been the official observer since January 1932. "Ted," as he is affectionately known throughout the State, is the holder of the Jefferson award. He tells this story:

"It would scarcely be possible to live in Connecticut, or for that matter anywhere, without an awareness of weather and its profound effect on all we accept or expect.

"My earliest appreciation is so interwoven with countless initial perceptions that it would be impossible to select any one. However, I do remember the impact of a tiny, red leaf rimed with delicate frost crystals. Then too, there was the continuing thrill of watching gale-driven waves crashing onto shore rocks and seawalls or the rush and excitement that always attended a summer thunderstorm long ago.

"My early appreciation of weather was constantly fostered by my grandfather. He introduced me to 'the daily weather map'. To be able to watch and study the daily sequence of events, as storms and anticyclones formed and moved across the continent, was of inconceivable value and interest to a youngster. As early as 1915 I



Edward C. Childs

began to put aside and save some of the more significant 'developments'.

"After graduation from college there were the wonderful and extended opportunities to observe and experience weather and climates in other parts of the world—the extraordinary downpours and resulting devastations at Baguio, high in the Benguet Mountains of northern Luzon, the inconceivable August heat of the Red Sea when compared with the coolness of the Indian Ocean at the height of the southwest monsoon and, later, a typhoon in the South China Sea, a tumultuous and violent experience. World War II took me back to the Tropics. This time however to Central America and the prodigious autumn rains in the jungle forests of Costa Rica, where, among other things, I set up and operated several weather recording stations.

"Earlier, in 1931, while I attended the Yale School of Forestry, I engaged in the first detailed recording of weather conditions here at Norfolk. Graduate research work on the influence of eastern hemlock on the microclimate and soil moisture of forest stands gave further impetus to my continuing interest in weather and climate. This led quite naturally to the daily recordings at Norfolk 2SW on January 1, 1932.

"From that day to the present, even though some of my time was spent away from Norfolk,

not a day has gone unrecorded. Obviously much credit for this belongs to those who have given such constant and devoted service down through the years. It would have been impossible without the assistance of Norman E. Smith, who gave so much of his time from the beginning until illness forced his retirement in 1962. Once during a blizzard in February 1934 Norman had to buck snowdrifts for four miles on snowshoes to take the measurements. During the years of World War II we were indeed fortunate in having H. Lincoln Forster carry on the work both enthusiastically and without interruption. Today Darrel F. Russ is both forester and weather observer when the need arises.

"In 1941 the Yale School of Forestry moved to new quarters erected here when the New England hurricane of 1938 leveled the forests of eastern Connecticut. The research, educational and demonstration work in the Great Mountain Forest are developing along constructive lines. The establishment of a tree-genetics program has broadened our horizons. Norfolk is now a Weather Bureau bench mark station programed to function in perpetuity and with the least possible change in environment. Recently, Norfolk has been designated to be an official evaporation station. All of these have significantly broadened our interest in weather and climate."

DELAWARE

Historically, daily weather observations in Delaware date back to John Campanius Holm, a Lutheran minister, who maintained a daily record of weather observations during the years 1644 and 1645 at the Swedish colony of Fort Christina, located near present-day Wilmington. One of the Weather Bureau's highest observer awards is named for him, the first man known to have taken weather observations on a daily basis within the United States.

Delaware may take justifiable pride in its fine group of cooperative weather observers who, coming from many different walks of life, have taken and recorded daily weather observations at their stations and have thus contributed much to the knowledge of the climate of this State. It would, perhaps, be well to acknowledge the efforts of those individuals who in the past served faithfully for a long period of time, such as: Charles J. Holzmueller at Milford during the

period February 1902 to November 1943; and Reverend Lewis W. Wells at Millsboro during the period January 1893 to May 1923. Currently, William M. Ray who took over the Bridgeville station upon the death of his father in January 1935 is Delaware's observer with the longest service. These observers maintained records for 30 years or more; however, there are others who faithfully performed their duties as weather observers for but a few years less.

Those observers, who accept or continue during their retirement years this important voluntary public service, should be particularly commended. In Delaware we may mention L. Wirrie Long, a retired mail carrier, who has been the observer at Selbyville since February 1954. Now 85 years of age, he is Delaware's oldest observer.

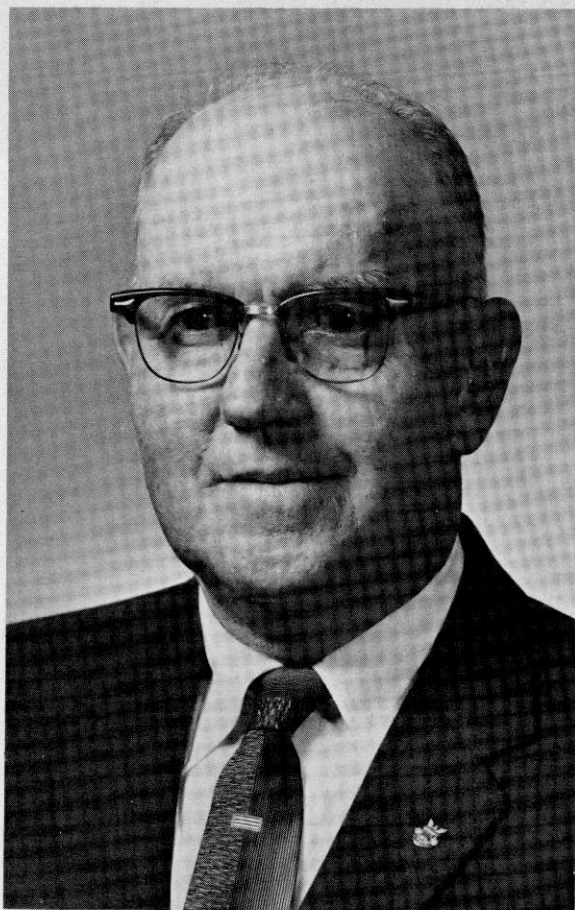
In addition to private individuals, organizations such as city, county and state departments and agencies; university agricultural experiment stations; radio stations; and commercial firms are assisting more and more as cooperative weather observers and have been responsible for many excellent records of daily weather observations. This is especially true in Delaware where six of the nine cooperative stations whose data are published by the Weather Bureau belong to such organizations. The following are but two of these with long present-day records: Wilmington City Water Department with its station at Porter Reservoir, dating from March 1912 and the University of Delaware Agricultural Experiment Station at Newark, dating from May 1940.

Finally, the Weather Bureau cooperative observer has been an important source of information to his community by providing his daily observations to the different news media for much wider dissemination to the general public, by making available his past climate records to engineers, lawyers, and many others for use in their profession or occupation, and by aiding the schools in the education of the youth through his discussions of local weather and the science of weather and through visits to his weather station.

William M. Ray

Bridgeville

Mr. Ray is a member of a father-son combination which has been taking weather observations at Bridgeville since 1923. Upon the death of his father, George, in January 1935, he took over "temporarily until someone else could be found." Now thirty years later he is still at it and doing



William M. Ray

a fine job. He was born on a farm near Bridgeville in 1911 and in 1933 he married Catherine Towers. They have two married sons and a daughter who is a student at a business school. They also boast of six grandchildren. In addition to his occupation of farming, he is also a substitute rural mail carrier. He enjoys hunting deer and small game. He has always found weather observing very interesting and has answered many inquiries for weather data, including those from University of Delaware Experiment Station. The most outstanding weather event, he recalls, is hurricane Hazel of October 1954 whose wind gusts reached, he estimated, almost 100 miles per hour and he notes "My thermometers and shelter were blown about a hundred feet out in the field."

FLORIDA

The climate is one of Florida's most valuable natural resources. Unlike most natural resources, the climate of an area is not depleted by use. The climate, defined as the population of weather events, is best represented by a statistical collective of weather conditions during a time interval of at least several decades. The cooperative observer has documented our climate by his day-to-day weather observations and thereby has provided a legacy upon which can be based many important economic decisions. Florida, one of the faster growing States in population and economic endeavor and having a general climate which is amenable to many and varied pursuits, has found the historical weather documentary a valuable possession; its use is found in both private and public enterprise planning.

Weather observations in Florida, at least those including temperature and rainfall, began in the middle 1800's at a few widely separated military posts. Records began at Key West in 1832 and records in the vicinity of Jacksonville date from 1851, to mention only two. With the exception of the Civil War years and a few other shorter periods when observations were suspended, records at these two places are remarkably complete. The number of observing points increased slowly during the late 1800's and by the time the Weather Bureau was established in 1891 there were only 24 regular observing stations in Florida. The observing network increased slowly in the early 1900's and more rapidly after about 1920. By 1964 there were nearly 200 places in Florida at which observations were being made daily throughout the year. In addition to this basic network, there are about 400 special temperature stations operated during the winter months in the citrus and vegetable producing areas of peninsular Florida. This special network began in 1935 and historical records from these special stations allow a rather detailed documentation of micro-climatic differences in those agricultural areas. In more recent years a number of special storm reporting stations have been established at coastal points. These stations are designed to observe and report weather and sea conditions during the passage of tropical storms. Almost all of the above described observing stations are manned by cooperative observers who serve without pay. From the accu-

mulated records it can be noted that all reported temperatures in Florida fall between a low of 2° F. below zero and a high of 109° F.

Florida's land values and usage, especially in the citrus and vegetable producing areas, are closely tied to the local or micro-climatic conditions which are reflected in the weather records compiled by the cooperative observers. The success or failure of many specialized agricultural endeavors hinges upon the correct evaluation of local variations from the general climate of the area. One of the prime considerations in specialized agriculture in Florida concerns temperature, especially the frequency, time of occurrence, and severity of freezing. Water conditions, manifested in either flood or drought, also are of importance. Armed with the historical weather documentary provided by the cooperative observers, weather risks may be evaluated and the agriculturist may weigh the potential fruits of success against the risk of weather hazards that contribute to failure before he invests. He may also make a more realistic appraisal of long term costs of freeze, flood, and drought protection should he choose to reduce the impact of naturally occurring weather hazards. Many considerations of industry, commerce, and other activities which are influenced by weather variations may be at least partially resolved by turning to the historical weather documentary provided by the cooperative observer.

Some stations have remained in one family for many years. An example is the Garnett family of Hypoluxo. The first observer in this family was Mr. A. W. Garnett who served as the cooperative observer from December 1899 through July 1904. In May 1914 Mr. J. L. Garnett, a brother of A. W. Garnett, became the observer and he continued in that capacity until his death in December 1957. The present observer, Mr. J. L. Garnett, continued the family tradition and has been serving as the weather observer since his father's death in December 1957. All together the Garnett family has compiled nearly 56 years of weather history in Hypoluxo. All the observations since 1941 have been taken in close proximity to the family-owned citrus grove and ornamental nursery.

Cooperative observers in Florida are engaged in many and varied pursuits which may or may not be closely akin to weather observing. Many

Florida stations at which there has been a long and continuous record of daily weather events compiled are associated with private, municipal, state, or federal organizations which have a continuing interest in the daily weather details. Several private individuals who have given generously of their time and efforts toward compiling more than 30 years of daily weather conditions at their stations are deserving of special mention.

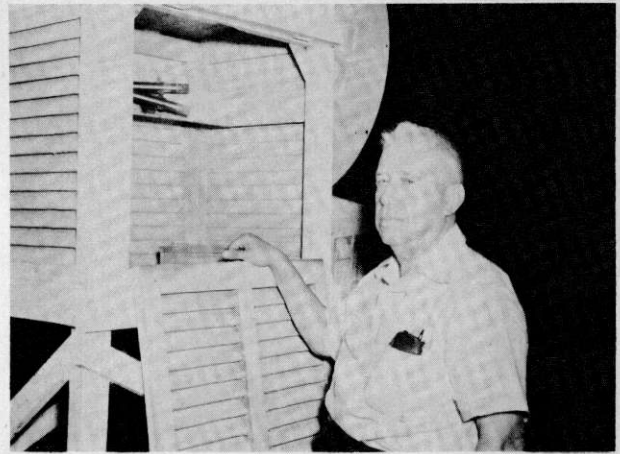
Thomas C. Merchant

Madison

Mr. Merchant has been the cooperative observer at Madison, Fla., since April 1918. During this period of service Mr. Merchant has been editor and publisher of the Madison *Enterprise-Recorder*, a weekly newspaper, and has served three terms in the Florida Legislature. In more recent years, he and Mrs. Merchant have enjoyed traveling abroad, not the least of which was a journey around the world several years ago. The experiences and impressions gained during these travels are often reflected in the editorial column of the *Enterprise-Recorder*. In each instance of his absence from Madison, Mr. Merchant has arranged for a substitute observer to maintain the weather records without interruption. In recognition of his enviable weather observing record and for the enthusiasm with which he continues this activity, Mr. Merchant was given the Weather Bureau's John Campanius Holm award in 1964. He has compiled the longest continuous weather record of any living cooperative observer in Florida.

Mr. Merchant is a graduate of the Florida Seminary and of Davidson College in North Carolina and was a member of the Davidson College teaching staff for a short time after his graduation. His teaching career was interrupted by the demands of the newspaper but his thirst for knowledge was never quenched. Since the Junior College has been established in Madison, Mr. Merchant has once again become a student and has enrolled for every term since the college doors first opened. He is proud to say he has earned all A's but one and that one was a B.

He says: "I have enjoyed very much my association with the Weather Bureau as a cooperative observer for more than 46 years. It has been very interesting and helpful to the people here, to me, and to our paper. As I told them when I was presented the John Campanius Holm award



Thomas C. Merchant

a few weeks ago, 'Now that I have completed forty-six years with the work, I am starting on the next forty-six.'"

A. B. Nordman

New Smyrna Beach

Mr. Nordman became the cooperative observer in New Smyrna Beach, Fla., in July 1923. He succeeded his father, Mr. F. J. Nordman who served as observer there from November 1906 through June 1923. This father and son combination has compiled more than 58 years of daily weather records. Shortly after becoming the official observer, Mr. Nordman had the rather



A. B. Nordman

unique experience of measuring 23.22 inches of rainfall in a 24-hour period during the passage of a tropical storm in October 1924. Although larger 24-hour rainfalls in Florida have been deduced from special storm surveys, the value reported by Mr. Nordman still remains the greatest 24-hour rainfall total ever measured by an official weather observer in Florida.

Mr. Nordman is a native of Illinois but moved to Florida at an early age in the early 1900's. He has been engaged in the citrus production business in New Smyrna Beach for many years and this partially accounts for his continued interest in weather phenomena. He finds the historical records compiled by himself and his father before him are a valuable asset in his own enterprise planning. (Editor's note: Mr. Nordman died on June 16, 1965.)

GEORGIA

Georgia is justly proud of its corps of dedicated cooperative weather observers, both past and present. Inquisitive and scientific minded Georgians began noting and recording the conditions of the weather soon after General Oglethorpe and his small group of Englishmen landed at Savannah in 1733 to establish the thirteenth American colony. Unfortunately only fragments of these early "registers" have been preserved for posterity. Among the earlier, well organized weather records kept in the interior sections of the State were those made at Athens by the first president of the University of Georgia. Professor Josiah Meigs, who came to Athens in 1801 to head the country's first State Chartered University, kept a daily record of the weather during most of his nine years in Georgia. Later, while Commissioner of the General Land Office (1814-22), Professor Meigs was among the first to recommend to Congress the establishment of a National Weather Service.

Official weather records were kept in a number of Georgia communities for several years before 1870, when the U.S. Weather Bureau was created by a joint resolution of the Congress and made a new agency in the U.S. Signal Service. Most of these early observations were made in cooperation with the Smithsonian Institution or the Surgeon General of the Army. Some of Georgia's early official stations and the year they began were: Savannah 1837, Augusta 1844, Athens 1849, Rome 1855, Atlanta 1859, and Macon 1868.

The number of Georgia weather stations increased steadily after the establishment of the U.S. Weather Bureau, and by 1900 there were approximately 65 official Cooperative Weather Observers in the State. This number has continued to increase and now totals nearly 200.

Most of Georgia's weather stations are operated by individuals but many are sponsored by public or private institutions and business firms, with an employee serving as observer. The following table gives a breakdown of Georgia observers by occupation:

	<i>Percent</i>
Small business owners or employees -----	17
Large company employees -----	9
Professional (lawyers, doctors, teachers, etc.) ---	4
Local, State or Federal Governmental Agencies or employees -----	34
Radio stations or employees -----	7
Housewives -----	12
Farmers -----	8
Miscellaneous -----	9

These weather observers have, on an almost entirely voluntary basis, made invaluable contributions to the knowledge of the climate of Georgia and the United States.

Many of Georgia's cooperative weather observers have received special recognition for their long and outstanding service. In 1960 the Weather Bureau established the Thomas Jefferson and John Campanius Holm awards for cooperative observers. Since then three Georgia observers have received the Jefferson and six the Holm award. A list of these observers and their citations will be found in Chapter Three.

The interest, dedication, and devotion to duty shown by cooperative weather observers is often amazing. Dr. Oliver Snapp, entomologist at the U.S. Department of Agriculture's Peach Laboratory at Fort Valley, kept an unbroken record of observations for more than 40 years. Dr. "Jack" Standifer, who recently received a length of service pin in recognition of 50 years of service at Blakely, has very few days of missing record during that period. Some observers, including the recently retired Mrs. Sarah Porter of Thomasville, were so anxious to have a complete record that they actually paid a substitute to take the observations when it was necessary to be absent. The West Point area has been subject to flooding through the years from the Chattahoochee River. During his more than 50 years as observer at

West Point, Mr. J. Smith Lanier, whose station is located on the banks of the river, has spent countless hours, both night and day, making frequent river gage readings and informing the townspeople of current and expected conditions. Many of Georgia's weather observers make their daily weather records available to the community by arranging for their publication in the local newspaper. Several also disseminate the data by radio.

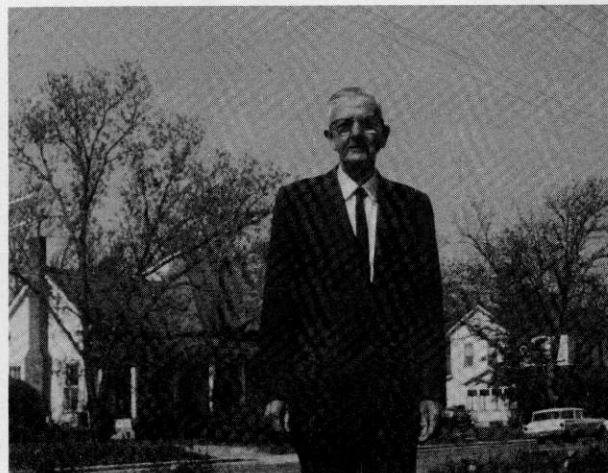
One of the truly remarkable records of service is that of the Norton-Towers family at Rome, Ga. Members of this family have served as observer at Rome since the station was begun in 1855, an unbroken record of 110 years. The present observer, Mr. William M. Towers III, is the fourth generation of his family to serve as weather observer. He says "I still have a copy of the original records for every single day for the past 109 years. It has meant much to me to be able to carry on this family tradition. I became observer in 1955, just 100 years after my great-grandfather first began taking observations." Another outstanding family record is that of the Cromley family at Brooklet. There observations have been taken by the grandfather, Mr. J. D. Cromley, beginning in 1907; by the son, W. C. Cromley from 1910 until shortly before his death in 1964, and by the grandson, W. C. Cromley, Jr., since then, covering a period of nearly six decades.

Noteworthy among the businesses that have been responsible for rendering outstanding service to the Weather Bureau and the local community is the Coney and Parker Building Materials Company in Brunswick. The weather station has been located on the property of this company since January 1920 and officials of the company have served as observer. The dedication of the individual observers is shown by the fact that only four have been required during the 45-year period. The service of two of these was terminated by death. In addition to the regular duties of cooperative observer the Brunswick observers also serve as storm displaymen and disseminate forecasts and storm warnings in the Brunswick area. The present observer, Mr. F. W. Woodcock, rendered outstanding service during Hurricanes Cleo and Dora, just as his predecessors had done under similar conditions in the past.

W. C. Barnard

Glennville

The Barnard family of Glennville is another Georgia family that has rendered meritorious service in weather observing. The station was established at Glennville in November 1904 and has operated continuously to the present. The first observer was Mr. H. C. Barnard and a member of this family has served as observer for these 60 plus years. The present observer, Mr. W. C. Barnard, grew up in Glennville and had his first experience as weather observer while a young man. After serving as observer from June 1906 to November 1912 he gave in to an urge to wander and spent the next several years in Florida and Texas as an employee of the Post Office Department and the U.S. Custom Service. His keen interest in weather continued during these years and he managed to stay in touch by making friends with local Weather Bureau employees wherever he happened to be. He returned to Glennville about 1918 but did not become official weather observer again until 1939. His sister, Miss Fannie Barnard, was observer from 1912 to 1918 and his brother, A. V. Barnard, was observer from 1918 to 1939. Since December 1939 Mr. W. C. Barnard has served continuously as observer and this period, combined with his earlier tour, gives him a total of over 30 years service as weather observer at Glennville. Mr. Barnard is now retired from a career in accounting and bookkeeping work but his interest in weather and his dedication to service shows no signs of slackening. During the recent hurricane Dora he kept and furnished the Weather Bureau an almost hourly log of conditions at his station.



W. C. Barnard

L. Monroe Cason**Warrenton**

Mr. Cason became the weather observer at Warrenton, Georgia in January 1916 and, after nearly 50 years, continues as official observer. Mr. Cason has retired from a career in the hardware business in Warrenton but his interest in the day-to-day weather in his community continues strong. He has long been known in Warrenton as the "weather man" and has always derived a great deal of pleasure and satisfaction from answering the questions and serving the weather needs of his neighbors and friends. His long period of devoted and conscientious service has contributed greatly to our knowledge of the climate of east central Georgia. Of his experience as weather observer Mr. Cason says: "It has been a great inspiration to me and I have thoroughly enjoyed it. I shall always remember just how much the Weather Bureau has meant to me."

J. Smith Lanier**West Point**

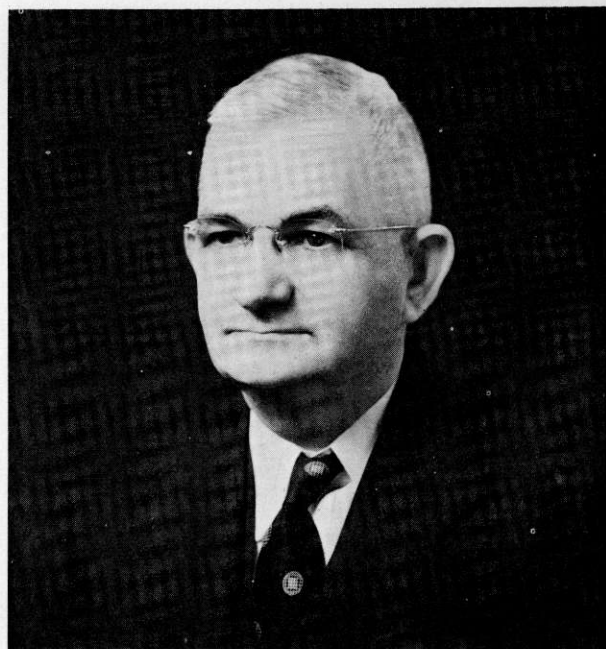
Mr. Lanier was born in Chambers County, Alabama in 1877, and moved to West Point, Ga., at an early age. He has continued to live in this area for these many years. Mr. Lanier, now in his 87th year, looks back to a most rewarding experience as weather observer for the past 58 years, having been able to serve the people of the Chattahoochee Valley many times, especially on the numerous occasions when the river has flooded this area of Georgia and Alabama. We are sure that Mr. Lanier has saved the residents and especially the business community of this area thousands of dollars by keeping them advised as to expected heights and time of floods, enabling them to move merchandise and equipment above flood level. In many of these crises Mr. Lanier would stay at his office and on the telephone continuously for as long as 36 hours. Mr. Lanier's greatest satisfaction in life is derived from being able to serve God and his fellow man. Being an observer in the middle Chattahoochee area certainly afforded this opportunity.

Prof. E. S. Sell**Athens**

Professor Edward Scott Sell, Educator, was born at Hoschton, Ga. March 9, 1887. He was educated in the public schools at Hoschton and the University of Georgia. He received the BSA and MS degrees from the University. After serving as a high school principal he taught at the Georgia State Teachers College and was head of the Geography Department at the University



J. Smith Lanier



Professor E. S. Sell



Dr. Jack G. Standifer

of Georgia. He is the author of a number of publications including the *History of the State Normal School*, the *Physical-Political Map of Georgia* and the *Geography of Georgia*. He is a member of the Board of Trustees of the First Methodist Church of Athens. He retired from the University of Georgia several years ago but maintains an office at the Athens Federal Savings and Loan Association where he is a director and vice president. He has served as official weather observer at Athens since 1929 and during these years has furnished a daily table of weather data for publication in the Athens *Banner-Herald*. Professor Sell says: "My contacts with Weather Bureau officials, the keeping of the daily records and supplying this information to the public through the years has been a source of much pleasure to me over these many years."

Dr. J. G. Standifer

Blakely

Dr. J. G. Standifer, affectionately known as Dr. Jack, was born in Blakely, Ga., in 1888, to Dr. Wm. B. Standifer and Mrs. Rebecca Jeanette (Jones) Standifer. He began serving as

weather observer at Blakely in August 1914 and was married in September 1914 to Miss Sarah Rebeccah Moore, of Macon.

Dr. Standifer attended the schools of Blakely, Staunton Military Academy at Staunton, Va., and Mercer University. He followed in the footsteps of his father and grandfather and graduated from the Medical College of the University of Georgia at Augusta, on May 1, 1911. He has practiced medicine in Blakely since that time, a total of more than 53 years. The combined service of the three Standifer doctors in Blakely, Dr. Jack, his father, and grandfather, extends from 1837 to 1964, a total of 127 years. Dr. Jack was named General Practitioner of the Year in 1960 by the Medical Association of Georgia. He is on the staff of the Early County Memorial Hospital.

Dr. Standifer has been active in Freemasonry and has attained many positions of rank and honor. He is a Knights Templar, KYCH, of the York Rite and a 33d degree Mason of the Scottish Rite; A Past Potentate of the Shrine and a Past Grand Master of the Grand Lodge of Georgia. He is a communicant of the Episcopal Church, a past president and charter member of the Blakely Lions Club, an ex-Mayor of the City of Blakely and served on the local school board for 14 years. He introduced the game of football at Blakely High School in 1921 and the Athletic Field is named for him.

Dr. Standifer recalls some of the outstanding weather events in Blakely during the past 50 years as (1) the 17.25 inches of rain that fell in one 24-hour period on July 7-8, 1916, (more than 2½ feet fell during the month); (2) the 6° above zero minimum temperature on January 6, 1924, (his T-model Ford almost froze up when he made an obstetrical call at 4 a.m., and since it was so near zero the baby girl was named Zelda); the heat wave of September 1925 when 15 days had a maximum temperature of 100° F. or above.

Dr. Jack has this to say about his 50 years as a weather observer: "I have really enjoyed recording the weather, watching the rain, wind, snow, sleet, hail, the clouds, the brilliant displays of electricity, the dust storms, the droughts, the floods, the towering thunderheads, the tornadoes and the calm of a summer day. This close association with the elements was an opportunity to commune with Nature and Nature's God."

HAWAII

Nowhere else in the United States, or perhaps in the world, does mean annual rainfall vary as widely over short distances as it does in Hawaii. This circumstance stems chiefly, of course, from the forced ascent of the moist northeasterly trades over the abrupt and diverse topography of the Islands after an unimpeded passage over thousands of miles of open ocean.

Thus, within the small confines of the 6 principal islands, annual rainfall averages from one-fifth to 20 times that believed to occur over the neighboring sea—a 100-fold range. On the windward slopes of Oahu's Koolau Range it increases with elevation by as much as 100 inches per 1,000 feet, while Mt. Waialeale, whose yearly average of 465 inches makes it the rainiest spot known to man, is only 18 miles from the less than 20 inches of Kauai's leeward coast. Similarly, Puu Kukui and Olowalu, Maui's wettest and driest stations, with 400 and 10 inches of rain, respectively, are only 6 miles apart. And one could cite many other contrasts nearly as great.

Nor are such gradients evident only in the average rainfall, but also in its seasonality and during individual rains, heavy as well as light. For example, the extraordinary downpour which brought 40 inches of rain in 24 hours to northern Kauai in January 1956 left the western rim of that island some 20 miles away with less than 1 inch.

Coupled with, and in part derived from, this extreme variability of rainfall is a need for a detailed knowledge of its distribution in time and space, principally for agricultural purposes. As is generally known, the cultivation of pineapple and sugar cane in Hawaii have attained the status of scientifically-managed industries, which employ every technological means for increasing crop yield and quality, including the support of elaborate research institutions. Every factor, biological and environmental, affecting the two crops has been subjected to intensive and continuing investigation. Many of these hinge about the proper use of water. Planting and harvesting both require dry fields for the utilization of heavy mechanized equipment, and such vital practices as the application of fertilizers, pesticides, herbicides, hormones, and irrigation water are all critically dependent on rainfall past, present, and predicted.

Both sugar cane and pineapple mature very slowly. Sugar cane especially takes as long as 24 months from planting to harvest and consumes enormous quantities of water in the process: it takes about a ton of water on the crop to produce a single pound of refined cane sugar. Hence, although much sugar is planted where rainfall is adequate (70 inches or more annually) irrigation is also extensive. In all, 400 billion gallons of water, half of it pumped, are applied to sugar acreage annually; and half of each dollar of field costs goes into water development and application. The flumes and ditches of the East Maui Irrigation Company alone convey more than 200 million gallons of irrigation water a day over the 20 miles from the rainy mountains of East Maui to the drier fields near the Central Valley, where much sugar is grown.

The requirements of its water-demanding crops and of a rapidly growing population have given Hawaii an acute awareness of rainfall. To monitor precipitation for their own purposes, plantations, ranchers, irrigation companies, Federal agencies (such as the Geological Survey and the Corps of Engineers), local Boards of Water Supply, and others concerned with agriculture or some other aspect of water supply have established and maintain their own—and in some instances rather extensive—rain gage networks. In all, about 1,300 rain gages of a variety of types dot the State's 6,400 square miles. But even this large number does not adequately delineate rainfall; for while most of the plantations contain many gages, less accessible but hydrologically important mountainous regions contain few or none at all.

Of Hawaii's approximately 1,300 rain gages, some 260 carefully selected for location, representativeness, length of record and quality of data comprise the official substation network and are published in the Climatological Data bulletin. Only 20 of these—fewer than 8 percent—are read by individual cooperative observers, and more than two-thirds by the employees of sugar and pineapple plantations, ranches, and privately-owned irrigation companies. For example, 12 of the substations are on the fields of a single sugar company, Lihue Plantation, and 11 on those of Pioneer Mill Company. Three plantations read nine Weather Bureau gages each, as does the

Honolulu Board of Water Supply; while the East Maui Irrigation Company has eight.

One consequence of this peculiarity of Hawaii's substation network is the large number of institutional cooperators with long periods of service.

Thus, while the average length of service for the individual cooperative observer in Hawaii is under 7 years, and for 16 of the 20 less than 10, 163 of the substations have been read by the same plantation or other organization for more than 30 years, many of these for more than 50 years, and the following four stations for 75 or more years:

Island	Station	Observer	Served From
Kauai	Koloa	Grove Farm Ltd.	Jan. 1887
Kauai	Koloa Mauka.	Grove Farm Ltd.	Jan. 1887
Hawaii	Kapapala Ranch	Hawaiian Ranch Co. Inc.	Aug. 1886
Hawaii	Haina	Honokoa Sugar Co.	Jan. 1890

Temperature in Hawaii is of much less significance to agriculture and to other human activities than is rainfall. Diurnal and seasonal variations are slight and extremes moderate relative to those commonly experienced elsewhere in the United States. The highest temperature ever recorded in the State is 100°F. and the lowest about 18°F.—the latter near the summit of Mauna Loa. Frost is virtually unknown, except on the upper slopes of Hawaii's highest mountains well above crop and pasture lands. Although data are much too sparse to permit meaningful isotherms to be drawn, these would undoubtedly closely parallel the topographic contours. The relative unimportance of temperature is in part reflected in its being observed on a much less extensive scale than is rainfall. Thus, the "ab" network contains only 29 substations, and perhaps twice as many are privately owned and maintained.

Situated on the east slope of the Kohala Mountains on the Island of Hawaii is the historic Kohala Mission, founded by Congregational missionaries in 1841 and one of the oldest cooperative weather stations in the Islands.

The Rev. Elias Bond and his young wife Ellen, residents of the old town of Hallowell, Maine, embarked for the Sandwich Islands on the sailing

ship *Gloucester* in November 1840 and arrived at the port of Honolulu 185 days later. A 10-day voyage on the brig *Clementine* brought the missionary family to Kohala, where Father Bond labored continuously in the vineyards of our Lord until his death in 1896.

In the earliest days the congregation worshipped in a grass church. This was replaced in 1856 by a great stone church. Today—more than a century later—this same edifice dominates the Mission grounds.

Although there are no records extant of observations that may have been taken from 1841 to 1890, many of the letters written by the Bonds during these years describe vividly the occasional high winds and torrential rains of Kohala. Father Bond wrote that during a severe storm in February 1859 the active volcano of Mauna Loa erupted "directly through the snow", sending out a "stream of liquid fire" that took eight days to reach the sea at "Kawaihae or Puako, about 40 miles from the crater."

The first published rainfall observations for Kohala Mission were taken in 1890 by Dr. B. D. Bond, son of Elias and Ellen. Published temperature observations are available from 1893. By 1903 Dr. Bond was reporting, in addition to extreme and mean temperatures and total rainfall, the number of days per month with rain, greatest 24-hour rainfall, mean dew point, mean relative humidity, and number of trade wind days each month.

Dr. Bond was obviously a man of many and varied interests. According to his son, Mr. K. D. Bond, who at the time of his own recent death was the State's senior cooperative observer, with 35 years of service, the magnificent and diversified arboretum that characterizes the Mission today is largely the result of Dr. Bond's horticultural hobby. Since May 1, 1965 the family tradition of cooperative weather observing has been carried on by Mr. K. Lyman Bond.

IDAHO

Although systematic weather observations and records had been started in Idaho almost 30 years earlier (by Surgeon General's Office, U.S. Army and later by Signal Corps, U.S. Army, at such places as Fort Sherman, Fort Lyon, and Fort Boise), the cooperative weather observer program came into being within the State about

1893, some two years after establishment of the Weather Bureau in the U.S. Department of Agriculture.

During the past 70 years several hundred persons have served as cooperative climatological observers at nearly 400 locations. The maximum number of cooperative stations active at any one time has probably never exceeded 200, because, in earlier days especially, a station would be established in some mining camp or other small community, and either because of loss of interest, or shifting of the populace to greener pastures, the weather observations would be abandoned. Even now we have changes in stations from year to year as interest wanes in a community or we find an observer in a previously unrepresented location. Nevertheless, there is a sizeable list of stations where records have been kept continuously for 30, 40, or 50 years, and a few with more than 60 years of record. At a few points one man has been the observer for 30 years or more, with two men still active who began serving as cooperative observers at the time of World War I.

Idaho presents many problems in the obtaining of data adequately to describe its almost infinite variety of climates. There are desert areas, large, productive tilled areas, (irrigated and unirrigated) grassy upland valleys, mountain ranges, and deep canyons. Population distribution is thus largely determined by land use and topography and large areas are virtually uninhabited. Despite these handicaps, observations have been recorded at enough points through the years to give us a reasonably good picture of Idaho's climate. Miners, prospectors, ranchers, dam tenders, Forest Service and Bureau of Reclamation employees, as well as doctors, teachers, bankers, housewives, and many others have contributed their time and energies to the maintenance of an active climatological network.

In some areas ground traffic is at a standstill for 6 or 7 months of the year because of large accumulations of snow, but we have a few hardy souls who live in isolated areas and continue observing and recording the weather the year around. Big Creek and Deadwood Dam are two examples of stations relying on the airplane for mail and supplies during the months when they are inaccessible by automobile.

Among observers in Idaho with less than 30 years service there are many who should be com-



Junius L. Crowther

mended for their devotion to duty. Just two examples of devotion that might be called "above and beyond the call of duty": (1) George Meyer of Idaho Falls 16SE has at times made special trips by motorized snow sled just to mail the monthly report; (2) John Koepf of Nezperce maintains graphs and tables of past weather to supply information to local interests, including the weekly newspaper. Many others undoubtedly have made observations in snowstorms, high winds, and extreme cold, but because it is "just routine" we seldom hear of it. We are indebted to all of them.

Junius L. Crowther

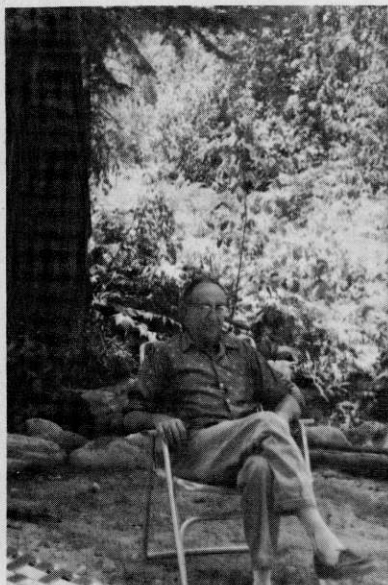
Malad

At Malad Mr. Junius L. Crowther took over the weather station from his father in November 1926 and still continues as the cooperative observer with an occasional assist from his son, who acts as substitute observer. Born in Logan, Utah, in 1901, Mr. Crowther has been associated with flour milling for all of his adult life. He has always been active in church and community life and his life story could serve as a history of the development of Malad.

E. A. Finkelnburg

Hazelton

A transplanted mid-westerner who has been observing and recording climatic data for more than 45 years is Mr. E. A. Finkelnburg of Hazelton. Born in Winona, Minn., January 6, 1892 and graduated from Cornell University as a civil engineer, Mr. Finkelnburg came to Hazelton



E. T. Gilroy

“to work for 90 days” as hydrographer. He began making the observations in June 1918 at the station established a year earlier by the North Side Canal Co. This is one of the few stations in Idaho where the equipment has remained in one location since the beginning of observations and Mr. Finkelnburg has been responsible for the observations for all but 1 year of the station’s history.

E. T. Gilroy

Kooskia

Another nonnative among Idaho’s long-time observers is Mr. E. T. Gilroy of Kooskia. Most of his life has been spent in the State, however, as he migrated here from Colorado with his parents, in 1902, at the age of six. He began service as cooperative observer on December 1, 1934. On November 1, 1960, Mr. Gilroy retired after almost 28 years as postmaster at Kooskia. Since his retirement he has continued the weather observations, an activity which he says has been interesting and enjoyable.

One incident stands out in his memory: During the 1948 flood, when a large part of Kooskia was under water, the weather equipment was overlooked in the rush to save personal belongings. When the water was almost armpit deep, Mr. Gilroy, with some help and much wading, finally succeeded in tying a rope to the shelter and pulling it to higher ground. The rain gage was also recovered intact and readings went on without interruption.

Frank O. Redfield

Burley

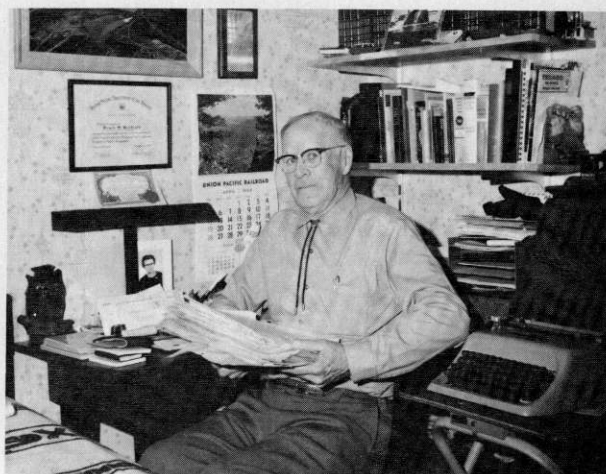
Dean of the active cooperative observers in Idaho is Frank O. Redfield of Burley. Having retired in January 1964 from his position as manager of the Burley Irrigation District, Mr. Redfield continues his daily trips (Sundays included) to familiar surroundings to maintain the observational program he started July 1, 1917. He came to Idaho from his native state, Wisconsin, where he attended the University, to work for the U.S. Bureau of Reclamation in April 1911.

In addition to making out the usual monthly report forms, Mr. Redfield has maintained running graphs and tabulations of temperature, precipitation, killing frosts, etc. These have permitted him to answer many questions through the years and to furnish the local newspaper with comparative climatological data.

Gust Steinmann

Ashton

Gust Steinmann began observing and recording the weather at Ashton April 11, 1934, after purchasing the farm from Homer M. Goebel, who preceded him as cooperative observer. Few observers have equalled Mr. Steinmann’s record for continuity of observations. Examination of the records, covering more than 30 years, reveals only two or three brief breaks in temperature records—and these because of a broken thermometer. Steinmann’s records of precipitation, snowfall, and snow depth could serve as models for any climatological observer. Besides, his reports are



Frank O. Redfield

mailed promptly each month. Now in his seventies, Mr. Steinmann continues to record his daily observations in the same firm, legible handwriting found on the records of 30 years ago.

ILLINOIS

Illinois is rightfully proud of its many citizens who have recorded long years of continuous service as 7-days-a-week cooperative weather observers. But time ends all good things and several Illinois veterans have had to relinquish their stations during the past 5 years.

A record of nearly 52 years of observations, in one location by a single observer, was ended in February 1964 with the death of Leo L. Euteneur of Havana, Ill., Mr. Euteneuer, a retired jeweler, was awarded the Thomas Jefferson award in 1963. His great interest in the weather, and his training of competent assistants, made the Havana record one of the most complete in Illinois.

Illness of Mrs. Nina M. Ryherd of Windsor, Ill., brought her resignation in 1964 and the end to 60 years of observations and records by the Rose-Ryherd families. The cooperation of the Rose family actually started before 1890 when Mrs. Ryherd's grandfather, Alexander Rose, started sending in crop-weather cards. Mrs. Ryherd was taught to make observations at the age of 12 by her father, Herbert Rose.

Mr. Charles Ewing celebrated his 85th birthday on September 1, 1964. He had completed more than 35 years of service as rainfall observer at Warsaw, Ill., before his resignation in September 1962. The impending rigor of another winter of snowfall measurement was the deciding factor. Mr. Ewing and his wife are still quite interested in the weather and make their own rainfall observations.

Mr. Arthur W. Jagers had more than 26 years of rainfall observations to his credit when unsuitable exposure made it necessary to relocate the Edwardsville station.

These and other dedicated observers, both past and present, have through devotion to duty and personal sacrifice contributed an important service to their community, their State, and their Nation.

Long records of cooperative observations by two institutions have also come to an end. West-

clox General Time Corporation resigned as the cooperative observer at LaSalle-Peru, effective June 30, 1963. Thus ended more than 44 years of record by this organization, much of the time under the supervision of Mr. Harold Maurer.

Norbury Sanatorium employees made cooperative weather observations for nearly 35 years under the supervision of Dr. F. Garm Norbury and his father. A change in the facilities at the Sanatorium made it necessary to move the equipment to a new location.

The Coonradt family has furnished the observers at Decatur, Ill., since the establishment of the station in January 1894. Professor J. H. Coonradt, a high school science teacher, was the first observer. Three generations have assisted in this more than 70-year record. Mrs. Ethelda C. Coonradt, the present observer, began assisting her father-in-law more than 20 years ago. Mrs. Coonradt, in addition to the operation of a complete climatological station, is a river-rainfall reporter and rainfall reporter for the *Weekly Weather and Crop Bulletin*. She also has an admirable record of public service to the Decatur community and for years has made three observations a day for the local newspapers.

The University of Illinois campus weather observation station completed its 75th year of continuous operation in 1963. The station is now known as Urbana (Morrow Plots). It was originally operated by the University of Illinois Experiment Station and was added to the Weather Bureau climatological network in 1902. The University continued operation until the Illinois State Water Survey (ISWS) Meteorological Laboratory took over in 1948. Urbana, still under the direction of the ISWS, was selected by the Weather Bureau in 1963 as a bench mark station for the study of past and future climatic changes in the United States.

William O. Beckner

Elgin

William O. Beckner was born near Bulls Gap, Tenn., on June 28, 1877. His family moved to a farm near Beatrice, Nebr., when he was 12. Mr. Beckner helped on the farm and, in spite of limited educational facilities, he was graduated in 1896 from the 10th-grade high school at Filley, Nebr. He taught 4 years in Kansas public schools, after graduation in 1909 from McPherson College at McPherson, Kans. The next 5 years were spent as teacher in the public schools in the



William O. Beckner

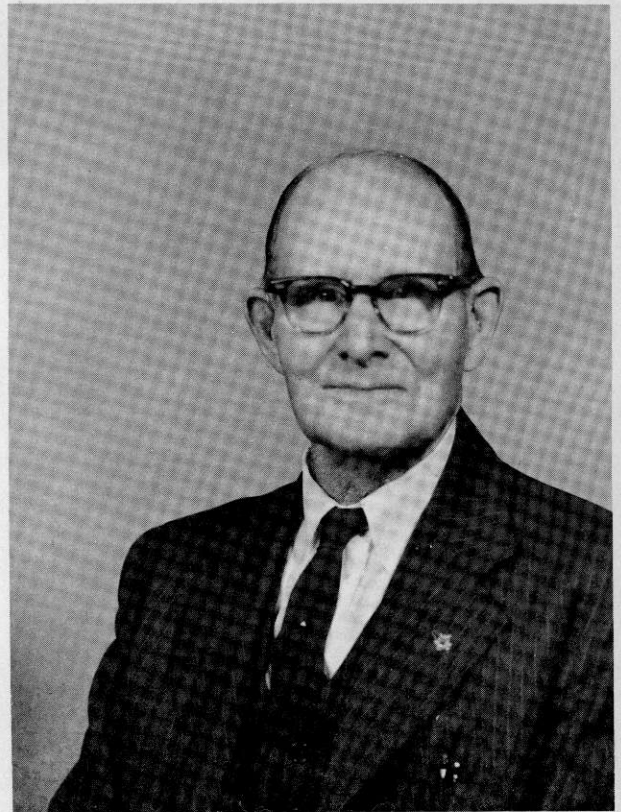
Philippine Islands. His homeward trip was made through northern China and westward on the Trans-Siberian Railroad for brief stops in Denmark and Sweden. He returned to McPherson College for 7 years as Public Relations Representative. Later he attended Chicago University and taught for 16 years at Elgin High School.

Mr. Beckner became the Weather Bureau cooperative rainfall observer on July 1, 1927. He writes, "I have enjoyed every minute of the work, especially the many friends it has brought both in Elgin and in the Weather Bureau." He purchased his own official type thermometers and constructed his own shelter so that he might also have a record of temperature.

Inquiries in regard to weather records are frequent and may involve rather unique circumstances. A little girl recently inquired as to the exact date of a particular storm. Her dog had presented her with pups on that occasion and she must know when they should be given their "shots."

Mr. Beckner's vitality and interests appear unlimited. He helped organize the Kane County Teachers' Credit Union in 1937 and for 25 years served as Treasurer-Manager while assets expanded from nothing to more than a half million dollars.

One of his hobbies, developed for his "Golden Years", is the making of "old-fashioned shaped baby cradles for little girls to use for their dolls." He has made more than 250 of these cradles, ap-



Robert E. Bradbury

proximately 20 inches long and 7 inches wide at the bottom, large enough that some have been used in church nurseries.

Mr. Beckner feels that he has learned many things during his busy and productive life. Foremost among these, "that friendships are the most valuable thing in life", and "a person has missed a lot of satisfaction in living unless he has contributed something to the world for which he received no pay."

Robert E. Bradbury

Roberts

Robert E. Bradbury of Roberts is the dean of climatological observers in Illinois. "I was born September 2, 1875, at 4 a.m. I was there, noticed the clock, and heard a rooster crow." This quotation from a 1964 letter of Mr. Bradbury reveals much of the effervescent, friendly, overpowering personality that pervades all he says and does.

Mr. Bradbury still resides on his farm 3 miles north of Roberts, where he moved in 1899. On June 1, 1911, he became a cooperative rainfall observer for the Weather Bureau and this record has continued in the same location for more than

53 years. Temperature equipment was added in 1934. Mr. Bradbury was a farmer and senior member of a plumbing firm until his retirement, and, can still repair a "weeping faucet." Since retirement his hobbies of gardening, floriculture, and writing poetry have kept him busy. He has been active in church work, served as a school director, and is past Deputy Grand Chancellor of the Knights of Pythias.

Mr. Bradbury's long and efficient service earned him the John Campanius Holm award in 1961. Some of his enthusiasm for weather must have transferred to his daughter, a highly regarded meteorologist at Chicago University.

An avid newspaper reader and clipper, he demonstrates an uncanny ability to summarize or caricature with a short, pithy remark. The following two verses were taken from his poem,

MY GIFT TO YOU

I should like to send you the power
That nothing can overthrow;
The power to smile and laugh the while
As journeying through life you go.
But these are mere fanciful wishes
I'll send you a Godspeed instead;
And I'll clasp your hand and you'll understand
The things I have left unsaid.

Mr. Bradbury's life emphasizes the advice with which he so often closes his letters, "Smile—Be Happy—Live Long."

Horace M. Gaddis Palestine

Horace M. Gaddis was born in Palestine, Ill., on August 19, 1901. He attended Palestine schools and later became an apprenticed plumber, a trade he still follows. In 1931 he married Clye A. Parker, another native Palestinian. They have three children, two daughters and a son.

The demands of his plumbing and heating business have not kept him from participation in civic affairs. He served one term on the Village Board and one as Justice of the Peace. He is an active member of the First Christian Church, secretary of the local Modern Woodmen of America Lodge, and has served as Fire Department Chief of the LaMotte Township Fire Protection District for the past 15 years.

Shorty, as he is familiarly known to friends, became the cooperative observer for the Weather Bureau at Palestine in 1934. He had previously developed an active interest in weather while traveling for 7 years as "boss canvasman" for a tent show. Radio and television were not avail-



Horace M. Gaddis

able at that time for up-to-date weather information, so Shorty began a study of clouds and related phenomena. His application of knowledge gained through close observation brought him a reputation as an expert in the prediction of approaching storms and weather changes.

Shorty has witnessed many "unusual phenomena" during his 30 years as observer for the Weather Bureau. On several occasions he has viewed the beginning of a tornado. Once he saw a funnel cloud split into three sections, each leaving its own path of damage. In the late 1920's he watched the formation of a tornado which caused considerable damage at Dana, Ind.

Mr. Gaddis and his father-in-law were hanging guttering on a house on the edge of Palestine on May 21, 1949. From their elevated position they were able to observe a tornado southwest of town. They drove quickly along the main street of Palestine to warn residents of the approaching storm. Four persons were killed, several injured, and property damage was considerable even though a slight change in direction saved the more populated area. This tornado caused more loss of life and property as it continued into Indiana.



Miss Mae McCabe

Mr. Gaddis has applied his weather hobby to community benefit. His records help local school children with their lessons, assist local industries with weather problems, and furnish an accurate recall of past weather whenever such information is needed by local citizenry.

Miss Mae McCabe **New Burnside**

Miss Mae McCabe of New Burnside is the second cooperative weather observer in Illinois with more than 50 years of service. Born, reared, and educated in New Burnside, she was appointed cooperative observer in May 1914. Miss McCabe replaced her uncle who had made the observations since 1911. For 39 years she sent daily weather telegrams during the crop season, from April 1 to October 1. Miss McCabe also furnishes a copy of her report to Southern Illinois University for their monthly publication of climatological data for southern Illinois. Weathermen have come and gone during her 50 years of service and Miss McCabe fondly recalls memories of those who inspected the New Burnside station through the years. Many became personal friends. Her excellent records, zealous guardianship of reports and equipment, outstanding penmanship, and devotion to duty have made both her, and the New Burnside station, well known in Illinois.

Her special interest is in growing flowers and she has raised many different kinds. She is an adept story teller and can hold her listeners spellbound with accounts of her experiences as weather observer.

September 22, 1964, was a day of double cele-

bration. Close personal friends from her home town and nearby communities gathered with friends from the Weather Bureau to honor Miss McCabe at dinner. She had completed 50 years of government service in May 1964 and was presented the diamond pin emblematic of that attainment. Also she was one of the 1964 recipients of the Thomas Jefferson award and this was presented to her. Miss McCabe was the first woman in Illinois and the second in the United States to be so honored.

James F. McCray **Mount Carroll**

James F. McCray is a lifelong resident of Mt. Carroll and below zero temperatures are commonplace in this northwestern Illinois community. However, January 22, 1930, remains the highlight of his more than 42 years as weather observer. The ground was covered by snow and for 8 days the temperature had not gone above 16° F. Not a cloud marred the sky and even small branches hung motionless in the still air that morning. So, Mr. McCray left the house in his shirt sleeves for the short trip to the thermometer shelter. His arms tingled from the chill even before he opened the shelter door. One glance at the minimum thermometer and he beat a hasty retreat to the house. Now, protected by a heavy coat, Mr. McCray returned to observe the lowest official temperature ever recorded in Illinois, 35° below zero (-35° F.).

On another occasion, what Mr. McCray describes as a "hurry-up" windstorm invaded Mount Carroll to break limbs and damage small buildings. The wind lasted only a few minutes but the support for the thermometer shelter was shattered. Small repairs made the shelter usable and a temporary support was built from 2 x 4's. But extra precaution seemed advisable and for five days readings were made with the shelter braced to the half-moon decorated outhouse.

Mr. McCray started his cooperative weather duties in June 1922. He insists that much credit is due his wife for the long and excellent record at Mount Carroll. Mrs. Ada M. McCray was official Corn-Wheat Reporter for a number of years. She also serves as substitute climatological and river-rainfall observer and has made many of the observations through the years. This was especially true during the nearly 15 years while Mr. McCray worked an evening shift at the Savannah Proving Ground.



Mr. and Mrs. James F. McCray

Along with climatological observations, river-rainfall reports, and weekly reports for the *Weather and Crop Bulletin*, the McCrays also supply weather information to the Carroll County *Mirror-Democrat* where he is now employed. Mr. McCray has always been the keeper of the records and is presently transcribing Mt. Carroll past weather information into permanent record books. (Editor's note: Mr. McCray died in February 1965.)

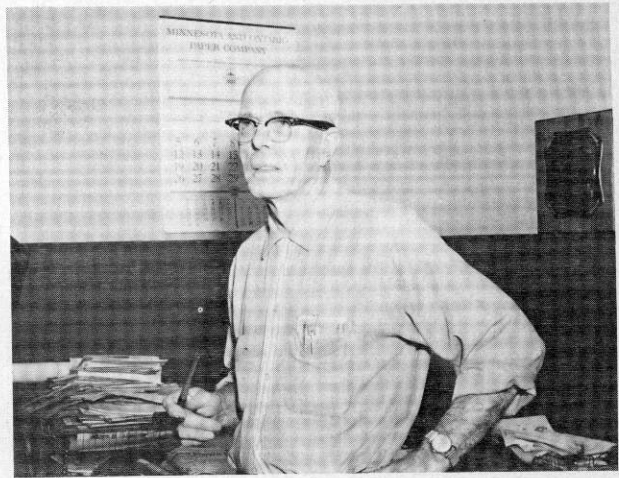
Howe V. Morgan

Sparta

Howe V. Morgan was born on a farm near Trenton, Ill., on August 11, 1892, and is a life-long resident of the State. His elementary school years were spent in the one-room school at Dudleyville and he graduated from Greenville High School in 1910. He learned the printing trade while in high school, and after purchase of the *Sparta News* in 1919, he moved to that community. The *Sparta Plaindealer* was purchased in 1921 and combined with the *News*. Mr. Morgan has edited Sparta newspapers for more than 45 years.

Mr. Morgan started his service as a cooperative observer in March 1923 and was presented his 40-year button in 1963. The following excerpts from his column, "AND HOWE," appeared in the *Sparta News-Plaindealer* after that presentation and effectively portray this veteran observer.

"I might just as well admit I'm growing old. One can't hold down an uncompensated job for 40 years and make any claim that he is still a youngster, or even middle-aged. I've had a lot of jobs like that.



Howe V. Morgan

"Acting as voluntary observer for Randolph County hasn't been a difficult job, but it has been a steady job. Every evening around 6 o'clock, I take my record book, walk out to the thermometer shelter, and record the high and low temperatures of the day.

"If there has been any precipitation, that has to be measured and the amount entered. In the winter time, it is frequently necessary to take the rain gage in the house, melt the ice or snow and take the measurement.

"Except for a few days when I've been on vacation and a neighbor took over, I've been making the trip out to the thermometers to take readings. In 40 years that means around 14,600 trips. Each trip consumes about 2 minutes on the average, so I have spent 29,200 minutes or 490 hours in performing that simple task.

"And in 40 years, I have made out 480 monthly reports, each report taking about 30 minutes, so about 240 hours of time have been spent on that part of the job. But I have enjoyed the work and don't expect to quit for some time.

"I'm only an observer, but the Weather Bureau claims that I and some several thousand others in the same unpaid category contribute much to the progress of weather forecasting."

Yes, the Weather Bureau does feel that the efforts of Mr. Morgan, and his some 12,000 fellow cooperative observers throughout the United States, have provided information of inestimable value to their country. May we paraphrase Mr. Morgan to add, "And How!"



Robert E. Schleifer

Robert E. Schleifer

Nashville

Robert E. Schleifer is a veteran of World War I and, except for the time spent in the Armed Services, has lived his entire life on two farms near Nashville, Ill. He was born on a farm originally owned by his Grandfather Schleifer and lived there until his marriage to Charlotte Edgar in 1921. They purchased the farm of his Shelton grandparents, moved down the road a mile or two, and have lived there ever since.

Mr. Schleifer was asked to serve as rainfall observer in 1926 and agreed to do so. In his own words, "During these 38 years I have measured and recorded 126 feet of precipitation, this is equal to the height of a rather tall building. There have been times, in periods of drought, when it has been a pleasure to measure and I was eager to see the gage full. Then there have been times in extremely wet weather when I dreaded to see a full gage."

Mr. Schleifer is very interested in church and community activities. Known as Bobby to his many friends in and around Washington County, they testify eagerly to his neighborliness.

Other special interests are of an agricultural nature, such as the building of farm ponds for fishing and recreational areas. Every year he plants a few hundred trees, mostly Scotch pine and cypress. The pines are used for Christmas trees and the cypress will develop into timber. A planting of cypress made in 1938 has grown to a

height of 60 to 75 feet and measures from 10 to 18 inches in diameter.

Judging from the tremendous watermelons grown by Mr. Schleifer, there can be little doubt of his ability to raise any type of farm crop, whether it be the conventional corn and soybeans or those less exploited, such as melons and trees.

Temperature equipment was added to the Nashville station in 1961 and the precipitation-temperature combination has proved an interesting, ready-made conversation piece whenever good neighbors get together.

INDIANA

Indiana is blessed with a goodly share of the Nation's devoted cooperative observers. The number of senior members, and the number of the Thomas Jefferson and John C. Holm awards seem to substantiate the statement. Top man in length of service is Henry M. Reusser, observer at Berne since January 1, 1910. He is the printer among the State's senior observers and has produced several comprehensive weather summaries in beautiful fashion.

Second senior observer is Clyde O. Laughner of Whitestown who began observations a few months later. His careful work is doubly outstanding because the station has been located at the same site or residence these many years. He is the druggist in this group of distinguished observers.

Third oldest in service is Charles C. Feagans of Washington who began observing in 1911. He is the realtor of the group and not long ago could still scramble to the top of a house in his appraisal work.

A nice "crop" of younger observers are coming along. The will to serve the public in the cooperative observer way continues in the later generations. To mention a few: The orchardist at Bedford, Hobart G. Hall; the high school teacher at Cambridge City, James L. Bozoarth; the architect, Robert Allen Ward at Ogden Dunes, and others in all walks of life.

Hugh H. Frank is the cooperative observer at Columbia City, Ind. As manager of 2 acres under glass he has become very sensitive to the vagaries of weather and has so recorded them since May 21, 1940. On September 12, 1963, a 7 minute hailstorm cut through his greenhouse roofs as if they were tissue paper. Before assess-

ing his own losses he reported the storm to the Fort Wayne Weather Bureau. He received a special service award for this prompt action. The award certificate read: "In the face of considerable loss, on his own initiative and without delay, he reported a severe local storm occurrence at Columbia City, Ind., on September 12, 1963, to the U.S. Weather Bureau office at Fort Wayne, Ind., and enabled that office to issue a timely and effective storm warning to the surrounding communities and enabled residents in the path of the storm to take adequate precautions for personal safety."

Reporting the weather at Franklin, Ind., since April 28, 1937, a vocational agricultural teacher with a B.S. degree from Purdue University and nearly finished with work toward his M.S. degree, James L. Van Cleave has written thus about his work:

"I enjoy helping people and being of service to those who might be benefited by the weather data. I also enjoy reading the weather reports and following the forecasts day by day. I am anxious to establish a 30-year weather record for Franklin and have extremes of temperature and precipitation established. This would make the local weather data more interesting for radio broadcasts and newspapers."

When asked what was the most impossible request he has received he said:

"Whenever there is a prolonged rainy period or heavy downpour, one of our local citizens will call at any time day or night and ask if we are going to have a flood. He never fails during a rainy period."

He goes on to say in answering the question, what does he most dislike?

"The thing that I dislike most about being the local weather man is that a few people will not believe that I get no pay for being a cooperative observer. Then too, many people do not realize the benefits which come to the community by having an established weather record available."

Mr. Van Cleave has written the thoughts and described the experiences of a loyal weather observer. The information they have collected has long ago become public property. Consequently, they seldom receive credit for their daily effort, an uncomplaining generosity not often experienced in this day and age. They well deserve a day set aside in honor of them but rest assured,



James L. Bozoarth

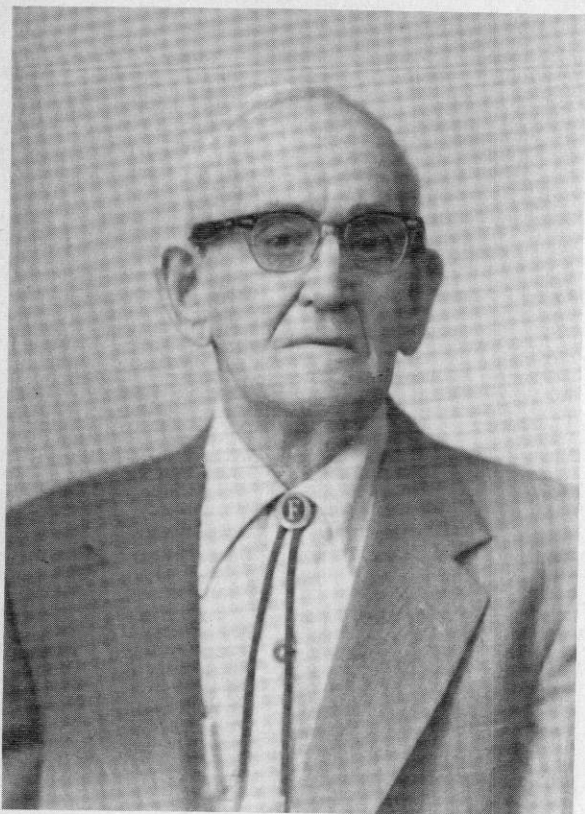
they will be on duty recording the weather that day, and the next, and the next.

James L. Bozoarth

Cambridge City

Although retired from high school teaching, Mr. Bozoarth is still very active promoting the education of youth. He is now Chairman of the Board of Education in the school system where he taught for 43 years.

Born in Mesquite, Tex., in 1898, Mr. Bozoarth came with his parents to Indiana when still an infant. He graduated from Bedford, Indiana High School and Indiana University. His interest in weather began in high school days, continued through college, and was later emphasized in his own teaching of science. Mr. Bozoarth has an uninterrupted record as weather observer at the same location since September 1, 1926. Besides thoroughly enjoying work with young people, Mr. Bozoarth does color photography and painting. Mr. Bozoarth continues to be active in church work where he has taught Sunday school for 53 years.



Charles C. Feagans

Charles C. Feagans

Washington

Charles C. Feagans has been Washington's official weather observer since June 1, 1911.

Mr. Feagans was born in Washington on September 27, 1874, where he has spent most of his life. He and Mrs. Feagans, celebrated their 63d wedding anniversary in June 1964. Considered by Washington citizens as a pillar of the community, Mr. Feagans has served as President of the First Federal Building and Loan Association since 1937. Prior to becoming president he served as a director for 65 years.

His first work was that of drug clerk. He next served as general delivery clerk for the post office, then as assistant postmaster. With the establishment of civil service, he became one of the three first letter carriers in Washington and continued with this job until he retired in 1937.

Mr. Feagans was awarded the Thomas Jefferson award in 1962 for outstanding work.

Mr. Feagans prefers October weather when he likes to hike in the woods and gather nuts.

Hobart G. Hall

Oolitic

Hobart G. Hall has observed the vagaries of weather and effects on orchards since April 12, 1927. He appreciates the importance of weather to successful fruit crops and has spent many years conducting work at the Moses Fell Annex Farm—the experimental orchards operated by the Horticulture Department of Purdue University.

His wife, the unheralded substitute observer, states that her husband has had a great interest in animals—perhaps from the time his good team of horses was possibly a necessary adjunct to his first employment as a youth. In his youth his parents lived next to the experimental orchards. He and his team were hired to spray the orchards.

One incident he recalls in connection with his past work as weather observer concerns the 18°F. below zero reading on January 23, 1936. He received more than 300 telephone calls on this single day.

Mr. Hall was born in Mitchell, Ind., July 18, 1897. He will soon retire. He plans to hunt, fish, and watch the weather.

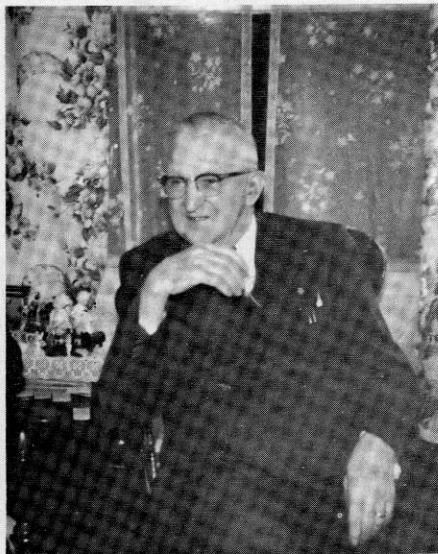
Clyde O. Laughner

Whitestown

Clyde O. Laughner has operated a climatological station at one residence longer than anyone else in Indiana. He has lived in his present



Hobart G. Hall



Clyde O. Laughner

home since 1893. He was married to Miss Gertrude L. Sholty on May 21, 1901, in this home, and has reported the weather from this residence since October 1, 1910.

He was born July 9, 1880, in a farm house $\frac{3}{4}$ mile west of Whitestown (Boone County). While still in high school, Mr. Laughner started work in his father's drug store. In 1902, he assumed complete operation of the store and continued in this business until March 14, 1955 when he retired.

On November 21, 1960, residents of Whitestown honored Mr. Laughner with an appreciation dinner in recognition of his 50 years of service as a climatological observer. Another honor came to Mr. Laughner in 1961 when he was 1 of 24 Weather Bureau cooperative observers in the United States chosen to receive the John Campanius Holm award for outstanding service. In discussing his years of service, Mr. Laughner gives due credit to his wife for her assistance.

Ranking first among his pleasures over the years are his grandchildren and his great grandchildren, next come reading and baseball-team-rating, along with his observer duties. Not even the weather, he states, keeps him from church on Sunday.

Monthly statistical reports are provided by Mr. Laughner to *The Lebanon Reporter*, a daily newspaper, and to a weekly publication, *The Zionsville Times*.



Herbert J. Link

Herbert J. Link

LaPorte

Herbert J. Link is the well known weather observer of many years at LaPorte, Ind. His life is enriched by broad experiences working with the weather, people, and soils of the area. He was born April 7, 1891, in LaPorte. He was graduated from high school and Lane Technical School in Chicago. He began his livelihood as a farm hand, later a boiler maker, a cost accountant, a bank cashier (26 years), a County Treasurer (2 terms), a County Auditor (2 terms), and now serves as Clerk Treasurer of the city of LaPorte.

His interest in weather, serving as LaPorte's Cooperative Observer since September 1927, stems from World War I experiences of crossing the Atlantic 10 times while in the U.S. Army. Since then he has had a deep interest in meteorology and particularly LaPorte weather, his home from birth. He has circulated over 90,000 leaflets on storms and safety rules in his talks to organizations in LaPorte and LaPorte County. He is now a director of the Indiana State Tuberculosis Association.

IOWA

To the hundreds of Iowans who have served as volunteer weather observers since the State was settled we are greatly indebted. The first of the volunteer observers to keep a systematic continuing daily weather record was Prof. Theodore S. Parvin, at Muscatine from 1839 to 1860 and at Iowa City from 1860 to 1873. Other pioneer weather observers who produced long useful records were: Mr. Theodore Marks at Hopkinton from 1852 to March 1895; Mr. M. M. Moulton and Mr. Henry D. Smith at Monticello from 1854 to 1890; and Mr. Jacob Stern at Logan who, in 1860, began a century of records by the Stern family. These observations, supplemented by several shorter periods of observations from other localities, diaries, logs, journals, newspaper accounts, and Army Post Observations, the latter beginning in 1819 at Council Bluffs, constitute most of the authentic weather data for Iowa prior to the creation of the Federal and State Weather Services in the 1870's.

Two corps of volunteer weather observers were created in Iowa; one by the U.S. Army Signal Corps Weather Service after its creation on February 9, 1870, and the other the Iowa Weather Service sponsored by the State of Iowa since 1875 with Dr. Gustavus Hinrichs at its helm until 1890 when the two services merged. In 1875, Professor Hinrichs* received reports from about 60 observers. The Decadal Census** listed 62 observers in 1890; by 1900 the number had increased to about 150. In recent years the number of observers has totaled about 285, of which 225 supply records for publication in *Climatological Data, Iowa* or *Hourly Precipitation Data*.

Iowa's observers come from all walks of life, and, almost without exception, are faithfully dedicated to weather observing. Most observers have performed unusual weather related services and taken observations under trying circumstances. Such an example occurred during a flood in the spring of 1961 when Mr. Wayne Keefer at Vinton, Iowa, used a rowboat to reach the shelter at his evacuated home. Several particularly valuable records have been compiled because of the continuing faithful daily entry of accurate weather observational data over many years at

* *Iowa Weather Report 1876-77*, published by the State of Iowa.

** "Decadal Census of Weather Stations, Iowa" U.S. Weather Bureau, Washington, D.C., 1963.



Henry M. Reusser

Henry M. Reusser

Berne

Mr. Henry M. Reusser is Indiana's senior cooperative observer. He began taking observations on January 1, 1910. Mr. Reusser was born November 14, 1875. A printer by trade and part owner of a local newspaper for 66 years, he has among his outstanding contributions to the public, the publication of excellent 50-year and 55-year Climatological Records for Berne, presenting data he has collected. Although a busy man, he found time to take an active part in his church, where he was a member of the choir and men's chorus. He is also an amateur astronomer and seismologist, and has taken many fine pictures through his 4-inch telescope and recorded several minor earthquakes on the seismograph which he constructed during his "spare time". The late Mrs. Reusser maintained an active interest in her husband's various activities and projects.

Mr. Reusser was presented the Thomas Jefferson award in 1960 for his help in characterizing the climate in his locality. He was selected as Berne's Citizen of the year in 1961 and honored in a community program titled "This Is Your Life."

the same location. Since 1959, some of Iowa's outstanding observers have been recognized by Jefferson and Holm awards. The recipients of these awards are listed in a separate chapter of this publication.

Some of the outstanding length of service records by observers or family of observers with period of service are as follows:

David E. Hadden, daily observations for over 53 years at Alta. January 1890–July 1943.

Stern family, daily observations for over 100 years at Logan. Jacob, January 1, 1860–92; his wife, M. B., 1892–1904; grandsons, Glenn, 1904–14 and Ted, 1914–18; granddaughter, Mary Jean 1918–27; great-granddaughter, Amy Ann, May 1927–October 1960.

Disney family, river and rainfall observations for nearly 76 years at LeClaire. C. P. Disney, June 2, 1873–1907 (excepting 3 years); his granddaughter, Margaret T. Disney, October 16, 1907 to February 1952, over 44 years.

McCready family, daily observations for nearly 68 years at Fort Madison. Dr. McCready, March 1848–88; his daughter, Lucy, January 18, 1888 to January 1916.

Hanson and Larson families daily record since 1904 continuing at Inwood. George M. Larson, January 1904–October 1905; cousin, Fred B. Hanson, December 1905–December 31, 1924; Fred's brother, Arthur C., January 1, 1925, continuing to present.

Dorweiler family, daily observations for nearly 59 years at West Bend. Philip Dorweiler, January 1, 1888–December 31, 1914; Joseph Dorweiler, January 1, 1915, through October 31, 1946.

Giger family, daily observations for over 57 years at Toledo. I. F., September 1902–27; son, Herbert, 1927–October 1959.

Newton-Slippy families, daily record for over 55 years at Waterloo. M. L. Newton, January 21, 1895–January 24, 1911; son-in-law, Ralph B. Slippy, January 1, 1911–February 1950.

Williams family, daily record for nearly 53 years at Postville. F. L. April 4, 1891–December 1953; V. H., December 1935–March 6, 1944.

Hauser family, over 52 years of daily record and continuing at Merrill. Lewis N., June 1912–April 1932; son, Orville, May 1932–October 1934; wife of Lewis, Ella B., October 1934 to present.

Spinner family, over 52 years of river and rainfall record at Lansing. Mary S., over 47 years,



Charles N. Brown

June 1, 1912–July 1959; son, John, July 16, 1959 to present.

Vale family, daily observations at Bonaparte. Bruce R. Vale 48 years, 1891 to March 31, 1939; son, Bruce, unpublished record since 1939 at the same location.

Of the present corps of volunteer observers 11 have records exceeding 30 years in length; an aggregate approximating 400 years of observations. A biographical sketch of each of these observers follows.

Charles N. Brown

Ames

Mr. Charles N. Brown, as Superintendent of the Experimental Station Agronomy Farm, Iowa State University, Ames, was asked to become the cooperative weather observer when the equipment was moved to that location in 1931. Mr. Brown consented to this cooperation and continued throughout the whole record at this site excepting during 2½ years absence between 1939 and 1942. The record was terminated at this site August 31, 1964 but since Mr. Brown is Mr. Weatherman he continues to observe at his new home in Ames.

Mr. Brown states that "it has been a rewarding experience through the years. Being a cooperative observer has given me a satisfied feeling that I am doing something extra for my country each day. It has been gratifying to be associated, even in a small way, with our United States Government Weather Bureau. The records I've collected are a valuable source for myself and associates. Working with the precision instruments has been an interesting part of the work."

Mr. Brown received the John Campanius Holm award in 1962. Mr. Brown undoubtedly has recorded the greatest amount of weather data of any Iowa Cooperative Observer. In addition to the temperature and precipitation equipment, Mr. Brown recorded evaporation data from 1933 and soil temperatures from 1937.

Mr. Brown took observations three times daily and also recorded psychrometric data and on various occasions readings from special instruments. Mr. Brown's record probably is the most used of all cooperative weather records in Iowa, and used with the greatest confidence since his accuracy and faithful continuance of record is well known.

Ross E. Forward

Sheldon

Mr. Ross Forward observer at Sheldon since June 30, 1925, received the John Campanius Holm award in 1964. Mr. Forward was born in Sheldon on March 17, 1899, graduated from high school in the spring of 1918, promptly enlisted in the Army, and served overseas from September 1918 to June 1919. He worked for a lumber yard 3 years then worked at the post office from 1923 until his retirement in 1963. Mr. Forward became interested in weather as a 12-year-old boy visiting the home of A. W. Beach, who was then the observer. Weather records were discontinued in Sheldon in 1912. Twelve years later Mr. Forward wrote Mr. Charles D. Reed, Section Director, U.S. Weather Bureau in Des Moines regarding re-establishing the station in Sheldon and the observations were resumed in 1925. He is a member of the Fraternal Order of Eagles, the



Arthur C. Hanson

American Legion, and the Methodist Church. He and Mrs. Forward have 2 daughters, 1 son, and 10 grandchildren, including 2 sets of twins.

Arthur C. Hanson

Inwood

Mr. Arthur C. Hanson, observer at Inwood since January 1, 1925, succeeded his brother Fred who had been the observer for 20 years. Mr. Hanson is active in American Legion, Farm Bureau, Farm Cooperative work, and the Methodist Church. For 6 years he was a member of the Lyon County Board of Supervisors. He is now in his 10th term as State Representative and served as Speaker of the House during the 1955-56 term. In November 1964 he was named the outstanding citizen of Inwood at the Annual Town-Country Banquet. Mr. Hanson was presented the John Campanius Holm award in 1962 in the following session of the State House of Representatives.

His wife and son, Eldon, are substitute observers. Eldon and his family live nearby on the same farm.



Mr. and Mrs. Ross Forward

Eugene N. Hastie**Perry**

Mr. Eugene N. Hastie, weather observer at Perry since January 1, 1925, was cited by the U.S. Department of Commerce Weather Bureau in 1962 for his outstanding record as weather observer and selected to receive the Thomas Jefferson award. Mr. Hastie is also well known in Dallas County for his creation and operation of Forest Park and Museum for many years and for his several historical publications, that include *A History of Dallas County*, a *History of Perry*, and *The History of the Assembly of God Church in Iowa*. He writes a historical column for the local newspaper.

Mr. Hastie lives on the same farm that was purchased by his grandfather from the government in 1885 and where he was born in 1890. He and Mrs. Hastie reared their family of four girls on this farm. Mr. Hastie graduated from the Perry Normal College in 1908 and spent 8 years in gospel work. He continues as an active member of his local Assembly of God Church.

Mrs. Ella B. Hauser**Merrill**

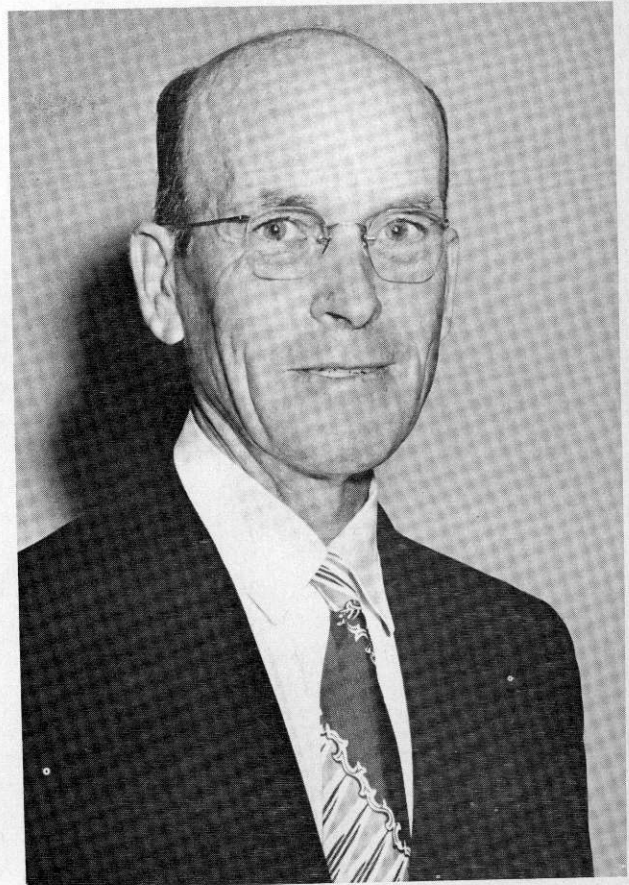
Mrs. Ella B. Hauser has been the weather observer at Merrill since 1934, continuing a family record of weather observations dating from June 1912 when it was begun by her husband Lewis and continued by their son Orville from 1932-34. Since then Mr. Hauser has continued an active interest in the program. This has truly been a family cooperation since 1912.

Orlan C. Moore**Akron**

Mr. Orlan C. Moore, observer at Akron since February 16, 1927, received the John Campanius Holm award in 1964. Mr. Moore was born at Dubuque, Iowa on July 23, 1889. His family moved to Akron in 1891 where he has lived since. He and Mrs. Moore were married 50 years ago on June 9. They have two living children and seven grandchildren. Mr. Moore has been in the lumber business since 1908 but is now gradually retiring. He is a Mason and belongs to the Blue Lodge, Consistory and the Shrine. He was asked to become an official observer by his sister-in-law's father, then a meteorologist in the Minneapolis Weather Bureau office. He also measures the river stages at two locations in Akron. His son-in-law, Bob Tucker, or his grandchildren, substitute when Mr. Moore is gone.

Louis H. Overturf**Dumont**

Mr. Louis H. Overturf has been the weather

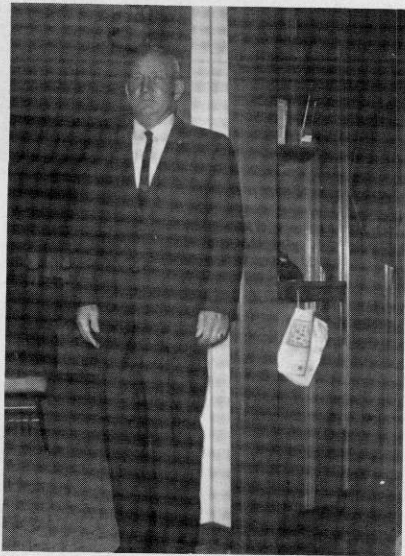


Eugene N. Hastie

observer at Dumont since January 1, 1934. Mr. Overturf was born June 20, 1892, 2 miles east of his present home where he had lived these past 73 years. He and Mrs. Overturf have two children, who occasionally serve as substitute observers. Mr. Overturf states that he has measured 870.25 inches of rainfall in his first 30½ years and since 1948, 44.8 feet of snowfall.

Carl E. Pollock**Cumberland**

Mr. Carl Pollock, observer at Cumberland since April 3, 1922, has the longest continuous record of the present corps of active observers. Mr. Pollock has lived on the same farm all his life except for his service in the Army during World War I in the 349th Infantry Co. A, 88th Division. He was married to Emily G. Mills in January 1921. To this union was born one son, Lee, lost while serving in the Army in 1946. Mr. Pollock has been a member of the First Church of Christ for about 50 years and a charter member of both



Carl Pollock

the local Farm Bureau and American Legion. He was awarded the John Campanius Holm award in 1963.

George C. Raveling

Rock Rapids

Mr. George C. Raveling has been the weather observer at Rock Rapids since May 12, 1932. He received the John Campanius Holm award in 1964. Mr. Raveling was born in 1886 and says that he acquired his interest in weather watching from his father, who came from Germany. Mr. Raveling was a member of the volunteer fire department 41 years and an honorary member since. He continues to raise flowers as a business. About observing Mr. Raveling writes as follows: "Forgot who it was but remember someone saying, 'Everybody talks about the weather but no one does anything about it.' The man who said that had apparently never heard about the Weather Bureau and its army of cooperative observers. To me the compiling of the daily weather records is a pleasure rather than a burden and it brings me in contact with the finest group of men, who are always willing and ready to help me along. The work through the years has taught me many valuable lessons through observations of storms, clouds, and the twinkling stars on a winter night. Through my work as a cooperative observer I have come in contact with interesting people, folks who are always ready to lend a helping hand through correspondence on any subject per-



George C. Raveling

taining to the weather at home or far afield. Sometimes the public gets so demanding you are ready to 'chuck' the job when along comes someone else and gives you a pat on the back and you forget all about it. I believe my greatest thrill came the summer following the record snowfall at Rock Rapids two winters ago. Folks came from metropolitan areas and told about the banner headlines across the front pages of the big dailies, 'Rock Rapids, Iowa Buried Under 64 Inches of Snow.' Weather observing is like a good shot of Scotch, it gets into your blood and gives you the feeling of doing something that will live long after you are gone."

Earl V. Slife

Hawarden

Mr. Earl V. Slife has been the observer at Hawarden since August 10, 1926. He received the John Campanius Holm award in 1964. He is president of the Hawarden Bank, city treas-

urer, past president of the Chamber of Commerce, Chairman of the Northwest Iowa Conference of the District Parsonage Committee of the Methodist Church, and has been a board member of the Methodist Church for more than 40 years. He has never missed a daily report in more than 38 years, although during vacations substitutes take the observations.

Dick Tellinghuisen

Allison

Mr. Dick Tellinghuisen has been the observer at Allison since November 13, 1934. Mr. Tellinghuisen, now 86 years old, began observing after he moved into Allison in retirement from farming. Mr. Tellinghuisen estimates that he has taken more than 11,000 observations. On very few occasions has it been necessary to have a substitute observer at Allison in these past 30 years. Mr. Tellinghuisen also is one of Iowa's weekly weather reporters.

KANSAS

The outstanding contributions of cooperative observers and the manifold uses of weather data collected by them have been emphasized many times before. Regardless of the generation, these weather observers are noteworthy examples of unselfishness, devotion to duty, and the spirit of cooperation. As time marches on, the endowments of this vast observer corps become even more significant and useful to us. Weather data are being placed on punched cards and magnetic tape at an ever increasing rate, making possible innumerable research studies using electronic computers. It is obvious that this use of weather data could never have materialized except for the records made available by those in the cooperative observer network.

Regardless of all of the modern equipment available for the collection and processing of weather data, the cooperative observer will continue to be a very necessary part of the weather data collection system in the United States. The contributions of these observers, who willingly perform such a worthwhile public service to their community, their State and their Nation, cannot be over emphasized. The performance of these people is truly unique in our times.

In Kansas the climate is rigorous and marked day-to-day weather changes are frequent. An observer in the State must, indeed, possess determination if he or she is to provide a satisfactory



Dick Tellinghuisen

weather record. It is not a simple task to take observations in all kinds of weather, both fair and foul. Thus, the record such as the one made by Mr. Hugh A. Storer of Alton is truly remarkable. He has served at the same location as an observer since March 1908, and has personally handled the filing of the monthly reports during this entire 57-year period. In addition, during several summers, he made special meteorological observations in connection with a research project of the Weather Bureau. He has also performed a very important public service to his community by answering inquiries relative to the weather at Alton and by providing data to the local newspaper for publication.

Another observer whose services have been outstanding is Mr. L. E. Gorsuch of Leoti, Kans. His weather record, which began in 1912, covers several severe drought periods, numerous dust storms and blizzards, and temperature extremes ranging from -26° to 111° F. The only month with an incomplete precipitation record was Au-

gust 1923, when the "report for the first 3 days was blown away in a tornado at 5 p.m." Just an hour after the tornado, the observation for August 4 was taken and recorded as usual. Mr. Gorsuch's records over the years have been particularly neat and accurate.

Mrs. H. F. McCall became the official observer at Ulysses in 1917 and is still "going strong." She endured the terrible dust bowl days of the 30's so she is not easily discouraged. Over the years, Mrs. McCall's observations have been especially detailed, complete, and accurate. Difficulties that she has overcome to record weather observations include "climbing over the fence to take observations after a downpour of rain and wading through snowdrifts knee deep to get to the shelter to read the thermometer and melt the snow in the gage."

In July 1950, flood waters downed telephone and telegraph lines at McFarland and the cooperative observer there, Mr. C. H. Forinash, had to travel to Alma to send in the weather reports. On another occasion, Mr. Forinash sighted a tornado and immediately reported it to the proper officials. He received a special letter of commendation from the Weather Bureau for promptly reporting that violent storm.

Mr. Thomas B. Stinson at Tribune has made an exceptionally long evaporation record in the State and Floyd C. Butel of Overbrook has provided unusually accurate, complete, and timely weather reports since 1925. Also worthy of note are the long periods of service of the following observers: A. E. Myers of Centralia, Walter Schwarz of Worden, and Ernest Koch of Sedgwick.

In some cases the observational duties have been handed down from one member of the family to another over a long period of time. This is the case with the Jennison family who have taken observations at Healy since 1901. The present observer, Robert H. Jennison, says "We have a record of all of our observations to date retained from each report, and we look forward to completing a century of service to the Weather Bureau." Another example is the Sleffel family of Norton who have taken weather observations since 1903.

A number of Kansas observers have received the Weather Bureau's Jefferson or Holm awards. They are listed in Chapter 3.

Floyd C. Butel

Overbrook

Mr. Butel has lived all of his life in Kansas, except for the period 1926-28 when he was a Junior Observer at the Weather Bureau Office at Cheyenne, Wyo. He was born near Overbrook, Kans., in 1901, and has been the official weather observer there since 1928. Mr. Butel is extremely active in civic affairs. He has served on the school board a number of times, is a director of a local bank, is a member of the board of directors and treasurer of the Overbrook Farmers Cooperative Association, and is treasurer of the Osage County Farmers Union. He graduated from Kansas State University in 1924. Mr. Butel's hobby is keeping weather records and he made his own observations for about 15 years before becoming a cooperative weather observer.

Mr. Butel recently made a statement about his weather observing activities: "Ever since I was about 11 years of age, I have been greatly interested in the weather and climatological records. Thus, I have derived much personal pleasure and satisfaction in keeping the weather records for my community. I also am happy to know that I am helping compile a climatological record of my locality for the Weather Bureau."

C. H. Forinash

McFarland

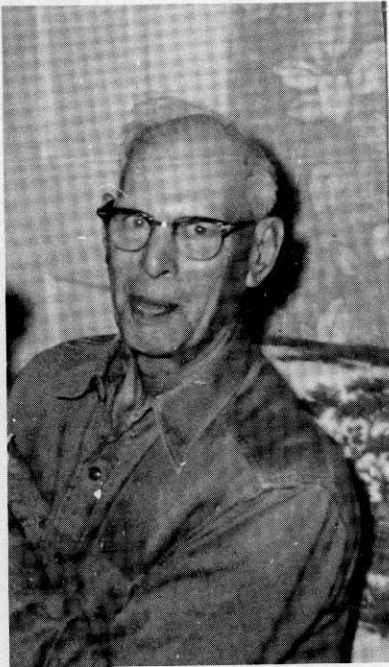
Mr. Forinash retired from railroad work in 1950, but he continues to be active in other pursuits, including weather observing. He was born in Butler County in 1885 and at 80 years of age is one of the oldest cooperative weather observers in Kansas. He began service with the Weather Bureau in December 1927.

Mr. Forinash served on the Board of Education for 14 years, was city councilman for 8 years, and was city treasurer for a short time. He has served two terms as president of the local Lions Club. At an earlier age, Mr. Forinash was an ardent hunter. Some of his current activities include fishing, light carpenter work, cutting and lettering of tombstones, and the collection of Indian artifacts.

L. E. Gorsuch

Leoti

Mr. Gorsuch was born at Leoti in 1887 and has spent all of his life there. He was born in a covered wagon which had been converted into a residence only a few days before. At the age of 78, he is one of the oldest cooperative weather observers in Kansas. Mr. Gorsuch has faithfully recorded the observations at Leoti since August



C. H. Forinash

1, 1912, and his 53 years of service is second only to Mr. Storer's 57 years at Alton.

Ernest Koch **Sedgwick**

Mr. Koch was born on July 4, 1908, at Fairmont, Okla., and has lived in Kansas since 1914. He owns and operates a grocery store and locker plant at Sedgwick but finds time for many other activities including weather observing and assisting with the Sedgwick Fall Festival each year. One of his hobbies is the training of hunting dogs. He loves to fish and hunt and is quite adept in the hunting of coyotes. Mr. Koch has considerable knowledge about the behavior of the Little Arkansas River, and his reports during flood times are especially valuable to the Weather Bureau and others.

Mrs. H. F. McCall **Ulysses**

Mrs. McCall has been the cooperative observer at Ulysses for 48 years. She was born in Harrison County, Mo., in 1887 and has lived in Kansas since 1906. She has always led an active life, and, in addition to her job as a homemaker, has served as Probate Judge of Grant County, Kans. She has been an employee of the U.S. Post Office in Ulysses, and served for 4 years as chairman of the 7th District of the Veterans' Department of Federation. Mrs. McCall is active in civic affairs and has helped with the establishment of the city park in Ulysses and the County Library. She is

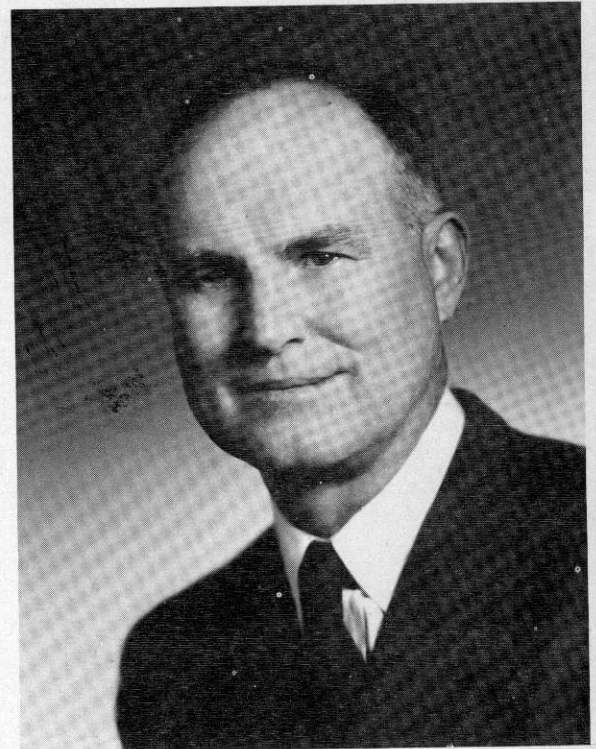


Mrs. H. F. McCall

a typical pioneer woman who exemplifies the Kansas motto, "to the stars through difficulties."

Arthur Myers **Centralia**

Mr. Myers has spent all of his life in Kansas and has been a weather observer since 1932. A store in Centralia is his means of livelihood, but this is only one of his many activities. He was director of the school board for 9 years, mayor of



Arthur Myers

Centralia 12 years, and has been in scout work for 35 years. In 1950, the Jayhawk Council of Boy Scouts presented him with the Silver Beaver Award.

Mr. Myers is a member of several clubs and lodges. His hobbies include hunting, fishing, farming, and weather observing. Here is what he has to say about his weather observing duties: "After becoming observer for the Centralia station I got so interested in it that observing became a part of my daily life. Every evening I would record the high and low temperatures and in the mornings at 7 or earlier measure and rainfall or snow for the 24-hour period. I know this interest has helped me in my business life and has kept me alert in all farming and community activities."

Walter Schwarz

Worden

Mr. Schwarz has served as a cooperative weather observer at Worden since 1932, a period of 33 years. He was born at Worden in 1906 and has spent his entire life in Kansas engaged in farming and carpentry work. He "inherited" the job of weather observing from his uncle, Mr. C. M. Albright, who recorded the observations at Worden from 1922 to 1932. As a farmer, he has always had a keen interest in rainfall and the variations in rainfall from one locality to another.

Thomas B. Stinson

Tribune

Mr. Stinson has served as the observer at Tribune since April 1924, a total of 41 years. He is the manager of the Tribune Branch Experiment Station of Kansas State University and is interested in the uses of weather data in agriculture. The Tribune station has an exceptionally long and unbroken evaporation record and it is principally through the efforts of Mr. Stinson that this record is available.

Hugh A. Storer

Alton

Mr. Storer, cooperative observer at Alton since March 1908, has the longest period of service of all currently active observers in Kansas. He was born on a farm which his father homesteaded in 1871, and he has lived his entire life on that same farm. In addition to his farming activities, Mr. Storer was a member of the Kansas Legislature for 10 years, served on the local school board for 24 years, was secretary of the Osborne County Farmers Union Cooperative for 21 years, served as Osborne County Commissioner for 4 years,



Hugh A. Storer

and was secretary of the Board of Directors, Webster Irrigation District No. 4 during the organization and early operation of the District. He has 50-year buttons for the Blue Lodge, Royal Arch Masons, and the Weather Bureau. He is a member of the Knights Templar and the Osborne Methodist Church. His boundless energy keeps him "young" and he is looking forward to the day when he will have 60 years as a cooperative observer.

Mr. Storer had this to say recently: "The knowledge I have had that, for the greater portion of my life, I have been a small part in a service which seems to be valuable to our society as a whole and is apparently appreciated by many local people . . . has been a source of pleasure and satisfaction which I feel has repaid me many times for my efforts."

KENTUCKY

There are about 200 cooperative weather observers in the Commonwealth of Kentucky. A number of these observers make daily temperature and precipitation observations and some, precipitation observations only. Others send in charts from recording rain gages. These obser-

vations add to the climatological record of the State, and in published form are valuable for research and reference. At a number of locations daily reports are furnished by the observers to news media—newspaper, radio and television stations—and serve to keep the public informed concerning the current local weather.

A number of observers provide other services in addition to the performance of regular duties. Some of these services include: special reports of precipitation and river measurements which are essential in the preparation of flood warnings and forecasts and other uses; weekly reports of temperature and/or rainfall for inclusion in the weekly *Crop-Weather* publication for the State during the crop season April through October.

Most of the observers are individuals who perform this public service in the morning or late afternoon before or after regular working hours. Employees of about a dozen radio stations make observations, and about a half-dozen stations are operated by employees of utilities. Two stations are operated by educational institutions, and one by employees of a nursery. At a number of cooperative stations observations are made by employees of various institutions.

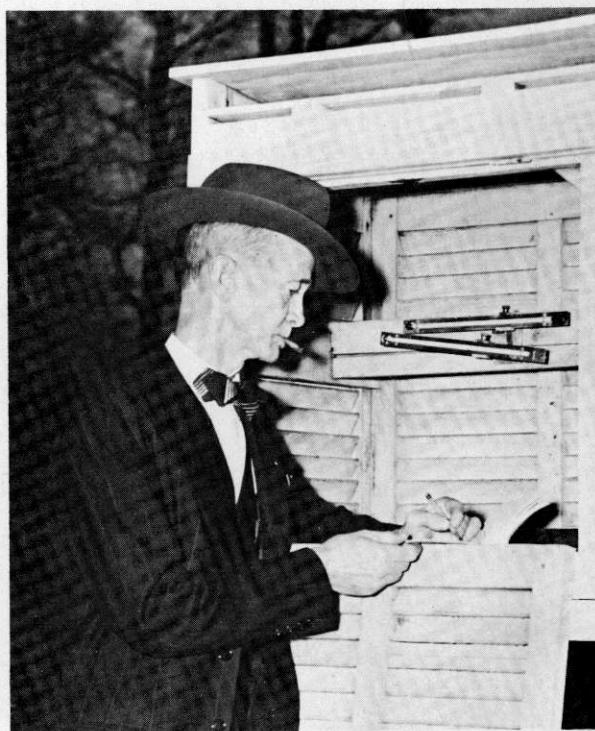
Many observers have served long and faithfully for years and years. Mr. Charles E. Barret took observations for over 60 years at Anchorage, until his death in November 1964. Another Kentucky observer has almost completed 50 years of service; one has more than 30 years; about a score more than 20 years; and a greater number for 10 years or more have been observing the weather daily. A number of institutions in Kentucky have more than 25 years of service, and several have more than 50 years.

C. R. Lovell

Greenville

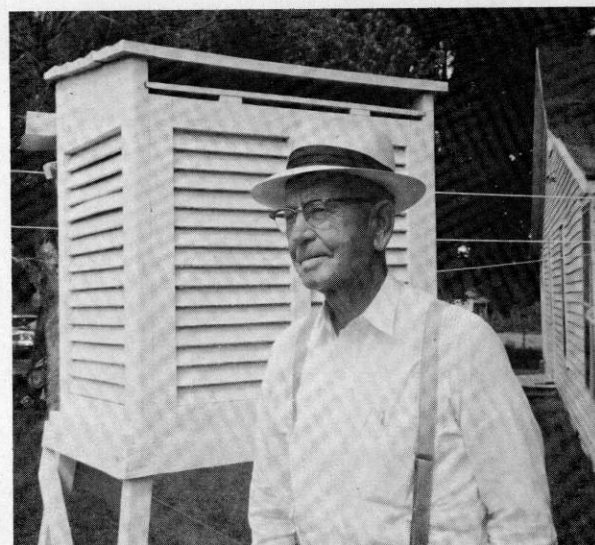
Mr. C. R. Lovell, assisted by his wife, has been a cooperative observer for almost half a century—since September 1916. In 1961 he received the Holm award. He is manager of the Kentucky Experiment Station farm at Greenville, having been employed there for 52 years.

Mr. Lovell was one of the small group of observers selected to make airways observations in the early thirties. This was prior to the establishment of Weather Bureau airport stations. Greenville observations were made at 1:20 p.m. and 2 a.m. for the Atlanta-Chicago route. Re-



C. R. Lovell

ports forwarded to Evansville and Nashville consisted of ceiling, visibility, weather, surface wind speed and direction, pressure, and temperature. The route was directly over Mr. and Mrs. Lovell's home, and the pilots would tip their wings in



Blaine Malone

greeting as they flew over. Several pilots on occasion landed and thanked him for his excellent observations.

Mr. Blaine Malone Lovelaceville

Mr. Blaine Malone has been a cooperative observer for 3½ decades. He took over the station in September 1930, at the death of the former observer, Mr. B. Salle. He moved the equipment to his own home, installed it there, and wrote the Weather Bureau that a new observer was on the job. His own interest in weather was handed down from his father who kept weather data in his diary.

Mr. and Mrs. Malone have spent their entire lives in the community, both being born within a block of their present home. Mr. Malone for 43 years was the funeral director in his community, retiring in 1964. He now devotes his time to his hobbies, his weather observations, and his garden.

LOUISIANA

Some Louisiana weather observations are available from the early part of the 19th century. Most are in manuscript form. A French manuscript of the New Orleans weather reports for the year 1810 is deposited in the National Archives, Washington, D.C. During the 1820's some Louisiana Army Post surgeons spearheaded the preparation of meteorological reports. Summaries of these observations were published in 1840 in a book entitled: *Meteorological Register for the Years 1826, 1827, 1828, 1829, and 1830 from Observations made by the Surgeons of the Army and Others at the Military Posts of the United States; to which is Appended, the Meteorological Registers for the Years 1822, 1823, 1824, and 1825.*

The Smithsonian Institution, following its establishment in 1846, actively sought cooperative weather reports in all States and Territories, and existing private weather services gradually merged with that program. After the Signal Office weather service was formed, in 1870, the Smithsonian Institution transferred its system of voluntary observers to that office in 1873. In 1881, a letter was sent to the Governor of each State, urging the organization of state weather services. A weather service was organized in the State of Louisiana, and in October 1887 the first issue of the *Monthly Meteorological Journal* was published by the Louisiana Weather Service.

From the beginning it contained a listing of the daily precipitation amounts furnished by Louisiana volunteer weather observers.

The Sanders family at Plain Dealing, La., has furnished weather reports which have appeared in the *Monthly Meteorological Journal*, or succeeding publications, since 1894. Leon T. Sanders served from January 1894 to February 1902; Leon Sanders from March 1902 to December 1949, and Leon Sanders, Jr., from December 1949 to the present, a total of 71 years. It was at Plain Dealing that the highest temperature of record in Louisiana, 114° F., was recorded on August 10, 1936. When Leon T. Sanders lived a little to the east of Plain Dealing, he recorded in an unpublished diary that during a snowstorm, which began on December 31, 1876, the depth of the snow was 22¼ inches on January 2, 1877.

Another location whose reports were published in the Louisiana weather journal was the North Louisiana Experiment Station (currently published under the name of Calhoun Experiment Station). Over the years, various personnel of the Experiment Station have contributed their individual efforts in taking and reporting the weather. The Calhoun station was the only Louisiana location selected to be included in the Climate Section of the *Historical Statistics of the United States Colonial Times to 1957*, issued by the Bureau of the Census.

The reports that have been so faithfully recorded by the cooperative weather observers in Louisiana are of great service in providing answers to questions from industry, agriculture, transportation, and other fields of human endeavor.

Felix A. Delatte

Houma

Houma is one of the Louisiana stations from which the first weather reports were obtained under the auspices of the Signal Service. Some of the available published data goes back to October 1888. Until December 1, 1922, when personnel at the Southdown Plantation commenced their reports, the location of the station changed several times.

Mr. Delatte was born in Thibodaux, Lafourche Parish, La., on May 17, 1899. He works in the Houma office of Southdown, Inc., a company engaged in the sugar business—its growing, refining, and selling. It was on May 12, 1924, that he began taking the weather observations. Since

then he has prepared interesting statistical studies of the local weather, and particularly of the local rainfall. These are extensively used by the sugar refinery and associated personnel. His weather reports are available to the local newspapers, *The Houma Courier* and *The Terrebonne Press*, and to the hundreds of people who call him during a year about his weather records. He says, "This job sort of binds one to his community." Although he is kept busy with his work, he does find time to serve as Justice of the Peace. The local Chamber of Commerce stated that any time they needed information from Mr. Delatte he was always ready and willing to help. The U.S. Department of Agriculture makes a number of experiments involving new cane varieties in the Houma area, and the Houma weather reports have an important bearing on these experiments.

Lewis J. Gremillion

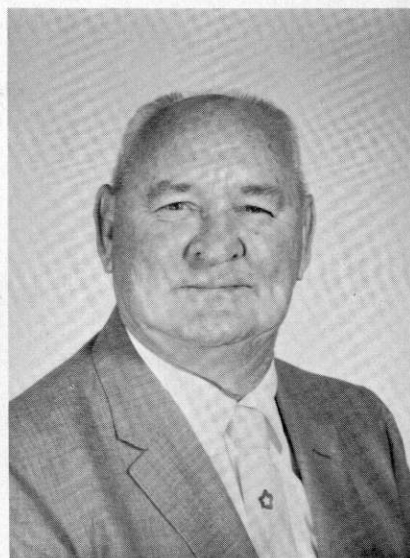
Simmesport

The river gage at Simmesport was established in May 1887 on the Atchafalaya River Bridge of the L.R. & N. Railroad. The early readings were made by the U.S. Engineers or railroad personnel. Later, precipitation measurements were added. Some of the available published Simmesport precipitation data go back to 1905. Mr. Gremillion was born on August 30, 1897, at Red Fish, La., (a discontinued post office). While he was a toll collector on the L.R. & N. Railroad bridge, he succeeded Mr. S. E. Boudreaux as the river and rainfall reporter, beginning his observations on September 1, 1929. The rain gage has been in the front yard of his home since September 1929, and he receives many inquiries about his reports. Later, when the collection of tolls was discontinued, Mr. Gremillion continued to take the river stage readings. Simmesport is located near the source of the Atchafalaya River, and the data furnished are valuable for river forecasting. The highest stage of the Atchafalaya River at Simmesport was 53.4 feet on May 16, 1927.

Mrs. Dora S. Tannehill

Urania

The cooperative weather station at Urania was opened on May 1, 1929. It is one of the few Louisiana stations whose location has been essentially unchanged since its establishment. Mrs. Tannehill has taken the weather observations at Urania since the station was established and she hopes to continue for many more years. Up to



Lewis J. Gremillion

a few years ago she worked as a clerk at the Urania Post Office. Mrs. Tannehill was the first white child to be born in Crowley, La., after it was incorporated (January 10, 1889). She recalls riding 8 miles on horseback to school. She has been in all of the States except North and South Dakota. Her husband, G. M. Tannehill, was a forester. The weather records are of great value to the Southern Forest Experiment Station and private interests in connection with lumber and reforestation studies. Classes from the Yale School of Forestry still come to Urania.

MAINE

Approximately 75 stations record the weather of Maine. All but a few of these are manned by cooperative observers. In common with others throughout the Nation, these observers furnish vital records. They provide the basis for design of highway culverts and other drainage systems, the design and operation of industrial, home, and farm buildings, and the settlement of insurance claims, legal suits, and even fireside arguments, to name only a few uses. In Maine, these data also are vital to the State's forestry, logging, lumber, and paper industries. Research concerning and production of many of Maine's agricultural products are dependent on the weather records. This is especially true of the large potato, blueberry, and apple industries.

Through the cooperation of Universities in the Northeast, and especially the University of Maine Agricultural Experiment Station, data from many Maine cooperative weather stations have been analyzed by high-speed computers. These determined averages, extremes, and probabilities of temperature and precipitation week by week throughout the year. The results have wide applications, but are especially valuable in farming problems. The timing of crops subject to freezing damage and evaluating the economics of irrigation are examples.

Rainfall records and snow measurements are essential to Maine's waterpower development and flood control activities. Many observers make readings of river stage gages and special measurements of heavy rain. These are promptly reported by phone so that forecast centers may prepare adequate warnings for protection of life and property.

Many Maine observers directly serve their communities by furnishing their data to local newspapers and radio stations. This practice led one observer into a full time career as a newspaper-woman. They also answer many and varied local inquiries.

In some cases observational duties have been handed down from father to son. An example is the Woodland station where observations were taken by Mr. Walter S. Dow from 1916 to 1957 and by his son, Russell, since then. Woodland is the easternmost cooperative station in the United States.

An excellent example of interest, devotion, and service to the local community is given by Mr. Oliver W. Holmes of Rockland. He is a keen observer of the effects of weather on agriculture, reporting weekly to the U.S. Department of Agriculture and to the Weather Bureau State Climatologist. Mr. Holmes also tabulates long-period averages of temperature and precipitation as well as extreme values.

In addition, many stations in Maine are operated by companies, institutions, or other governmental units. Many of these also have compiled an enviable record of service. Fourteen of these current stations have more than 30 years of observations. The oldest of these is the University of Maine station at Orono, starting in October 1885.

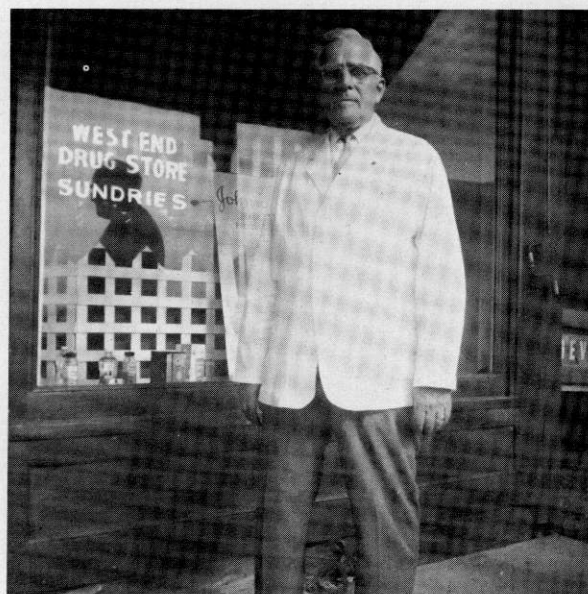
Maine's winters bring trying periods to weather

observers. Cold or snow, and sometimes even a blizzard, test the mettle of each observer. Snow drifts at times make access to the instruments difficult, or even bury the rain gage. Sometimes the thermometer shelter door is frozen shut, requiring much time and patient effort to open without damage. The many observers who have maintained unbroken records in the face of these Arctic like obstacles have clearly demonstrated dedicated zeal and determination. All truly deserve citations for their service in the public interest. Space in this publication, however, limits biographical sketches to those still active after 30 years. These follow:

William H. Cumming **Houlton 1NE**

Mr. William H. Cumming has lived in Houlton since October 1893, since moving, at the age of 1 year, from his birthplace in Sherbrook, Quebec. His service of more than 50 years as a Registered Pharmacist was recently recognized by the Aroostook Co. Pharmaceutical Association and by the Maine Pharmaceutical Association. In 1964 he received the Weather Bureau Holm award. His hobbies are photography and radio. He has held a ham license for more than 26 years. Cooperative observer since February 1935, Mr. Cumming first volunteered his services in 1911. He waited patiently nearly a quarter century until he was selected to fill a vacancy.

Mr. Cumming says: "I consider it a wonderful experience and a privilege to have been associated



William H. Cumming

with the Weather Bureau along with other thousands of individuals who have given their time and talent to this fine service. I know of no other service which renders so much for so little and I only hope that I may be able to contribute my small share for a few more years."

Prof. Charles S. Preble **Farmington**

Prof. Charles S. Preble was interested in and frequently took the observations for the Farmington State Teachers College after arriving on the campus in 1921 as Instructor of Geography. His interest and appreciation of meteorology were further increased by graduate study under the late Dr. Charles F. Brooks, then at Clark University. The Farmington station was moved to Professor Preble's home in September 1945. Though retiring in 1949, Professor Preble has kept close association with the college. He holds the title of Professor Emeritus. In his honor the new science building is named Preble Hall.

Professor Preble says: "My successor as head of the geography department gives some courses in meteorology. His students have been coming to me frequently for materials and help in projects and themes. Of course I enjoy this.

"I give a weekly weather report to the local paper which brings contacts with the people of the region and also former pupils who live in other States. I also make special observations for the River Forecast Center.

"My hobbies, especially bird study, have much to do with climate and weather. I have made some studies on the relationships. Though I am now 82, I hope to continue observing the weather, at least for another year."

MARYLAND

The first accounts of the weather of Maryland, especially of the region about the Chesapeake Bay, are descriptive and are found in the writings of the early explorers and settlers. The earliest and one of the most interesting is that by Capt. John Smith who, in his *History of Virginia*, published in the early years of the 17th century, wrote in some detail about the weather of this area and compared it with the climate as found in Europe. Not until the middle of the next century were the first instrumental observations of weather taken and these are attributed to Dr. Richard Brooke who took ob-

servations of temperature, wind direction, and state of weather at his estate known as Brookfield, near Nottingham, Prince Georges County. These observations were made during the period September 1753 to December 1757 and are published in the *Philosophical Transactions of the Royal Society of London*. In the 19th century the first efforts were made to set up weather observing stations and organize them into networks, first by the Surgeon-General of the U.S. Army, then by such institutions as the Franklin Institute and the Smithsonian Institution and finally by the Weather Bureau. In Maryland there was also brought into being a State Weather Service which, dating back to 1891, has cooperated closely with the Weather Bureau in setting up additional cooperative weather stations and in collecting and making these data available to the general public.

From these beginnings the number of Maryland's weather stations has grown to over 125. The data of about 80 of these are now regularly published by the Weather Bureau.

Maryland may take justifiable pride in its fine group of cooperative weather observers who, coming from different walks of life, have taken and recorded daily weather observations at their stations and have thus contributed much to the knowledge of the climate of this state. It would be well to acknowledge the efforts of those individuals or families who have served as weather observers over a long period of time. These include: Bruce family of Westernport, from November 1894; Harris family of Coleman, from February 1898; Oswald family of Chewsville-Bridgeport, from March 1898; Weber family of Oakland, from September 1903; Curtiss family of Fallston, from October 1870 to May 1953; Higman family of Millington, from September 1906 to December 1956; and James R. Stewart of Princess Anne, from July 1894 to January 1945. Currently, Mr. D. Paul Oswald of Chewsville-Bridgeport, who took over from his father and brother in August 1902, is Maryland's observer with the longest service.

There are instances when observers have taken their data under the most difficult circumstances. The Chief of the Weather Bureau cited Mrs. Leo A. Cohill of Clear Spring, now deceased, who on July 22, 1953, took her regular 6:15 p.m. observation during a severe storm which brought

considerable damage, both by wind and rain, to her area. The Cohills have taken observations at Clear Spring since 1923.

In addition to private individuals, there are organizations, such as city, county and State departments and agencies; colleges and universities, especially agricultural experiment stations; radio stations; commercial firms; and other U.S. Government departments and agencies which are assisting more and more as cooperative weather observers and have been responsible for many excellent records of daily weather observations. Forty percent of Maryland's observing stations, whose data are being published by the Weather Bureau, are operated by such organizations. Woodstock College has the longest organizational record and this dates back to December 1870.

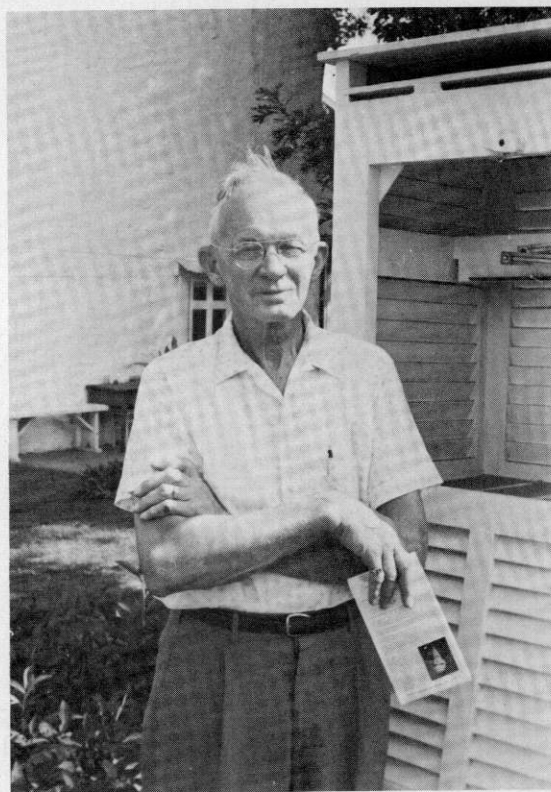
Another very important source of weather information in Maryland is the Maryland State Police who, since 1948, have been taking, recording, and transmitting regular weather observations, twice daily at 6 a.m. and at 5 p.m. to the Weather Bureau. These observations include temperature, precipitation amount including snowfall and snow depth data, state of the weather, and road conditions. At present 13 police stations are in this network which extends into all divisions of the state.

In addition to making and recording his observations for transmittal to the Weather Bureau, the Weather Bureau Cooperative Observer is also an important and respected source of information to his community by releasing his daily observations to the different news media for wide and rapid dissemination to the general public, by making his past records available to engineers, lawyers, and many others for use in their profession or occupation, and by assisting the schools in the scientific education of the youth through his discussion of local weather, the science of weather, and through field trips to his weather station.

H. W. Bouchelle

Elkton

Mr. Bouchelle, although retired, is a very busy man; but he still finds time to complete his daily weather observations just as he has done since 1927. He was born in 1888. As a young man in 1908, he took a job with the Post Office Department as a rural mail carrier, driving a horse and wagon over a 25-mile route in the Elkton area.

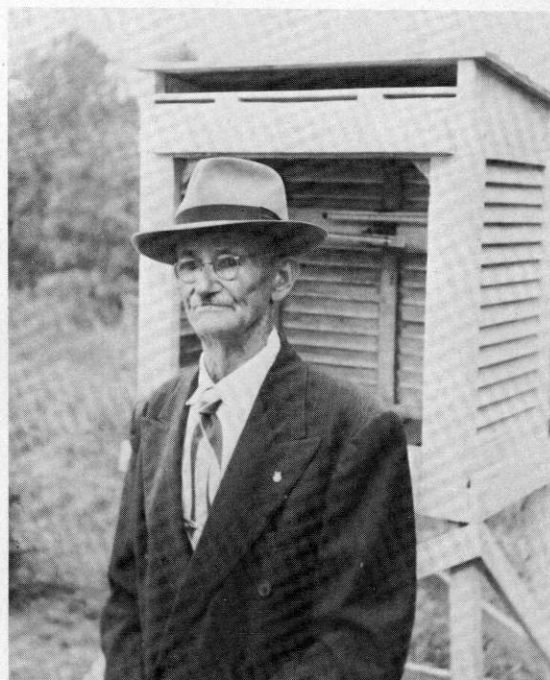


H. W. Bouchelle

In 1915 he was appointed assistant postmaster at Elkton, continuing in this position until July 1958 when he retired at the age of 70 years. He married Mary Cantwell in 1922 and they had three sons. He lives in one of the oldest homes in Elkton, the original part of which is stone and dates back to 1809; he keeps it in fine shape, retaining much of its oldtime quality and charm. Among his many activities these days are the following: Treasurer of the Historical Society of Cecil County, which has 400 members; Secretary of the Masonic organization, Cecil County Royal Arch Chapter No. 34; Secretary and Treasurer of the Methodist Sunday School; President of the Mutual Building Association of Elkton; and Vice-President of the Union Holding Company. He says, "It has always been a pleasure to serve the public both as a postmaster and as a Weather Bureau Cooperative Observer." He lists his lowest observed temperature of -16° F. in January 1935 and the heavy and damaging snowfall of March 19-20, 1958, among his unusual weather events.

Thomas J. Bourne **Owings Ferry Landing**

Mr. Bourne, a recipient of the John Campanius Holm award in 1964, has been taking weather observations at his farm near Chaneyville since January 1922. Born in 1884 at an adjacent farm, he has spent his entire life in this area. He married Edna Kemp in 1925. Her experience as a bookkeeper has helped her to be his most capable assistant in weather reporting. This has always been done in a neat, legible, and attractive manner. They have two daughters and five grandchildren. Mr. Bourne is now a retired farmer. His home is located in a beautiful setting on a hilltop overlooking the Patuxent River and its adjoining meadowland. He has been a vestryman in the Protestant Episcopal Church. In his younger days he enjoyed hunting and fishing. He and his wife are proud of their collection of chinaware, many of the pieces having been given to Mrs. Bourne when she taught in a school for Chinese children. Mr. Bourne recalls that his interest in weather began with the unusual weather of 1899 which featured a low temperature of -17° F., heavy snow with drifts to 10 feet, and a severe storm on August 2, tornado-like in its intensity, which brought great destruction to the area.



Thomas J. Bourne

Norris Bruce **Westernport**

Mr. Norris Bruce, a recipient of the John Campanius Holm award in 1964, is a member of a father-son combination which has completed a record of over 70 years of unbroken weather observations at Westernport. Born in November 1877 at Luke, Md., he is the oldest of our cooperative observers in Maryland. His father, Prof. Oliver H. Bruce, Principal of the high school now named for him, began weather observations in 1894. Mr. Bruce graduated from this high school in the class of 1896. He took over the weather observing in August 1920, just a month before his father's death. In 1926 he married Marie Walker. He was assistant cashier at the First National Bank of Piedmont, W. Va., until his retirement in 1956 after 56 years. He is a veteran of the Spanish-American War and has served as Department Adjutant and Quartermaster of the West Virginia Department since 1926. He is a Mason, a Lion, and a Captain of



Norris Bruce

Uniform Rank, Knights of Pythias. His lifelong hobbies are horticulture, conservation, and collecting stamps and coins. Concerning his weather observing, he says, "I think I have been



Walter B. Harris

of service to the Weather Bureau and to the community as well by furnishing weather information to the local papers and to the public in general and it has given me much satisfaction to do this service." Among his most memorable weather events are the floods of March 1924 and March 1936 and the recent heavy rainfall of August 30, 1964, totaling 5.80 inches, most of which fell within 2 hours.

Walter B. Harris

Coleman 3 WNW

Mr. Harris, a recipient of the John Campanius Holm award in 1962, is a member of a father-son combination which has taken weather observations officially since February 1898; but he recalls that his father, James S., was taking and recording weather data for some years prior to this date. His father was very much interested in the application of science to farming practices. In September 1916 Mr. Harris took over the operation of the station, succeeding his brother, Carson W., who operated the station for a short time in 1915. He also recalls taking observations as a young boy, using an 18-inch box which was kept near the shelter for his use when his father was away from home. He was born in 1885 and married Mary Harper in 1912. Their only child, a son, is now in charge of the farm and its many activities, but Mr. Harris continues to "fill-in" where needed. He has been a member of several farm and horticulture societies, and for many years he exhibited at farm and horticulture shows. He is enjoying his retirement and his life

with his grandchildren on his farm which is located in a beautiful setting overlooking the Chesapeake Bay.

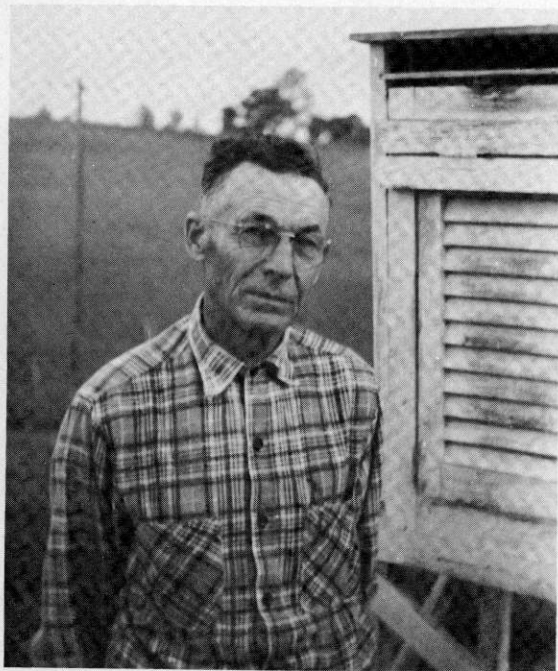
D. Paul Oswald

Chewsville-Bridgeport

Mr. Oswald, a recipient of the Thomas Jefferson award in 1960 and of a letter of commendation from President Kennedy for completing 60 years of service in 1963, was born in 1886 in Chewsville, Md. In 1898 his father, Daniel E., agreed to the establishment of a Weather Bureau cooperative station at his home mainly for the purpose of providing a worthwhile hobby and the beginning of a scientific education for his sons. D. Paul began his weather observing in 1902, sending reports for several years over the name of his older brother, E. Ingram, who had operated the station from July 1898 after his father had completed the first three months. Mr. Oswald left his weather station in care of his father in 1918 to accept a position with the Weather Bureau at the Baltimore Custom House as Assistant Observer. Although his stay there was but a few months, he learned Weather Bureau operation and practices which helped to make him an outstanding observer. In 1919 he was married to Edna F. McMillen. After a varied business career he retired in July 1956. Weather reporting has been his most important avocation.



D. Paul Oswald



Ralph Staley

He provides daily reports and monthly summaries to both Hagerstown daily newspapers, and also furnishes daily reports to the local radio station. He has a keen knowledge of the current status of agriculture in Washington County and each week, in addition to his Weekly Weather Report for the Weather Bureau, furnishes crop information to the U.S. Department of Agriculture. Always most active in community affairs, he has cooperated with the Hagerstown schools and Boy Scouts in providing a better understanding of climate and weather. His most memorable weather experience was his observation of -27° F., the lowest ever recorded at the Chewsville-Bridgeport station, on the morning of January 13, 1912, following his arrival at home, half-frozen in an open horse-drawn sleigh.

Ralph F. Staley

Boys 2NW

Mr. Staley has moved four times since becoming a cooperative weather observer and each time he has taken his Weather Bureau station with him: Boys (at 10-Mile Creek), 2 miles east of present location, November 1930–June 1939; Poolesville, 7 miles southwest of present location, July 1939–March 1941; Germantown, 4 miles east-southeast, April 1941–January 1953; and Boys 2NW, his present location, from February

1953. However, his moves have always kept him within the northwestern part of Montgomery County. He was born in 1895 and married Nellie M. Claggett in 1933. They have five children, all of whom are married except one son who is in the military service. Mr. Staley operates a large dairy farm and, with the assistance of his three sons, produces milk for the Washington, D.C. market. He has always been interested in farming organizations and has been a member of the County and State Farm Bureau. He is an Elder and Trustee in the Boyds Presbyterian Church. Another hobby he enjoyed for many years is shopwork with woodwork his specialty. The most unusual weather events that he recalls observing are his record low temperature of -17° F. in January 1935 at 10-Mile Creek and his greatest snowfall during the Palm Sunday storm of March 29, 1942. Mr. Staley was forced by ill health to transfer the station to his son, Hunter F. in April 1965.

MASSACHUSETTS

More than 100 official weather stations serve the Commonwealth. Nearly all are manned by cooperative observers. Observations from each station are vital contributions to the climatic record of the State. In addition, individual stations may be a part of a specific research project. For example, knowledge gained at the Harvard Forest in Petersham may be useful in applying weather data from other stations to problems relating to the Commonwealth's forest and wood products industries. Similarly, data from the University of Massachusetts Cranberry Experiment Station at East Wareham play an extremely important part in the production of this crop. The southeastern Massachusetts area contains more than half of the Nation's cranberry producing acreage.

In addition to its Cranberry Station, the University of Massachusetts operates a cooperative station on the Amherst campus, where records extend back to 1885. The University also sponsored the analysis by modern computers of daily data from various Massachusetts stations. By this means were derived weekly averages and probabilities for various climatic items useful not only to agriculture but also to industry and the

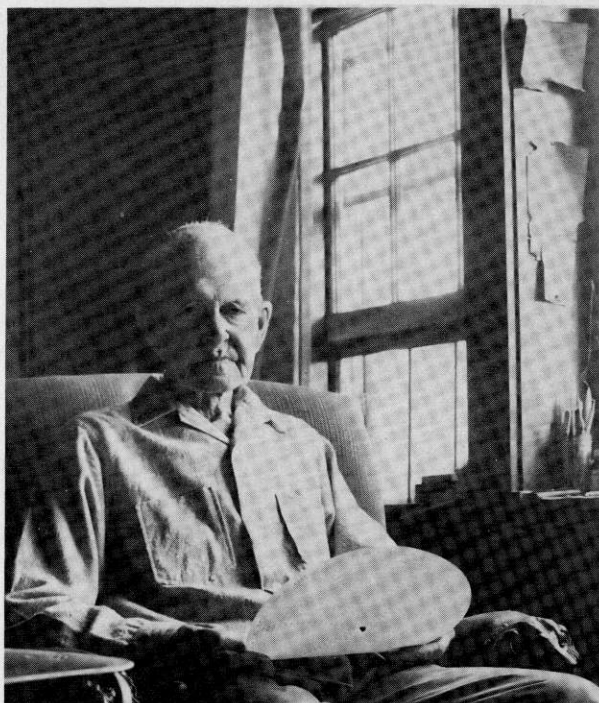
general public. Probabilities for various amounts of precipitation were calculated, for example.

In Massachusetts, many stations are operated by companies, institutions, or branches of government other than the Weather Bureau. Of these, 44 have served for 30 or more years. The Springfield Armory, for example, has recorded the weather since 1848.

The heart of the cooperative program of weather observations has been from the beginning the individual private citizen, interested in and devoted to the study of weather. One outstanding example of such an individual is Mr. William A. Winsor, of Sandwich. Testimony to his interest is the fact that his present home was built especially as a weather observatory. He has an excellent view from its location and the building is especially reinforced to withstand hurricane winds.

Mr. Winsor's interest naturally derives from his family background of over 300 years of marine experience. Many previous Winsors had built and sailed square riggers and later steamship lines in both the Atlantic and Pacific. They established tow boat companies and fished the Banks. Mr. Winsor says: "Up until about 1900 they had to rely pretty much upon their own weather judgment. They had a lot of respect for twisters, gales, and hurricanes. I was born in 1879 and at an early age learned to box the compass. Weather was a daily topic in the household, with all taking part. I shipped in the Navy at 18. I sampled the winter moods of the western ocean both north and south and from east to west, monsoon weather of the Indian, pamperos of the South Atlantic, water spouts and typhoons of the Pacific. Was 2 years in the Rio de la Plata vicinity and 2 years in the Philippines. While Bowditch was tough plugging, there was a lot in it on revolving storms. Even in the late 90's it was difficult to get anyone to believe that a winter northeaster came from the south even though Ben Franklin determined it to be so many years before. A Coast Guard course on weather and some books on physics I found to be of great assistance."

Upon his retirement from the sea, Mr. Winsor became Barnstable County Deputy Sheriff, but continued his activities in meteorology. In 1945, he joined the corps of cooperative observers. As a related hobby, Mr. Winsor pursues photograph-



William A. Winsor

ing the seasonal march of weather and all kinds of weather phenomena. His collection of colored slides is of exceptional quality and completeness. It includes all types of clouds, lightning strokes, ice storms, etc. Many slides are of beautiful sunrises and sunsets, and the collection also contains remarkable shots of the aurora.

Data compiled over the years by cooperative observers provide the basis for design of highway culverts and other drainage systems, the design and operation of industrial, home, and farm buildings, and the settlement of insurance claims, law suits, and even fireside arguments. Supplementing the work of the Bureau, firms of private meteorologists frequently use cooperative observers' records to meet needs of clients. Mr. Parker Chick has two-way experience with this. Since October 1948, Mr. Chick has been cooperative observer in Walpole. Also Mr. Chick has the distinction of having founded Weather Advisors, Inc., the first firm in the nation to receive a license for industrial meteorology. His background includes Massachusetts Institute of Technology, where he both studied and taught courses in meteorology. His performance as an observer is extremely faithful. If asked why he will brave a particularly disagreeable storm outside to make



Parker Chick

an observation right on schedule, he will answer that it is during these conditions that it is most important that the observations be taken on time. He knows, because he knows how the data are used.

Many observers in Massachusetts are also a part of the Bureau's flood-warning network. Some make special readings of river stages. Observers also phone special reports to the Bureau's River Forecast Center whenever heavy rains occur, and continue reporting at intervals until the rain ends.

Winters frequently bring especially trying times for observers. Cold winds, deep snow, or biting sleet may transform the usually pleasant chore to a challenging and sometimes even dangerous task. As an example, the ice storm of December 4-5, 1964, coated much of Massachusetts with a slippery surface which made footing difficult. It also froze shut the doors of many



Nesbitt H. Bangs

instrument shelters. A lot of patience and ingenuity is sometimes needed to open a frozen door without disturbing the readings of the thermometers inside. All observers therefore deserve a lot of credit. To continue for 30 years or more is an enviable record set by three observers in Massachusetts.

Nesbitt H. Bangs

Stockbridge

Born in New York City in 1896, Mr. Nesbitt H. Bangs graduated from Williams College in 1919 and received his masters from Columbia in 1921. Though he began as an official observer in January 1930, his interest began long before. He says: "My meteorological birth occurred about 1904 when my father punished me for placing his umbrella upside down on the lawn to measure the rain from a thunderstorm. The late Dr. Charles F. Brooks got me more seriously interested as I studied under him for 2 years at Clark University. There, another student and I wrote an article on the climate of China which was published in the *Monthly Weather Review*. Later we received a few indignant letters from Chinamen claiming we did not know what we were

talking about. This was probably true as our sources of information were rather slim.

"My most embarrassing experience occurred in the fall of 1938 when I was visiting Miami, Fla. The great hurricane was approaching the southern Florida coast. As I wanted to see what a hurricane was like, I sent a telegram home saying that I would stay a few extra days to see the storm. At the last moment it veered away and slammed instead into New England. I had to be rowed across the fields to my house in a boat manned by my jeering children."

Mr. Bangs has compiled an excellent record over the years, unbroken except for an unavoidable one year gap in 1932-33.

Rev. Ralph M. Barker

Rockport

Rev. Ralph M. Barker is affectionately known along the North Shore as "The Old Salt." He gained added acclaim in 1963 when he received the Bureau's highly coveted Thomas Jefferson award in recognition of his outstanding accomplishments and service. Reverend Barker says:



Rev. Ralph M. Barker

"I have been proud to be a cooperative observer. This has brought into focus a constant interest in observing the weather with an effort of many years trying to understand more about the weather. The work opened up several radio opportunities and I have assisted in dispensing weather information via radio almost continuously since 1940. Of course, 'everybody talks about the weather.' But as a cooperative observer with records to back me up, I think I enjoy talking about the weather more than otherwise would be possible. Then, too, the locale of Gloucester and Cape Ann, by the sea, has given added zest."

Rev. Barker's service exceeds 38 years. He began at Mansfield, Mass., in January 1927. In 1930 he moved to Gloucester, then to Rockport in 1946. His station on Cape Ann is a part of a network from which special observations are used for forecasting the occurrence of frost in the cranberry bogs in and near Cape Cod.

Richard C. Brigham

Fall River

Recipient of the John Campanius Holm award in 1960 and the Jefferson award in 1965, Mr. Brigham has served as an outstanding cooperater since December 1920. Through the years, he has inspired in others, especially young people, an interest and enthusiasm in weather that have distinguished him since his "grammar" school days. Mr. Brigham says: "A teacher, Miss Palmer, had me keep daily records back in the old days in elementary school. That was in 1905 and I don't think I've missed a day since. It has meant everything to me being the cooperative observer here. Many interesting things have happened, but probably the most unusual was going through the 1938 and 1944 hurricanes."

As a second hobby, Mr. Brigham is a camera enthusiast. In addition to movies, he takes color stereos of scenery of the Northeast, especially New England fall foliage. The Berkshires and the Green and White Mountains are favorite subjects for October color shots.

Mr. Brigham's occupation has been as principal clerk of the Selective Service Board, since its beginning in 1940. He recalls that Jerome Namias, later to become a leading meteorologist, borrowed, when a Boy Scout, all his weather books.

MICHIGAN

Michigan has a large number of dedicated cooperative observers consisting of horticulturists, power company employees, sewage plant employees, mining company employees, fishermen, accountants, sheriffs, automobile test track engineers, newspapermen, radio announcers, farmers, chemists, and people from many other professions. They all have a business or personal interest in the weather and climate of this State. If it were not for people of this kind, willing and able to do something voluntarily for the good of the State and Country, the Weather Bureau could never have obtained adequate records upon which to establish the climate of the Nation. The information, past and present is becoming more valuable as time goes by and as the specialized needs of business, industry, and agriculture grow.

Leo M. Greene

Midland

Leo M. Greene was born in Herrick, S. Dak., in 1901. He received his education in Minneapolis, Minn., graduating from the University of Minnesota in 1927. Upon graduation he was employed by the Dow Chemical Company, Midland,



Leo M. Greene



Stanley Helzerman

Mich., as a chemist in the Main Laboratory. He is now a laboratory director. He lives in Midland, is married, and has two sons.

Mr. Greene says: "It has been a satisfying and interesting experience to serve as an observer, furnishing both our local and State areas accurate weather data from this station."

Stanley Helzerman

Willis 5SSW

Stanley Helzerman is a farmer who began observing weather on his own while in high school and has served as cooperative observer since 1929. He has lived on the same farm in southeastern Michigan ever since he was born on October 3, 1910. He has always liked to study weather and climate and he often visits the Detroit Willow Run Weather Bureau Airport Station which is only about 10 miles from his farm home.

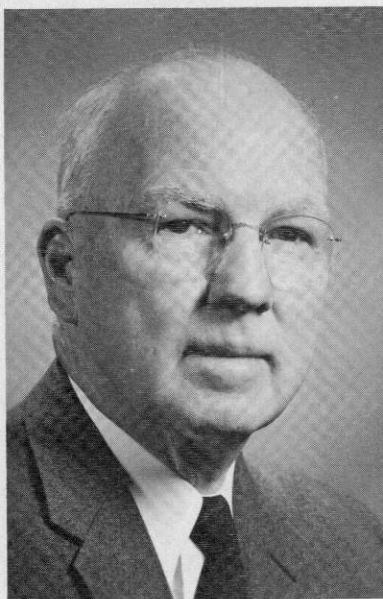
Prof. Stanley Johnston

South Haven Experiment Station

Stanley Johnston has been a research professor of horticulture at the South Haven Experiment Station of Michigan State University since 1945. Before that he was Superintendent of the Experiment Station beginning in 1920.

He has been responsible for the development and introduction of many new fruit varieties in the Michigan area especially peaches, apricots, blueberries, raspberries, and strawberries. Many honors and awards have been received by him for his work.

Professor Johnston holds a masters degree



Professor Stanley Johnston

from MSU. He has written numerous papers on new fruit breeds, which have been delivered before professional societies and published in professional journals.

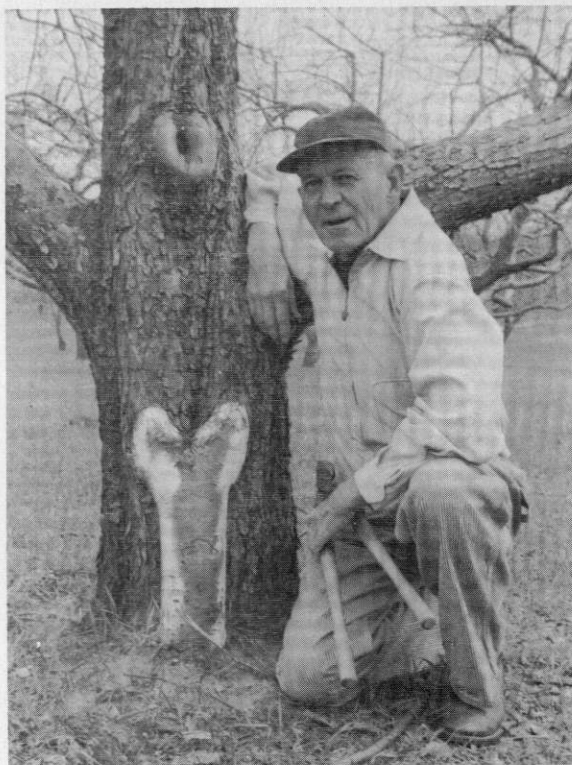
He says, "I have been in horticultural research for more than 44 years working with fruit plants. During 38 years of this time I have had charge of making observations as cooperative observer at the South Haven Experiment Station for the Weather Bureau. Weather plays an extremely important part in fruit growing. The accumulation of weather records for many years in many places is of great value to the industry. It has been a privilege to help in getting these records."

W. W. Teichman

Eau Claire 4NE

Mr. W. W. (Bill) Teichman was born May 11, 1894, at St. Joseph, Mich. He served in the First World War and after the war came back to Michigan where he got a job as working manager of a fruit farm. After 7 years of experience and a horticultural course at Michigan State University, he bought 160 acres of bare land and set out to develop what has now become one of the most outstanding fruit farms (peaches, apples, cherries) in the fruit belt of southwestern Michigan.

He comments: "Maintaining a 'Weather Station' for 40 years has not cost me a penny! If it has been a 'chore', it's been a most pleasant one.



W. W. Teichman

I wish to express my sincere appreciation to the many fine professional meteorologists that I have had contact with over the years. They are a class by themselves."

MINNESOTA

The Minnesota cooperative weather observer is another Paul Bunyan of the North. He is a man made up of farmers, businessmen, housewives, service station operators, newspaper people, policemen, county engineers, county agricultural agents, florists, custodians, canning company employees, civil engineers, a banker, a blacksmith, a depot agent, an illustrator, a carpenter, a real estate employee, an advertising agency, a mining company employee, a barber, a telephone employee, a teacher, a cheesemaker, other Federal, State and county employees, and finally, retired people. This weather giant of Minnesota consists of over 250 localities whose representatives donate 15 minutes of their day each day of the year. This is a total of 1,368,750 minutes spread out over the year—22,812 hours or 950 days. Only a Paul Bunyan could get 950 days in a 365-day year.

The cooperative weather observer is the man behind Minnesota's climatology which in turn assists the State's economy. He is the unsung hero who goes about his business day after day, each day putting his mark in the State's history book. A mark which will have more people looking at it in the future, maybe even at this moment, than there are people in the community he represents.

Minnesota's first weather observations began in 1819 at Fort Snelling. By 1895 there were a total of 75 cooperative stations in the State. Today the Weather Bureau publishes data from 216 stations. There are also 42 stations whose observations are not published but are used in the Bureau's river-rainfall network or which help describe the climate within our larger urban areas. This is a total of 258 cooperative stations.

Some of our stations have been in the same family for many years. The Puffer family at Bird Island served from 1892 to 1959. At Farmington the Akin family has served continuously since 1888. At Milan the Opjorden family observations date back to 1893 and at Red Wing the Back family has taken observations since 1893.

The most outstanding record, however, for length of service by one individual belongs to Mr. George W. Richards of Maple Plain. Mr. Richards served for nearly 64 years from January 1892 until August 1955. Mr. Richards still lives in Maple Plain.

Government agencies and institutions have also contributed long records. The U.S. Army Corps of Engineers, St. Paul District, have maintained records at Leech Lake, Pine River, Pokegama, and Winnibigoshish Dams since 1887. The U.S. Department of Interior Forest Service at Cass Lake began observations in 1907. St. John's University at Collegeville has a record dating back to 1892. The Minnesota State Hospital at St. Peter began observations in 1893. At Tower, the Minnesota Department of Conservation record goes back to 1895.

Through the course of the years each cooperative observer has had his or her experiences recording the weather. Many observers have consistently given more than is expected. Much quiet effort is put forth and these efforts and their results will continue to pay dividends to our country in the future.

As of this year there are two individual ob-



Jerome E. Akin

servers who have 30 years of service or more. They are Jerome E. Akin, Farmington and Torfinn Opjorden, Milan.

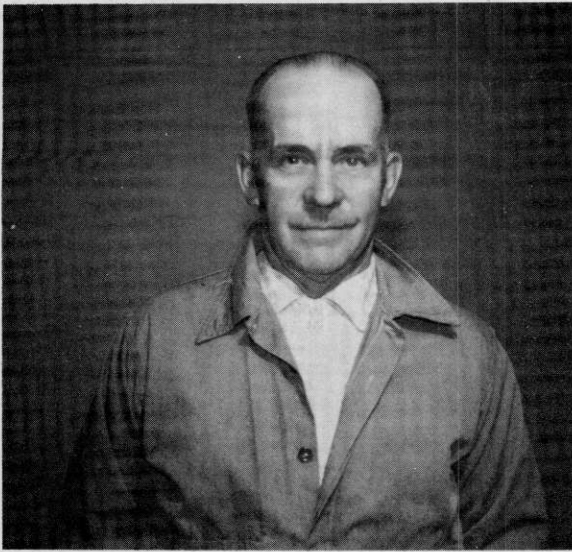
Jerome E. Akin **Farmington 3NW**

Mr. Akin is the third Akin cooperative observer. On December 1, 1964, he completed 45 years of service. In terms of length of service he is Minnesota's oldest active observer. To make this record even more unique all of his observations have been on the same farm where his grandfather, D. F. Akin, and father, E. D. Akin, started the Weather Bureau-Akin cooperation on March 1, 1888. Mr. Akin is married and has four sons and three daughters. He has been the county commissioner for the Fifth District, Dakota County, for the past 18 years.

Mr. Akin says, "At the end of each day for over 45 years it has been a great satisfaction recording the weather thinking you have done something for your community and country."

Torfinn Opjorden **Milan**

Mr. Opjorden began his observations on January 1, 1925, succeeding his sister, Regna. Their father, O. K. Opjorden, was Milan's first observer starting on August 7, 1893, and continuing until 1921. Torfinn is married and has two children. He has spent his entire life in the Milan com-



Torfinn Opjorden

munity developing his well-kept farm and helping the area grow. He has a keen interest in county and State happenings. Time permitting he enjoys fishing and hunting.

Mr. Opjorden says "It is an honor to be an observer at a station that has been in the family since 1893. It takes very little time to make these readings and reports. The day would not be complete if these reports were not made. I have enjoyed this work and hope that I will be able to keep on for many more years."

MISSISSIPPI

Mississippi is included among the States with reports made in the 18th century. William Dunbar recorded or summarized the weather conditions at "The Forest", Natchez, Miss., from February 1799 to December 1803. From then to the 1840's, there are a number of years with no regular reports available. After that, reports from one or more Mississippi locations were made. In 1881, letters were sent to the Governor of each State, urging the organization of a State weather service, with at least one observer in every county. By 1886, the *Monthly Weather Review* published summaries of the reports of the "Mississippi Weather Service", then furnished by Prof. R. B. Fulton, University of Mississippi, Oxford, Miss. In 1897, daily temperature read-

ings and daily precipitation amounts were published in the monthly reports of the *Mississippi Section of the Climate and Crop Service* of the Weather Bureau, by authority of the Secretary of Agriculture.

Two families have contributed reports which appeared in the *Mississippi Section of the Climate and Crop Service*, or succeeding publications. Henry H. Crisler took over the responsibility of taking and recording the weather at Port Gibson, Claiborne County, Miss., in January 1892. Mr. Crisler was born in Hinds County on July 8, 1869, and passed away in December 1954. He had the longest record of service, over 60 years, of all the cooperative observers who were still active at that time. He also served for many years as the editor and publisher of the Port Gibson *Reveille*, but never mentioned in his weekly newspaper that he was the oldest voluntary weather observer in point of service. He instilled in his son, H. H. Crisler, Jr., an interest in both weather observing and publishing. Mr. Crisler, Jr., has been the cooperative weather observer at Bay Springs, Jasper County, since November 1, 1936, and is also in the publishing business there. Miss Eugenia C. Crisler, daughter of Mr. Crisler, Sr., became the observer in Port Gibson upon her father's death. This family has devoted over 101 years of service in furnishing weather reports for their fellow Mississippians and others.

The Erikson family has devoted 74 years of service in reporting the weather at Water Valley, Yalobusha County, Miss. Andrew Erikson took over the responsibility of observing and recording on February 1, 1891, and continued until his death in 1902. After Mr. Erikson's death, Miss Ulrika C. Erikson was the official observer until 1908, when her sister Miss Loula C. Erikson took over. Miss Loula C. Erikson was born in Bolivar, Tenn., October 2, 1875, and died August 9, 1952. Since then, her brother, Andrew R. Erikson has continued the family tradition.

Some of our cooperative observers are in locations where they can provide river gage readings. For their work and devotion to duty during the floods of February and/or March 1961, Mrs. Sarah M. Taylor of Merrill, Mrs. Pearllee M. Little of Enterprise, Mr. James T. Bunch of Waynesboro, Mr. J. H. Grayson of Hattiesburg, and Mr. Ralph E. McLendon of Shubuta, ob-

servers in the Leaf, Chickasawhay, and Pascagoula Rivers drainage areas were given Special Service Awards. Although not a regular substation observer, Mr. Billy Bagwell was given a Special Service award for his work at Beaumont, when river conditions were too hazardous for the regular observer to reach the river gage. Mr. Bagwell volunteered to make the observations for her. In 1963, a Special Service award was given to cooperative observer, Charles G. Spain, Tupelo, Lee County, for his devotion to duty in the organization of a local severe storm reporting network and for his services to the Weather Bureau and the public in observing and reporting severe local storms. Mr. Spain died November 14, 1964. He was a former police officer and Civil Defense Director. The weather tower at the Tupelo Municipal Airport has been renamed the Charles Spain Tupelo Weather Center in his memory.

Inquiries concerning the weather in Mississippi are received from agriculture, industry, transportation, and other fields of human endeavor. State agencies, and others engaged in studies of the natural and human resources of the various Mississippi counties, need summarized weather reports. To all of these, the daily readings of the cooperative weather observer help to delineate the present and past weather.

Mrs. Sarah M. Taylor

Merrill

The Pascagoula River is formed by the confluence of the Leaf and the Chickasawhay Rivers near Merrill, where it is crossed by a drawbridge of the N.O.M. & C. Railroad. A river gage station was established October 1, 1904, with the gage attached to the fender of the drawbridge. A rain gage was installed on the pier at the river bridge. Daily precipitation reports first were published in the Report for February 1905, *Mississippi Section of the Climate and Crop Service* of the Weather Bureau. The rain gage was moved to a ground location May 18, 1912, and several cooperative observers took the early observations. Jerome E. Taylor assumed the river and rainfall reporting from October 1914 through September 1917; E. Benjamin Taylor from October 1917 through January 1918, and Mrs. Sarah M. Taylor since then to the present time.

During the first part of July 1916, a hurricane

moved northward through the Yucatan Channel across the Gulf of Mexico, and passed inland east of Mobile, Ala., attended by destructive winds and torrential rains over a wide area, including the Pascagoula River. The greatest flood of record occurred in stretches of the Pascagoula River. The highest stage at Merrill was 31.0 feet on July 9; water was 3 feet deep in the railroad depot, and no one-story house in town was habitable for practically two weeks. At Merrill, 19.95 inches of rain was measured for the period beginning 8 a.m., July 5, and ending during the night of the 8th. Of that amount, 12.35 fell in 23 hours, ending at 7 a.m. of the 6th, the greatest one-day amount that has been recorded at Merrill. The total for the month was 30.75 inches, the greatest monthly precipitation total of record for the entire State of Mississippi.

Mrs. Sarah M. Taylor was born in Basin, Jackson County, Miss., on June 30, 1879. She is now married to E. Benjamin Taylor. Together, as a team, they have been sending daily reports of the river gage readings and the amount of precipitation. They opened a country store on Main Street in 1925. For a number of years, Mrs. Taylor was also the postmistress at Merrill. She retired from the store in 1961, but continues to send in her reports in fair and in foul weather.

On June 1, 1959, as the remnants of tropical storm Arlene passed over Mississippi into Alabama, Mrs. Taylor volunteered a report of torrential rain by phone to the Jackson River District Center, who in turn requested special reports at noon and 5 p.m. From these reports it was possible to confirm other evidence observed on radar at Jackson, which permitted the River District Center to issue timely bulletins for protective action in the localized moderate flooding in the Lower Leaf, Chickasawhay, and Upper Pascagoula Rivers. The Pascagoula River reached the 23.1 feet stage at 4 p.m. the following day at Merrill as predicted. Without the dedicated compliance of Mrs. Taylor for special observations, it is unlikely that the flood forecast for the Lower Leaf, Chickasawhay, and the Pascagoula Rivers could have been made so accurately by the Weather Bureau. In 1960, Mrs. Taylor received the John Campanius Holm award for outstanding service.

MISSOURI

There are many times each year when weather observations from large sections of Missouri are in great demand. These are usually times of flood, drought, temperature extremes, or storms. Weather records are used in court, to settle insurance claims, in news stories, in commodity dealings, and by people who are just interested in the weather, and in the design of roads, dams, and buildings.

While all of the weather stations in the State produce valuable information, the records from stations that have operated for many years at the same location with the same observer are especially valuable. Observations from such long-time stations are used in a variety of research projects at the University of Missouri. These range from studies of the effect of weather on crops and livestock to research concerning cloud physics.

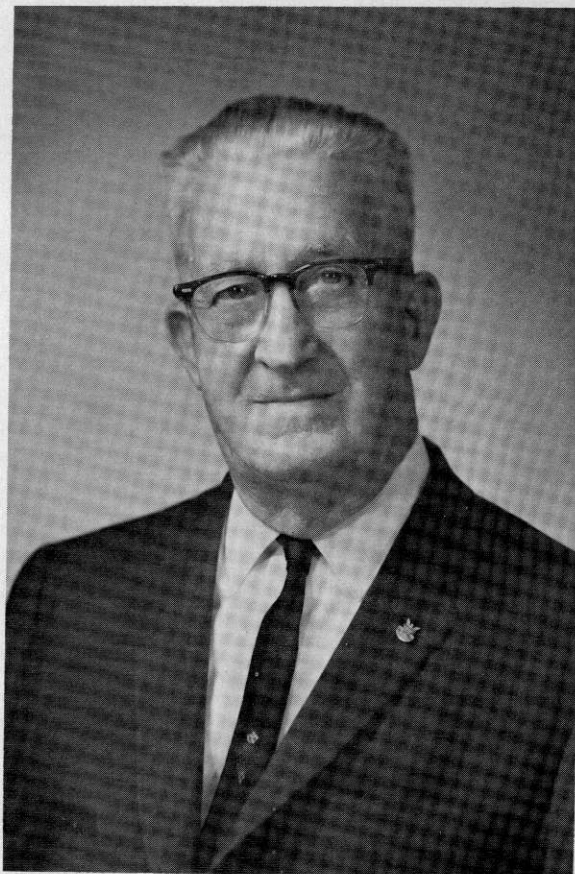
Long-time weather records have been used to prepare several University of Missouri Agricultural Experiment Station Bulletins. These have been given wide distribution through the Extension Service offices. These bulletins describe precipitation patterns, freeze probabilities, the effect of weather on haymaking, cotton harvest, grain drying, irrigation, and the likelihood of prolonged dry periods. Some of these bulletins are so popular that they have had to be reprinted more than once.

Lee L. Albert **Cape Girardeau**

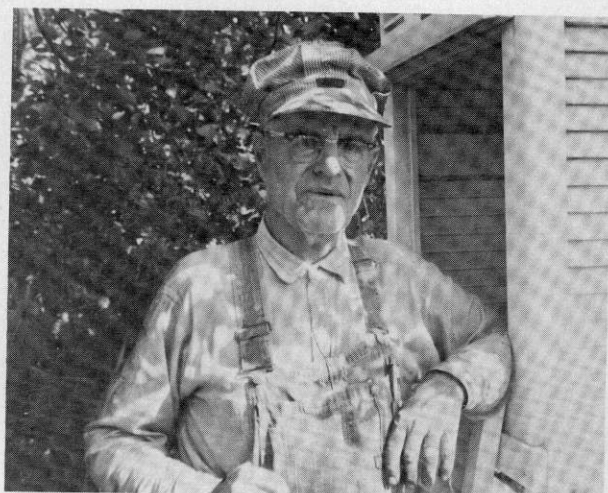
The title of "River Observer" has been in the Albert family since the 1890's; first for the U.S. Engineers and then for a while for both the Engineers and the Weather Bureau. Lee Albert has been the observer since 1928. Mr. Lee says, "This river, this job, has become so much a part of my life and my family that it is difficult to sum it up in a matter of words. As Oscar Hammerstein so aptly phrased it, 'Ol' Man River, He just keeps rollin' along'."—And so does the Albert family.

O. M. Colhour **Amity**

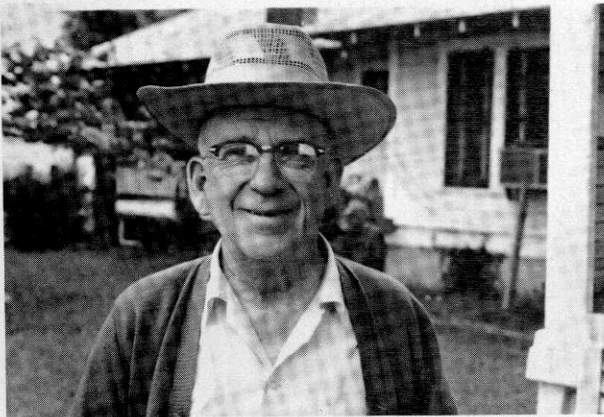
Mr. Colhour was a blacksmith-gunsmith in his earlier years. He now operates a machine shop, which is equipped for the repair of farm implements. He still does some gunsmith work. Mr. Colhour is known in his area as the "wolf hunter". He has an uncanny ability to locate wolf dens. Mr. Colhour has been interested in



Lee L. Albert



O. M. Colhour



Floyd E. Fawver



W. S. Frame

weather events most of his life. He has become especially good in forecasting local weather in the Amity area, basing his predictions on intimate knowledge of cloud formations, etc. He began taking observations at Amity in January 1935.

Floyd E. Fawver **Seligman**

Mr. Fawver graduated Phi Beta Kappa from the University of Missouri in 1916 with a bachelor's degree in mathematics and physical science. He became interested in weather while taking an introductory course in meteorology which was taught by Mr. George Reeder, Weather Bureau Section Director at Columbia, Mo. Mr. Fawver began weather observations at Seligman in November 1921 at the suggestion of Mr. Thomas Talbert of the Horticulture Department of the University of Missouri, who was also a native of Seligman. Mr. Fawver owns and operates a bank, an insurance agency, and hardware and lumber supply company in Seligman.

W. S. Frame **Lakeside**

Mr. Frame is a graduate engineer, having completed his training at the Missouri School of Mines in Rolla, Mo., in 1923. Following graduation, he worked several years with the U.S. Geological Survey. In 1928 Mr. Frame went to work for an engineering firm that designed and supervised construction of Bagnell Dam, which formed the Lake of the Ozarks. Upon completion of the Dam, Mr. Frame was employed by the Union Electric Company. He is now Resident Hydrologic Engineer in charge of operations at Bagnell Dam. He began taking weather observations in November 1931.



Emmett L. Goe

Emmett L. Goe **Shelbyville**

Mr. Goe is now retired, having been maintenance supervisor for the State Highway Department for 36 years. Mr. and Mrs. Goe are avid gardeners. He specializes in a large variety of vegetables and Mrs. Goe is an expert in the flower department. Their home is famous in the Shelbyville area for the tremendous floral display which they grow each spring. Mr. Goe began taking observations at Shelbyville in November 1934.

Boyce T. Lackey **Doniphan**

Mr. Boyce T. Lackey was born in Doniphan in 1893, and has lived there ever since, except for the time he was in the armed forces during World War I. He served in the National Guard,



Boyce T. Lackey

and with the 35th Infantry Division in Europe. He attended William Jewell College in Liberty, Mo. After being mustered out of the Army in 1919, he returned to Doniphan and began working in a drug store. When the owner died a few years later, he bought the store, which he has operated ever since.

Mr. Lackey has been Chairman of the Deacons in his church, and has been active in the music program in Doniphan. For several years he had charge of the high school band program, until a full-time music director was hired for the school system. He still has an active interest in school music, and does a lot of instrumental repair work for the students, at no cost to them.

Mr. Lackey says that he loves poetry, and finds the words of the poet are true when he said, "The cares that infest the day, Will fold their tents like the Arabs. And as silently steal away."

Arthur D. Lewis

Pacific

Mr. Lewis was born in Pacific and has lived in that community for the past 61 years. He is quite active in church work. In his school years, Mr. Lewis was very interested in sports. He continues this interest by attending all of the University of Missouri football games and many baseball and track events. He has served as a Boy Scout leader. He is presently employed in a gravel and sand business. Mr. Lewis has been taking weather observations since January 1929.



Arthur D. Lewis



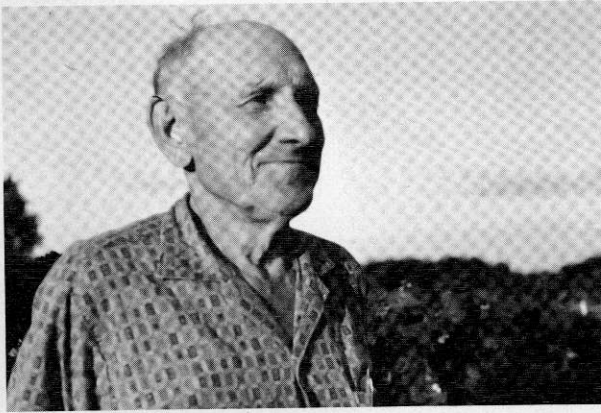
John M. Martin

His records include a flood in June 1945, when the Meramec River flooded half of Pacific. He also recorded rainfall of 11.75 inches in 7 hours in 1957.

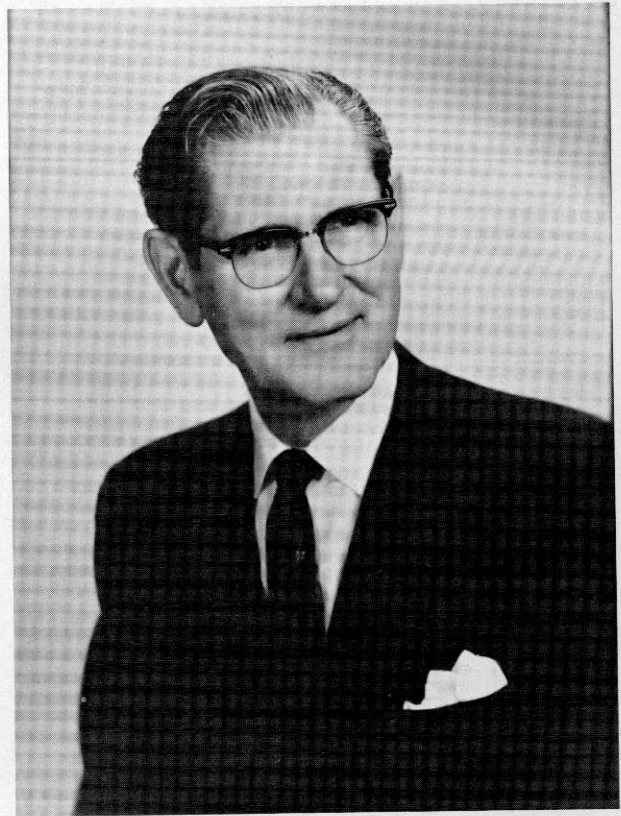
John M. Martin

King City

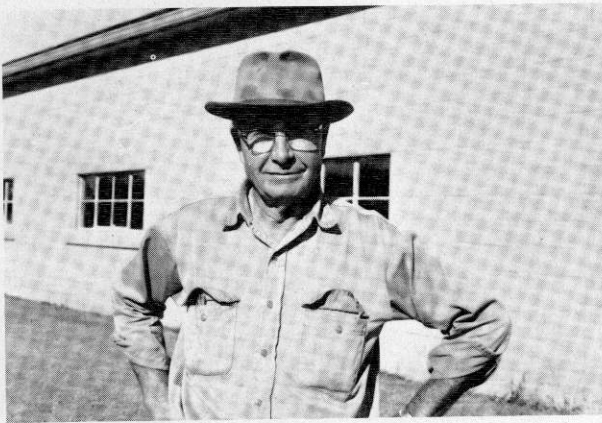
Mr. Martin became interested in taking weather observations while working in the water department. He has been active in community



Hubert A. Nieman



H. Kyle Vickrey



Paul D. Pettit

service and has been especially competent in providing weather data to the newspapers and citizens of his community. Mr. Martin has a cabinet-making company. He specializes in the remodeling of kitchens. He has been taking observations since February 1934.

Hubert A. Nieman

Lockwood

Mr. Nieman established and operates the Lockwood Nursery which celebrated its anniversary in 1964. Mr. Nieman's company specializes in growing pansy plants. They ship over a million of these plants each year. Mr. and Mrs. Nieman have travelled extensively and have a fine collection of colored slides of flowers from all over the world. He began taking observations in May 1931.

Paul D. Pettit

Edina

Mr. Pettit was born in Scotland County, Mo. on October 2, 1901, and began serving as observer in November 1930. Mr. Pettit has been with the Missouri State Highway Department for the last 35 years. His principal hobbies are hunting, fishing, and traveling. He also enjoys his ten grandchildren.

H. Kyle Vickrey

Stover

Mr. Vickrey is President of a bank in Stover and is active in community affairs. He began taking weather observations in September 1923.

MONTANA

Weather observations in Montana (at least those capable of describing the climate in terms of temperature and precipitation) started near the close of the Civil War at a few Army locations. The one best documented was at Fort Shaw, west of Great Falls where the record dated from 1867. The Fort Shaw station closed on December 31, 1926, and reopened at Fairfield, a

short distance north, where it has remained since. From this limited and hesitant beginning, needs for better defining the many facets of Montana's climate have led to a steadily increasing number of stations until today there are more than 350 climate observing points, over 90 percent operated by public-spirited cooperators willing to contribute their interest in weather to helping establish climate records for the use of their neighbors and for generations to come.

There have been countless examples of unusual and noteworthy efforts on the parts of cooperative observers to see that their records are correct, complete, and on time. With apologies to those not mentioned here (there are hundreds of such cases we don't even know about; observers in our experience, anyway, have rarely if ever been inclined to boast about such things), the following covers briefly a few samples which we feel sure have been repeated many times a year in one form or another:

Ashland 17 S, located in the mountains south of Ashland, was cared for by J. H. Fletcher for 22 years 1927-49. Served by practically non-existent roads for years, Mr. Fletcher in the early days drove his livestock several miles through forest and over open country to reach a trail. Before leaving Ashland he told us of some of his experiences in riding horseback to Ashland to mail his report, sometimes in near-blizzard conditions, and to carry back supplies. These horseback trips became more infrequent as backwoods roads improved, but an occasional 35-mile horseback trip became necessary even as late as the mid-40's.

The first weather station near Culbertson moved 7 miles SW of town in 1917 (11 miles by road). W. A. Whitcomb was the observer at his ranch until 1944, when he moved to town and continued the record until, in 1958, he retired because of eye trouble at the age of 87. He told of his experiences in driving a wheat freight wagon to town, crossing the Missouri on the former ferry near Culbertson, and scheduling his freight trips to coincide with the mailing of records on the first of each month.

More recently, river observer N. D. Ogden at Simms, during the disastrous 1964 Montana floods, rigged a temporary river gage on his house after rising water made it impossible to reach the bridge. When his planned evacuation route

was blocked by the flood, he and his son were rescued from the housetop the following morning. For this he received the Department of Commerce Silver Medal award with the citation—"For unusual courage and competence during a Sun River Flood, June 8, 1964, which enabled the Weather Bureau to issue lifesaving flood warnings."

Many observers routinely provide official temperature and precipitation data to local or nearby daily and weekly newspapers and to radio stations, often at considerable effort, and usually without it being known that the service is free. Frequent "newsy" articles appear in these papers, summarizing a week's, month's, or season's weather written by the cooperative observer. Observers at Turner, Ennis, Harlem, and many other stations have shown local school classes, one or more groups a year, how the records are made and how the instruments work.

In this day of improving roads, better cars, electricity almost everywhere, etc., getting the record in the mail at the end of a month may not be the problem it formerly was. But distances to Post Offices in many cases are farther, routes have been changed—in some cases service is less frequent—some observers are farther from Post Offices than ever. And storm travel can be a problem wherever it is tried. Our hats are off to Montana's cooperative weather observers, who put forth so much extra effort so often that too many times it is simply taken for granted. Thanks to them, we know far, far more about Montana weather than we possibly could have in any other way.

Oscar Angle

A recent Holm award recipient, Mr. Angle is an active octogenarian. He was born in Virginia in 1883 and came to Montana in 1903. After working as a farm hand, he drove the mail wagon between Norris (rail head) and Ennis for several years—until the "horseless carriage" took over. He is one of the few remaining Montanans who might be classed as the last of the stagecoach drivers. He inherited the weather station from the Montana Power Company, and since 1926 has "observed" continuously with occasional help from nephews, etc., during his absences—once a few years ago with a broken leg. He says, "I am sure that with the data the observers have compiled, it has contributed to our National safety,

Ennis



Oscar Angle

and has been a great aid in the prediction of day to day weather."

W. A. Barnard

Telegraph Creek

Quoting Mr. Barnard, "The Post Office at Telegraph Creek was closed when I reached 70 years but the mail comes twice a week by star route carrier (he is now 82). My ranch got up to 24,000 deeded acres before I deeded it to my three children. They have divided the ranch and I stay on the part my youngest daughter received. I am still young and keep the record of what everybody is interested in: the weather. I am glad to be of some service to all the people however small it may be, but if all the time for 34 years was totaled it would amount to a lot of service."

Mr. Barnard is so right! 34 years of a few minutes a day *is* a lot. Visiting Telegraph Creek one day in 1948 (August) on a gray day, the then Section Director (the editor of this Montana Section) learned what some unmapped country was like. Roads are better now, but he spent a couple of uncertain hours then before finding the station. After missing one of several unmarked forks in the road, and after passing through several wire fence gates, we finally arrived for a most enjoyable visit.

Ned W. Colby

Ovando 1 SW

Taking over at Ovando after fire destroyed an earlier observer's home, Mr. Colby has since 1925



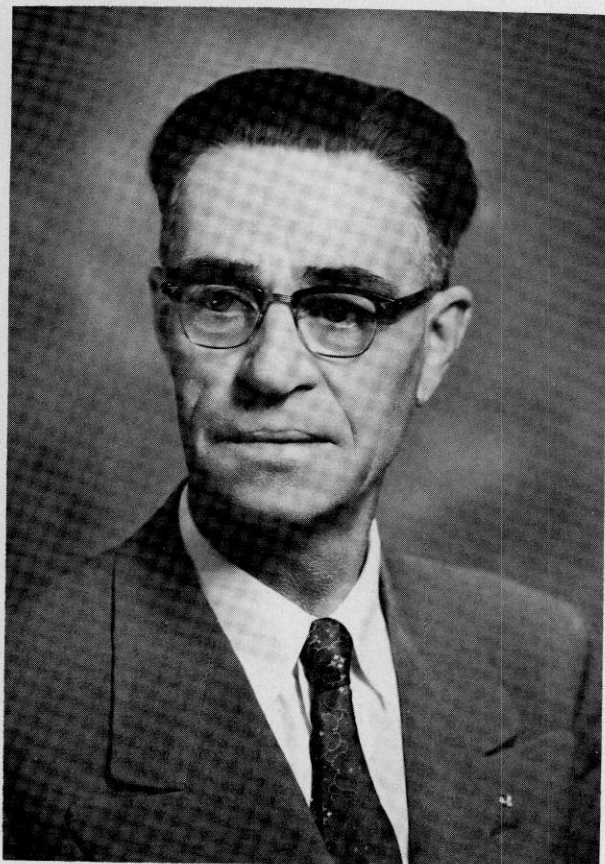
Ned W. Colby

kept records that have been models of neatness and legibility. The Montana Field Aide, after a recent visit, commented, "Ned Colby received his Holm award in 1962. I think that his contribution and care of the equipment are reflected in the thermometers he is using. I wouldn't doubt that he has had them for the whole period. They are an older type but in good condition." This is characteristic of Mr. Colby's operation—quiet, unassuming, but very effective.

C. D. Greenfield

Helena 6 N

Says Mr. Greenfield, "Weather reminds me of people—it has so many different personalities, a fact I failed to appreciate until I moved in 1915 from my native Helena 6 miles north into the Prickly Pear Valley. Traveling back and forth daily it was hard for me to realize that in such a short distance there could be such a difference in the weather. The Helena Weather Bureau was skeptical of my opinion that precipitation in the valley was about a third less than in Helena. To settle the question I was appointed cooperative



Andrew M. Johannsen

observer in 1923 and over a period of years Helena 6 N records disclosed that it was then the driest station in the State" (one or two as dry or a little drier have shown up since—ed.)

Mr. Greenfield has been an insurance executive, County Commissioner, and has been an active citizen in many other ways, too. Now retired from fulltime occupations, he remains busy with civic affairs, and of course still cares for his precipitation station.

Edwin E. James

Cascade 5S

The story of how the James family has kept the Cascade record since 1907 officially, unofficially since 1883, has been told before. Having now served 45 years on his own, Edwin says, "It gives me a small feeling of accomplishment, and a chance to be of service to my neighbors both near and far. Everyone should have an opportunity to do something of a similar nature. It makes a very satisfactory hobby that takes only a few hours of time, and returns much in the way of interest and enjoyment. For a rancher it is im-



Mr. and Mrs. H. R. Reinemer

portant to know what to expect in the way of temperatures and precipitation, as well as knowing with accuracy, what you have had." This interest combination, on the part of Mr. James, helps to explain the high quality of his records over the years.

Andrew M. Johannsen

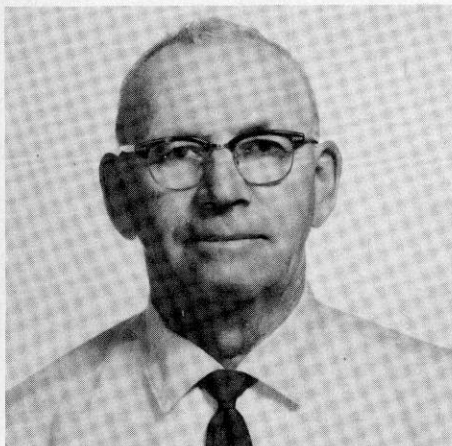
Dunkirk 14 NNE

Forty years ago, Cleve, Andrew's brother, moved to town "temporarily". Andrew agreed to observe the weather in the meantime, but the "temporary" arrangement now has lasted 40 years. A successful operator of a large ranch only 20 miles or so from the Canadian Border, his records always have been models of legibility—a feature included in the citation on his John Campanius Holm award of which he was one of the two most recent Montana recipients.

Mrs. H. R. Reinemer

Circle

Inheriting the weather station from Springbrook (started in 1902) when the observer there retired in 1930, Mrs. Reinemer (with frequent assists from "H.R."—she always has considered the station to be a partnership) took over on the place homesteaded by "H.R." in 1910. Mr. and Mrs. Reinemer celebrated their golden anniversary on March 30, 1963, having spent 50 years together on the ranch. Mrs. Reinemer says, "We sold the farm and moved to Circle in July 1963 [they retained the station—ed.]. Sometimes the phone calls came thick and fast when unusual storms, rains, or low temperatures prevailed, but that was all a part of the service we were trying to give to our community. Since we moved into



Ed Schillinger

town some of the teachers bring their pupils to see how the records are taken and kept. Records are available to anyone."

Ed Schillinger

Vida

Homesteading his place before the first World War, Mr. Schillinger arrived in Montana in 1913 as a 17-year-old. He started his observing career in 1927 with a rain gage, and thermometers were added in 1930. His interests have always been broad, now embracing the Vida Super Market as well as his ranch. Mrs. Schillinger has been Postmistress for many years. He is widely traveled but always arranges for capable substitutes when he is away. Using his weather records to improve farming practices he has "weathered" a few lean years, but a few years ago he said "I wouldn't exchange our pure climate for any in the world." Most recently he said, "In my 38 years of observing, it seems the longer I tend to this job, the more interesting it becomes." His records have been among the best.

NEBRASKA

The extreme importance of the weather factor in connection with crop development and productivity, and hence the general welfare of Nebraska, is recognized by nearly all Nebraskans. This importance elevates the contribution of the weather observer to one of the highest categories of public service that can be rendered by citizens of the State.

Some of the early pioneers realized that a

knowledge of the climate and associated factors must be established if the settlement were to persist and prosper. Isolated record keeping began in the 1850's and the 60's across the State. However, it was not until the 1870's that the idea of an organized network became popular in eastern Nebraska. The network spread to western Nebraska about a decade later. The railroads, wishing to establish and foster agricultural pursuits, were prime movers of the program. Many agents were among the early observers. The rapid increase and diversification of farming activities justified their faith and efforts.

The early observers were beset with many problems in addition to those of the current time. Prairie fires, dense smoke, and related problems are mentioned frequently in the early reports. In the winter and spring months the lack of good roads offered hardships in getting the monthly reports to a post office for mailing. However, in February 1881 an observer commented, "There was almost continuous good sleighing this month and the preceding." In March 1891 Mr. W. L. Dunlap of Tecumseh wrote, "The longest spell of very bad roads in the 26 years last past."

The early observers were also beset with interference by the Indians and as late as December 1890 Mr. Wm. Waterman of Hay Springs wrote, "Report is late this month on account of Indian scare. Too much confusion to get time to make report." This was 2 years after Mr. Stoll the current observer at Elwood was brought to Nebraska as a boy, and only 15 years before Mr. Stoll began his observing duties.

As a result of the persistent efforts of the cooperative observers much knowledge of the Nebraska weather and its untold vagaries has been gained over the past century. Application of this knowledge is now bringing benefits to the industrial, agricultural, and commercial interests, thus increasing the general economic strength of the State. The demand for more observations in greater detail continues to grow and as our knowledge and understanding of the climate increases the benefits will become larger. Great strides are being made in agricultural and industrial research, exploring the potentiality of future expansion in these fields.

Recently many of the cooperative weather observers have volunteered to serve in the Severe Storm Warning Network and as such are now

actively assisting in issuing timely warnings to areas in the path of an oncoming destructive storm. This service is instrumental in the prevention of injuries and the loss of life.

Tyler Edgecombe **Geneva**

Tyler Edgecombe of Geneva, Nebr., is a native Nebraskan. He graduated from Geneva high school and from the University of Nebraska, grew up in his father's newspaper plant in Geneva and since old enough has worked in the business. He is now the publisher of the *Nebraska Signal* in Geneva. He is married and has four children and has been Geneva's weather observer since 1919.

Mr. Edgecombe has been active in civic affairs and in press groups. He has served as president of district press associations, the Nebraska Press Advertising Service and Nebraska Press Association. He is a past president of the Geneva Chamber of Commerce and has served as head of the four Masonic bodies in Geneva and as chairman of the official board of the First Methodist church.

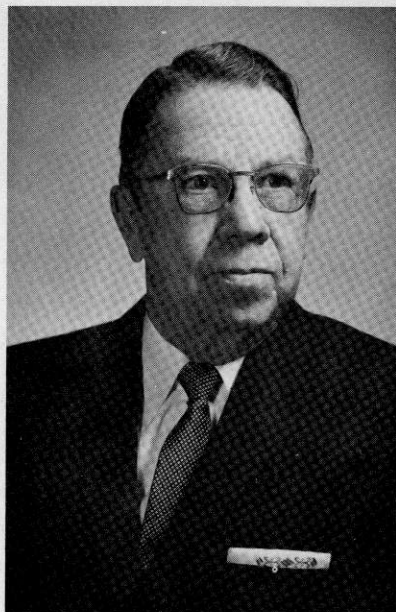
His principal hobby is travel. He has toured all the States, including Alaska and Hawaii, Canada and several countries of Europe and also has made a trip around the world.

He enjoys keeping the weather records as there is always much interest in temperatures and precipitation. The Geneva newspaper has carried a weather story with high and low temperatures and precipitation every week for 60 years.

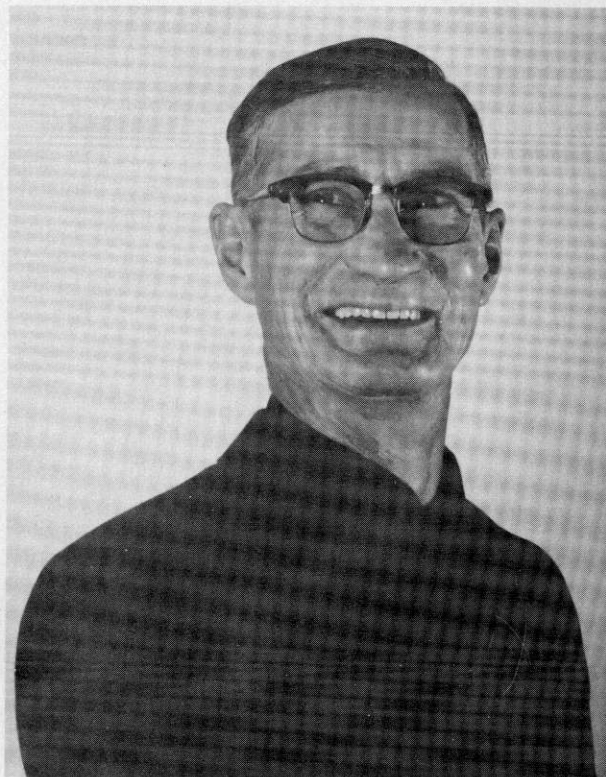
Don Dey Ermand **Dalton**

Mr. Dey Ermand, observer at Dalton since 1925, was born in Iowa and came to Dalton in 1920 where he served as postmaster from 1933 until 1960.

He says "Observing weather conditions has been a rewarding experience, if for no other reason than providing a conversational topic. Elementary grade school students show more interest in weather than one would imagine and they have visited the station here to learn something about instruments and records. Observers are invited to talk to classes and discuss various facets pertaining to the subject. That could spearhead an interest in the future, observing the wonders of Nature, keeping an eye on trees, grasses, birds to learn the threat of impending changes."



Tyler Edgecombe



Don Dey Ermand



Fred Hahn

Fred Hahn

Fremont

Mr. Hahn has been the official Fremont cooperative observer since 1929 when he succeeded his brother, Ernest, who had started the weather observations there in 1902.

Mr. Hahn left his home in Norden, Germany, to come to Fremont when he was only 3 years old. He recalls vividly the great blizzard of January 12, 1888, when as a boy of 9 he became lost in the snow on the way home from school and was rescued by a teacher.

His hobbies are gardening, flowers, and stamp collecting, and he was in grain and lumbering activities for many years.

A. E. Johns

Elgin 9WSW Arden

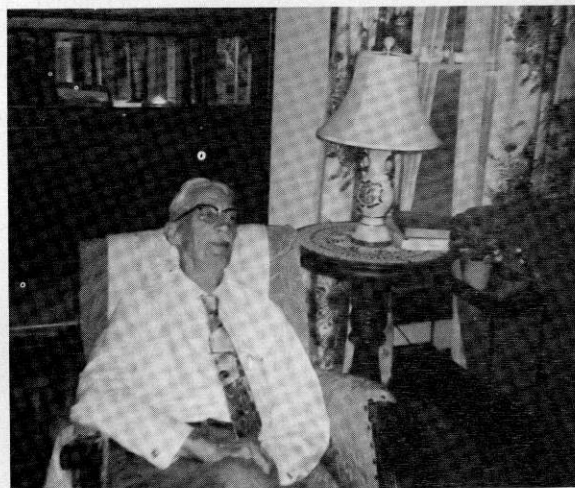
Mr. Johns has taken the weather observations at Elgin 9WSW Arden since 1911.

He says "I like to get up in the morning in the spring and watch the birds as they sing from the tops of the trees and hear the cock pheasants as they challenge their right to crow to other pheasants. I enjoy taking care of the weather gage and registering the precipitation in snow and rainfall. I enjoy working with fruit and vegetables of all kinds. We had the largest crop of fruit, especially apples, that I have ever seen in the past season."

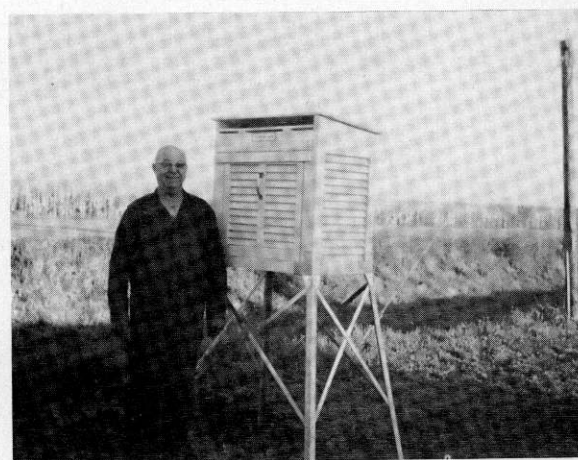
James H. Jones

Holdrege

Mr. Jones was born in 1905 at Holdrege, Nebr., and attended Doane College in Crete.



A. E. Johns



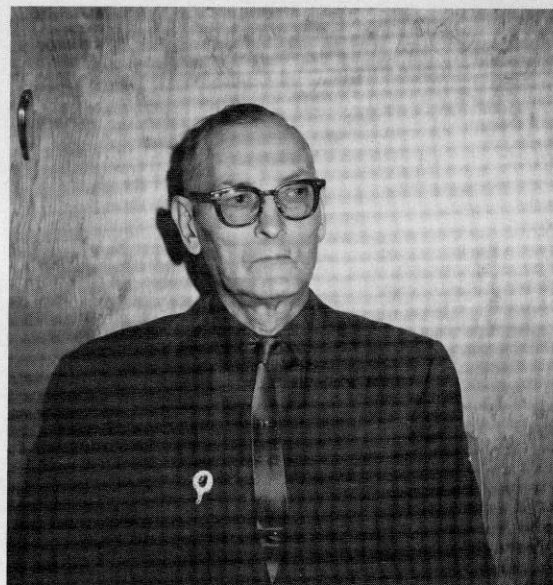
James H. Jones

His principal interests, aside from his home and his work as postal clerk and rural mail carrier, have been church and civic work. He has served at various times as a Corn and Wheat Observer, River and Rainfall Observer, and Climatological Observer. Prior to becoming the official observer he served as a substitute as an accommodation to his predecessor.

He says, "I well remember in the early spring of 1957, after a snowfall of over 8 inches in 24 hours, my wading the mile to the Post Office in snow too deep for a car to travel, in order to make my report to the Topeka District Office; there was no transportation in the town for over 24 hours at that time. (Most of our heavy snows



Joseph M. Rogers



Earl P. Rosicky

come with a high wind, blizzard conditions.) I have learned that the accurate observer many times is not the popular observer, somebody will always have a thermometer that will top yours, or your gage doesn't measure as good as theirs. Still, I'm proud that I am a cooperative observer, and I try to be very accurate in my readings."

William J. Ramsey **Arcadia**

Mr. Ramsey has been very active in the civic affairs of Arcadia. He was a member of the Commercial Club and served many years as mayor and as a member of the town board. He is now a member of the Valley County Hospital Board.

Mr. Ramsey takes a great interest in his home and yard which is located within close view of the Middle Loup River. One of his favorite hobbies is watching wild animal life. He enjoys "bird-watching" as well as following the work of the beavers at the river which he can see in progress from his window with the aid of field glasses. His special interests include his weather observations. Now that he is retired he is able to do considerable traveling and finds time for visiting the members of his family who are now grown and are in homes of their own.

Mr. Ramsey was the druggist in Arcadia for 42 years before his retirement several years ago. During this time he established himself in high

esteem and affection in the community by his devotion to duty in the absence of a local physician. He now spends part of his time as relief for other pharmacists around the State as needed or desired.

He has been Arcadia's cooperative observer since 1931.

Joseph M. Rogers **Schuyler**

Mr. Rogers served a few months as Schuyler's weather observer in 1918, and continuously since 1922. He is Vice President of the Schuyler State Bank and is well known and respected in Schuyler and the surrounding farm area.

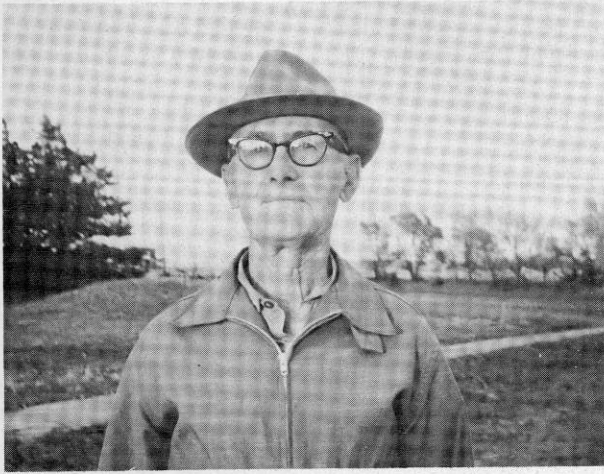
Mr. Rogers loves to hunt and fish and his dog accompanies him on these expeditions. He well remembers the heaviest 1-day precipitation that he ever measured. It was 9.30 inches on August 2, 1959.

Earl P. Rosicky **Lynch**

Mr. Rosicky was born in Clarkson, Nebr., in 1897 and has lived in Lynch since 1917. He has served as Village Clerk and School Board member for many years; he retired from business in January 1964.

His hobbies have been fishing, hunting, and gardening. Mr. Rosicky says "In the fall of 1932 I became the local weather observer. I enjoyed the work, found it interesting and was glad to be of service to the community and the

NEVADA



E. H. Stoll

Weather Bureau. My wife was good in taking care of the rain gages when necessary."

E. H. Stoll **Elwood 9SSW**

Mr. Stoll, observer at Elwood 9SSW since October 1905, was born in Kansas in 1886 and came to Gosper County, Nebr. with his parents in 1888. For the past 76 years he has lived on the farm which he now owns.

Mr. Stoll's interests have been farming and the insurance business; his hobbies have been hunting and photography. He believes that the great blizzard of November 18, 1948, was his greatest weather experience.

Mr. Stoll says, "It has meant a lot to me during these many years to be a weather observer, and the greatest satisfaction is to know that I have rendered some voluntary service to my country."

Horace W. Travis **Ord**

Mr. Travis has taken weather observations at Ord since 1927. He has spent most of his life in Valley County, and on January 1, 1959, retired after 40 years in banking.

Mr. Travis says that the Ord weather records have been used by many agencies. Temperature and rainfall data are printed weekly in the local newspaper.

In commenting on his service as a cooperative observer Mr. Travis says, "It has been a part of my daily life, for one who records the weather watches the weather. It is a service to my community and my government. I have enjoyed it all through the years."

Among the very first contributors to our knowledge of the climate of Nevada were the railroads. In the early days of railroad transportation it was necessary to establish quite a number of stations along the route to service the trains as they moved across the State. About 1870 many of the personnel along the right of way began taking weather observations. With the advent of diesel locomotives it became possible to decrease the number of stations, but six still continue to compile weather data under the direction of the cooperative observer program.

In February 1887 an act was passed by the Nevada legislature to establish a weather service in the State. Charles W. Friend was appointed director, and this service continued until the early 1900's. Most of the early records were collected and published by this organization in their annual reports. Mr. Friend acted as observer at the Carson City observatory which was the collection point for the Nevada Weather Service from 1880 to 1906. Except for some of the Southern Pacific Railroad stations, Carson City has the longest period of record in the State.

A major problem in maintaining the cooperative records in Nevada is the sparse population. At the present time one of the greatest contributors to the knowledge of Nevada weather is the Nevada State Highway Department. Of the 95 full climatological stations in the State as of August 1964, 16 are maintained by this state agency. This entails extra work on the part of the maintenance foreman; but they show remarkable interest in maintaining continuity of records. Some of them travel considerable distances on off days to make the weather observations. Many of the remaining stations are located on lonely ranches, miles from towns or even telephones. These public spirited citizens, however, keep very excellent records for their stations and have contributed a great deal to our knowledge of this sparsely settled area.

The dean of weather observers, insofar as Nevada is concerned, was C. P. "Pop" Squires of Las Vegas, Nev., who passed away recently. He was born May 22, 1865, and began taking observations in 1909 for publication in his newspaper, the *Las Vegas Age*. He retired as editor of the paper in 1949, but continued taking observations until January 1957, when he was forced to retire

because of failing eyesight. Mr. Squires had a vast accumulation of unusual weather experiences in his files, which he used in writing articles for local publications.

Another of our old time observers was Mrs. Irene (Williams) Metzler of Tuscarora. Mrs. Metzler was a life-time resident of the state. She helped run a cattle ranch as well as maintaining the cooperative weather station from November 1, 1917, to November 1, 1953, when she moved to Battle Mountain. Her ranch was one of those which was hit by the bad winter of 1948-49, and the "haylift" operated nearby. She kept excellent records and expressed a sincere regret at having to give up the station.

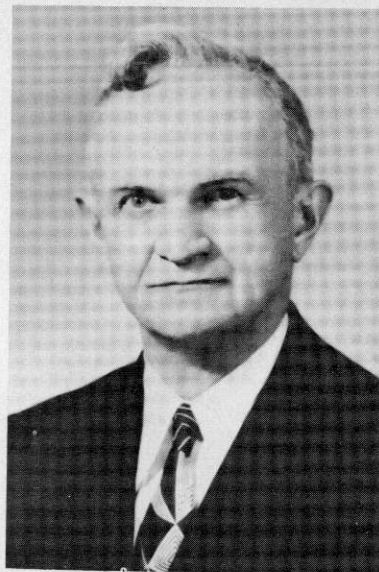
Mrs. W. H. Churchyard of Yerington, Nev., was another old-time observer who passed away recently. She helped her husband from January 1, 1918 until he died in 1929, at which time she took over sole responsibility. She worked in the Yerington library and received many calls for weather information, which she gladly dispensed. She was presented her 40-year pin in 1958, and continued taking observations until her death in 1960.

While at the present time there are no cooperative observers with 30 or more years of service, there is a long list of active participants in the program. The transitory nature of the population is one major factor in the lack of longevity of our observers, but this does not detract from the quality of the observations. As might be expected, many state and federal agencies are active participants in the program. Besides the regular Weather Bureau and Federal Aviation Agency observers, we are getting wholehearted cooperation from the Soil Conservation Service, the Forest Service, Fish and Wild Life, postmasters, and State engineers, water conservation districts, and many others.

Individual contributors to the program cover a wide range of occupations from ministers of the Gospel to newspaper editors, storekeepers, and ranchers. The Kennecott Mining Company reports from its mine at Ruth, and the Bartholomew Corporation has set up weather stations at many of its chain of ranches. Indeed, people in Nevada are doing something about the weather.

NEW HAMPSHIRE

Much dedicated effort, often under difficult hazardous, and trying conditions, has gone into



Merton T. Goodrich

the collection of New Hampshire weather information. There are nine stations in the State where companies, institutions, or other governmental units have been responsible for daily observations for more than 30 years; one of these, Dartmouth College at Hanover, began recording precipitation in 1834.

In some cases observations have been taken for many years by members of one family in one vicinity. These records are especially valuable in studies of climatic changes. Examples are the Webster and Southmayd family at Franklin and the Tucker family who were responsible for observations at Bethlehem from 1893 to 1959.

Professor Merton T. Goodrich, observer at Keene, made a study of meteorology and taught the subject to World War II trainees at Keene Teachers College. He is especially interested in comparing current and past records and in searching for proof of climatic change. He looks upon his weather work as a public service in which he takes great pleasure.

The station at Milford has been ably cared for by Andrew E. Rothovius since 1951. His weather column has been a weekly feature of the local newspaper, the *Milford Cabinet*. Since 1957 the *Peterboro Transcript* has carried his popular monthly column "Around Monadnock: Weather Lore", an analysis of the weather of central New England and notable past weather events. Mr.



Kenneth E. Gould



Andrew E. Rothovius

Rothovius' special field of interest is the study of tropical storms and their effect upon New England. He has published several articles on this subject and plans to publish others.

Mr. Fred S. Brown, cooperative observer at Woodstock, is also responsible for reading a river gage in the Merrimack River system. Weather has been Mr. Brown's hobby for many years and "... it has been fun working in the weather game."

The Lakeport observer is Kenneth E. Gould who was formerly in charge of the Mt. Washing-



Joe Dodge

ton Observatory. His monthly reports are models of accuracy, reliability, neatness, and legibility.

The following New Hampshire observers have served for more than 30 years.

Joe Dodge

Conway

Mr. Joe Dodge began official observations in January 1930, many years at Pinkham Notch and lately at Conway. In 1955 he was honored by Dartmouth College as a Master of Arts. Dartmouth's citation is a most apt brief sketch of his life. It reads, "JOSEPH BROOKS DODGE: onetime wireless operator at sea, long-time mountaineer, student of Mt. Washington's ways and weather, you have been more than a match for storms, slides, fools, skiers, and porcupines. You have rescued so many of us from both the harshness of the mountain and the soft ways leading down to boredom that you, yourself, are now beyond rescue as a legend of all that is unafraid, friendly, rigorously good, and ruggedly expressed in the out-of-doors. And with it all you gave this College a great skiing son. As one New Hampshire institution to another, Dartmouth delights to acknowledge you as Master of Arts. June 12th, 1955."

Mr. Dodge early recognized the importance of wireless communication, and received his first ham license in 1912, at not quite 14 years of age. He served as Radio Electrician with the Navy during the war and for a few years later on commercial shipping. In 1922 he turned his more complete attention to the White Mountains, working with the Appalachian Mountain Club. He became manager and construction superintendent



Frank J. Southmayd

for all Club properties. He also organized, in 1932, the Mt. Washington Observatory Association, and has been its managing Director and Treasurer ever since. The Observatory makes at least five observations daily and conducts many cold weather and other research projects.

Mr. Dodge says, "I have enjoyed my service as Cooperative Observer. I wear proudly my thirty-year pin on my jacket lapel and hope that I may be useful enough to wear a forty-year pin. I will be a pretty old man if I reach the fifty-year goal.

"I first became interested in weather observing after the disastrous flood of November 3, 1927. The heavy rains ran off the hillsides like falling from a tin roof and caused a great amount of highway and culvert damage. Prof. Goldthwait of Dartmouth College then organized a high level precipitation gathering network. The huts of the Appalachian Mountain Club on high elevations of the White Mountains were a natural for this work. I headed up this effort. It sparked a desire for more information and more apparatus to check on the elements. At Prof. Goldthwait's suggestion, I became the Weather Bureau's official observer, at Pinkham Notch. From then on I, or my assistants and my family, have created a continuous record in Pinkham Notch and Conway. I am always very glad to help anyone who requests data from my records, which, by the

way, occurs quite often. For the past year or two I have been giving the public the morning observations from the Mt. Washington Observatory, Pinkham Notch, and my own Conway readings over the local broadcasting station WBNC, with some comments on the local situation."

Mr. Dodge received the Weather Bureau's John Campanius Holm award in 1964.

Frank J. Southmayd

Franklin

Mr. Frank J. Southmayd, observer in Franklin since February 1919, is dean of all New England observers in terms of individual length of service. Further, he continued a family record begun in October 1900 by his brother-in-law, Dr. C. P. Webster. This family record is complete and continuous except for a 14-month interval ending January 1919. Mr. Gilbert Hodges served during the interim.

Originally a native of Campton, N.H., Mr. Southmayd moved to Franklin in 1909. His experiences include foremanship of a manufacturing plant, chief operator of a power plant, and proprietor of a grocery store. Since 1941 he has chiefly done fine cabinet work plus, for some years, instructing in manual training at the Franklin High School. He also justly takes pride in his paperhanging. Mr. Southmayd was given the John Campanius Holm award in 1961.

Harold P. Shepard

Newport

Mr. Harold P. Shepard, ably aided by his wife, Ada M. Shepard, has carefully observed and recorded precipitation at Newport for nearly 37 years, since November 1, 1928. As Newport is located on the South Branch of the Sugar River, which enters the Connecticut at Claremont, data from this station are important to hydrologic studies of the Connecticut River System and in warning of floods. The Shepards have reported by wire or phone to the Bureau when potential flood producing rains occurred. Mr. Shepard is a native of Newport and a retired Colonel of the U.S. Army. He served during World War II. His other interests include conservation projects. He is also very active in local civic affairs.

NEW JERSEY

Cooperative weather observers voluntarily make daily reports in more than 80 communities in New Jersey. Several of these observers serve the river forecasting and water supply network in northern and central New Jersey, in addition

to the climatological network. A few of the reports are also used in the statewide agricultural weather service, making triple use of a single set of observations in each of those cases.

Observational programs at cooperative stations vary from those that measure only precipitation once a day to those that record maximum and minimum temperatures, snowfall and depth of snow on the ground, evaporation data, soil temperatures, the amount of moisture in the soil, and solar radiation data.

Our observers include individuals from many walks of life, including farmers, police officers, chemists, office and factory workers, and retired people. One family has provided continuous weather reports since 1905, when the late Samuel K. Pearson began serving at Jersey City. He transferred his station to Plainfield when he moved there in 1915. The Plainfield station has been operated by Mrs. Vivian J. Scherer, his daughter, since Mr. Pearson's death in 1957.

The New Jersey Agricultural Experiment Station at Rutgers, the State University, in New Brunswick, has been making weather observations since January 1896, the Passaic Valley Water Commission at Little Falls since March 1903, and the Jersey City Water Department at Boonton since January 1907. The Hackensack Water Company has been a cooperator at the New Milford and Woodcliff Lake stations since 1919. The Newark Water Department at Charlotteburg, the Public Service Electric and Gas Company at Burlington, the Union County Park Commission at Elizabeth, the U.S. Department of Agriculture's Japanese Beetle Laboratory at Moorestown, and the Commonwealth Water Company at Canoe Brook have all been making observations for more than 30 years. Four individual observers presently serving in the cooperative program have 30 years or more of service.

Isaiah Haines

Whitesbog

Mr. Haines has served as a special observer since 1923, recording minimum temperatures in the cranberry bogs during the growing season, and distributing Weather Bureau forecasts and warnings to the cranberry growers through their growers' organization.

William D. Martin, Jr.

Long Branch

Mr. Martin, a retired employee of the New Jersey Bell Telephone Company, is the dean of



William D. Martin, Jr.

New Jersey observers in length of service, having served since 1912, with an interruption of two years in the 1920's. He is the son of the late William D. Martin, Sr., who was Storm Warning Displayman for the Weather Bureau from 1895 to 1925. The present observer has also served as Storm Warning Displayman since his father's death in 1925. Since 1962 his reports have been used in the statewide agricultural weather network.

Referring to the services provided at the Long Branch station, Mr. Martin says: "The station has grown and much work has taken place from March 1, 1912 to the present time. Radio broadcasts are made 7 days a week at 7:30 a.m. over radio station WJLK; the latest weather forecasts are placed on the automatic telephone installed in my station by the City of Long Branch; the station is now very nearly a 24-hour job. The Weather Bureau gave me a gold pin for 50 years of service."

Frank J. Moreau

Freehold

Mr. Moreau, who operates a wholesale geranium business, has been an observer since 1931. He has also served as a hydroclimatic observer since 1943, and has participated in the statewide agricultural weather network since the spring of 1962. His occupation has helped him to develop a keen interest in weather events, and he keeps detailed records for the Freehold area, in addition to those which are published by the Weather Bureau.



Frank J. Moreau

Mr. Moreau comments: "Through the years I have been called upon to furnish data to courts of justice, municipalities, police, highway, and water departments, as well as postal, transportation, public utility and communications interests; last, but not least, agricultural and horticultural people, as well as many individuals with the Green Thumb. My compensation for the years of service is the host of friends I have made through service rendered to the above mentioned requests for information; also the growing interest, respect and confidence of the general public in the United States Weather Bureau. If, in my small capacity, I have been enabled to add something to that growing spirit of good will toward the Weather Bureau, I am grateful."

James R. Pickering Hightstown IN

Mr. Pickering has served the Hightstown area since 1935, and since 1960 his station has been in the hydroclimatic network. In the spring of 1962 Mr. Pickering's reports were included in the agricultural weather service network for New Jersey. His reports are used by daily and weekly newspapers in this important agricultural region of central New Jersey.

NEW MEXICO

Interests in weather and community service have prompted individuals in 150 New Mexico localities to voluntarily accept the responsibility of making daily climatological data measurements. At another 100 localities personnel of various agencies and organizations join these individuals to make up the cooperative weather observer corps of the State. New Mexico is the fifth largest state in the Union, having an area of 121,666 square miles. More than half the State is considered pastureland and another ten percent is in forestland. With these sparsely settled areas covering so much of the State, an adequate network of evenly spaced climatological stations is highly dependent upon the willingness of individuals in these areas to offer their services.

In general, New Mexico topographically consists of high plateaus with numerous mountain ranges, canyons, valleys, and normally dry arroyos. Elevations range from near 2,800 feet in the southeast to 13,151 feet at the peak of Mt. Wheeler in the north-central part.

The general climate is mild, arid or semiarid



James R. Pickering

continental, with light total precipitation, abundant sunshine, low relative humidity, and rather large annual and diurnal temperature ranges. Temperatures as high as 116°F and as low as 50° below zero Fahrenheit have been officially measured. Annual rainfall at New Mexico locations has been as little as 1 inch and as much as 63 inches, but with annual averages mostly between 8 and 22 inches.

Because the weather is mild, extreme and severe weather occurrences in the State do not approach the magnitudes to be expected in many other parts of the country. The great variability in precipitation amounts, distribution, and intensity, and the requirements for water, particularly of agriculture and stock, make precipitation reports of primary importance.

Some incidental activities of observers include killing a rattlesnake under the rain gage by Mrs. Adaline M. Hisel, Yeso 2 S; measuring rainfall during a downpour which exceeded the rain gage capacity so as not lose a complete measurement by Mrs. Ethel E. Schofield, Skarda; outrunning a tornado in their car, by C. J. Leierer and his wife, Capulin 6 SSE; and riding horseback through deep snow to mail reports promptly, by Jim Curry of Wolf Canyon.

Families having taken long continuous weather records include the Batemans of Bateman Ranch, with 56 years service, and the Cadwalladers of Mountain Park, with 37 years service.

Several New Mexico agencies and organizations have kept 30 years or more of records at 27 locations; in one case, for as long as 98 years.

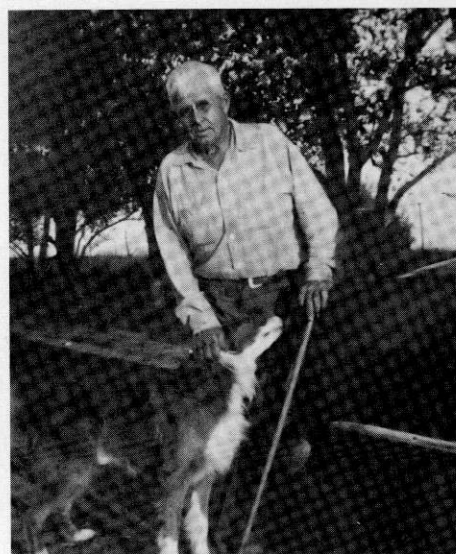
F. H. Alpers

Cimarron

F. H. Alpers was born July 1, 1884, in Brooklyn, N.Y., moved to New Jersey in 1885 and to New Mexico in 1905. He has worked for the St. Louis, Rocky Mountain & Pacific Railroad, and express and transfer business, and the Cimarron Water Department, where he began climatological observations December 1, 1927. After retirement from the Water Department in 1960, he became an insurance agent. His hobbies are reading and walking. Although 80 years of age, he walks to his office and back home nearly daily, a distance of about 1 mile each way. Mr. Alpers' weather records at Cimarron continued the series started in 1904 which have been of value to ranchers and others for over half a century.



F. H. Alpers

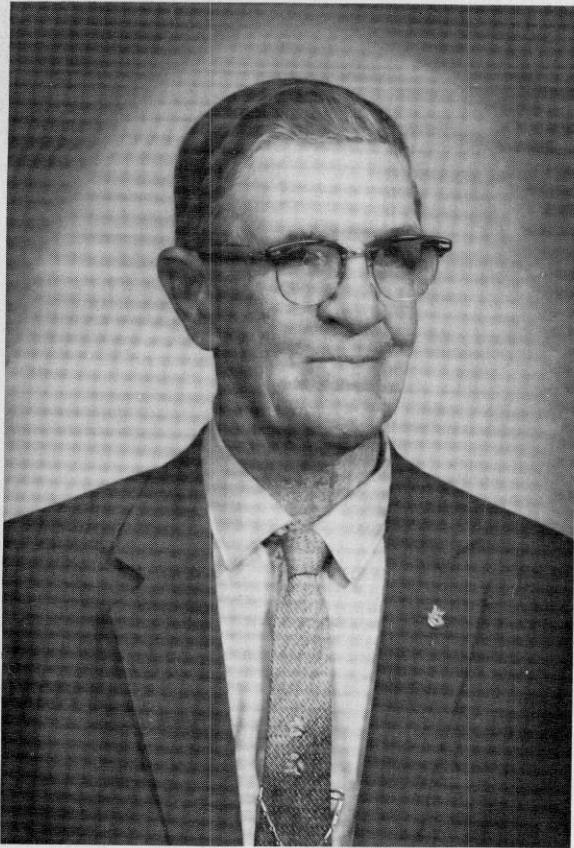


Edward Brams

Edward Brams

Amistad 1 SSW

Edward Brams moved to his Amistad, N. Mex., ranch in March 1909, from Illinois, where he was born in Clifton on May 2, 1891. Earlier occupations were auto mechanic and blacksmith. As a rancher, he assumed cooperative weather observing in July 1927. Weather records kept at Amistad have been useful for comparison with surrounding stations and with previous years,



E. H. Byers

particularly as the precipitation measurements have been related to drought conditions. Mr. Byers' hobbies are antique furniture and gardening.

E. H. Byers Lovington 1 WNW

E. H. Byers completed 50 years of cooperative weather observations in July 1964. From 1912 to 1930 he was observer in Hobbs, where he and his wife homesteaded after moving to New Mexico. He resumed weather observing in 1932 at their present farm in Lovington, where a mural, painted by his talented wife, of the Hobbs farm and weather station site occupies a prominent place on the wall above the fireplace. Born in Osage County, Kans., March 23, 1882, Mr. Byers has also lived in Florida, Kansas, Texas, and California. At present, he is a horticulturist, and formerly has been farmer, rancher, painter, county treasurer and tax collector, and postmaster. His hobbies are reading and music. His long interest in weather observing stems from

satisfying his own and the public's curiosity about weather data, and the records have also been used as evidence in several court cases. His most memorable weather experience occurred the morning of January 10, 1918. The weather at 5 a.m. was still and balmy as spring, but about one hour later from east of north came rolling on the ground a dark blue mass of cold air accompanied by driving snow. Temperature fell rapidly. The strong winds blew the thermometer shelter door open and the temperature dropped to 8° below zero. Mr. Byers saw 200 head of cattle frozen to death in one fence corner. For months after, surviving cattle lost teats, feet, tails, and legs because of that extreme cold.

W. P. Cater Cerro

W. P. Cater was born July 7, 1897, in Colfax, Iowa. He also lived in Oklahoma, Missouri, and Texas as well as New Mexico, where he became cooperative observer at Cerro in 1932. He worked as an oil refinery employee and merchant before becoming a rancher, his present occupation. As a hobby he assists in community rede-



W. P. Cater

velopment projects. Weather observing, especially of precipitation, has been valuable in planning ranch operations. He has also served as community arbitrator on weather information to aid the people in their various plans.

Elbert M. Collins

Gavilan

Elbert M. Collins was born in Lamar County, Tex., and moved to New Mexico in 1916. He has been cooperative observer at Govilon for 36 years, serving continuously from the station's establishment in July 1929. This ranch station holds the official record low temperature for New Mexico, 50° below zero on February 1, 1951. He previously served briefly as cooperative observer at Lindrith, N. Mex. in 1923. Mr. Collins additionally cooperated in operating a weighing rain gage for the Forest Service during their Crested Wheat project in 1954, and made 1 year of thermograph records in 1954-55 for use in analyzing temperature variations in mountain areas. He is especially interested in record weather occurrences and completeness of data. Other interests include membership in the I.O.O.F., American Legion, World War One Barracks, and Cattle Growers Association. His most memorable weather experience is the big snow of 1931 in which nearly half of his cows were lost.

Jim Curry

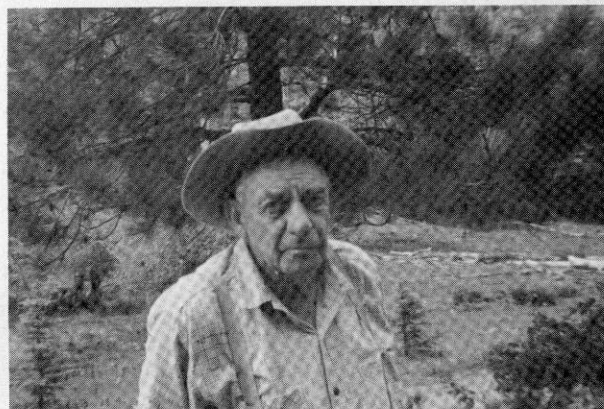
Wolf Canyon

Jim Curry was born in Alamosa, Colo., November 20, 1886. His father (also named Jim) established a cooperative weather station at Espanola, N. Mex., in 1895, instructing his son in the keeping of the weather records at the early age of 9. Jim Curry homesteaded his present Wolf Canyon location in 1909, and started cooperative weather observations there in 1912, while the station was known as Senorita (near). His services at the station were interrupted at times, but in 1952 he again took over the observations when the station became known as Wolf Canyon, where he is a rancher. His total service as a cooperative observer is about 33 years. The weather records have helped Mr. Curry and others to determine rainfall and snow amounts to aid in their operations.

Mrs. Ellen A. Davis

McIntosh 4 NW

Mrs. Ellen A. Davis was born October 11, 1886, on a farm near Rome, Kans., where her father, D. M. Adams, was continuing his services as cooperative observer. These had started soon after the Civil War in Troy, Ohio, and later were



Jim Curry

transferred to Indiana and Kansas locations. Beginning about 1900 Mrs. Davis assisted her father in taking weather observations. After D. M. Adams' death in 1920, his son Lewis became cooperative observer in Kansas; and upon moving to New Mexico in 1922, continued as cooperative observer at Estancia (near). In the meantime, Miss Ellen Adams married and moved to New Mexico. When her brother, Lewis, returned to Kansas, weather observations were assumed by Mrs. Ellen Davis and the records for Estancia (near) were published under her name beginning February 1928. In May 1937 the station name was changed to McIntosh 4NW, but observations continued at the same location to date.

Mrs. Davis attended Kansas State University and taught country school for several years in the early 1900's. While being a housewife on a small cattle ranch, Mrs. Davis finds time, in addi-



Mrs. Ellen A. Davis



J. C. Overpeck

tion to weather observing, to do gardening, crocheting, and quilting.

Mrs. Davis is very interested in keeping weather records for general information and, in the past, has provided data to county newspapers. She states she would be lost without the cooperative weather station because it has been in the family, except for brief intervals, since the 1860's, and she hopes to continue taking observations for several years more.

The outstanding weather occurrence during Mrs. Davis' operation of the station was in the evening of August 11, 1961 when the worst electrical storm and torrential rain was experienced. About 4 inches of rain, accompanied by high winds, fell between 7 and 8 o'clock.

Mrs. Ida Mae Halderman

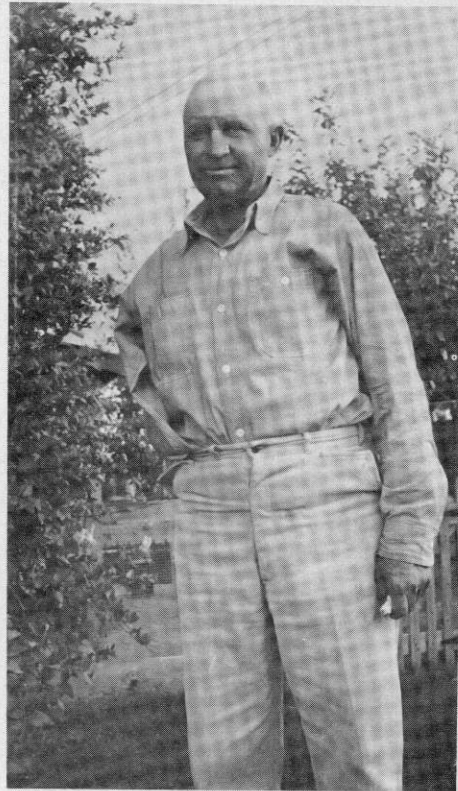
Palma

Mrs. Ida Mae Halderman has taken precipitation observations for 46 years. In addition to being a rancher, she operated a store and filling station on the highway, until the construction of the new Interstate route past the location.

J. C. Overpeck

State University

J. C. Overpeck has supervised the cooperative observer program at State University (formerly known as Agricultural College) since 1929. This station has operated since 1892, and is the clima-



S. C. Phillips

tological "bench mark" station for New Mexico. Born in Rosedale, Ind., June 3, 1895, Mr. Overpeck also lived in Wyoming before coming to New Mexico. A Bachelor of Science in Agriculture, from Purdue University in 1917, and a Master of Science degree from Ohio State University in 1920, prepared Mr. Overpeck for the positions of Assistant Professor of Agronomy at the University of Wyoming from 1920-23 and Head of the Agronomy Department, New Mexico State University from 1923-57. Since becoming Professor Emeritus in 1957, he has devoted much time to the weather observation program, and in posting daily weather information on the University's bulletin board, providing weather data to the press, radio stations, and interested agencies and occasionally testifying to weather conditions in court cases. Other interests include carpentry, and piano and cornet music. An outstanding weather occurrence was the intense rainfall on August 29-30, 1935, when 6.49 inches of rain fell in less than 9 hours, leaving an excellent recording rain gage record, which has found



Mrs. J. T. White

use in subsequent engineering designs. Damage from this storm was estimated at over \$1 million to crops and property. Mr. Overpeck has always found weather observing to be interesting and fascinating, for himself and others, as proved by his continued vigilant weather services, and evidenced by his receipt of the Weather Bureau's John Campanius Holm award in 1961.

S. C. Phillips

Gage 4 ESE

S. C. Phillips was born in Willcox, Ariz., on January 28, 1890. He attended school in Deming, N. Mex., and has been cooperative weather observer at his ranch residences for 32 years. He has been a farmer and rancher for the entire period. While maintaining a residence in Deming, he is assisted by his daughter-in-law in continuing the weather observations. Mr. Phillips states that the weather records have been a very valuable asset to the community, especially during the years when there were few weather stations in the area, and that it has been a pleasure to work with the Weather Bureau.

Mrs. J. T. White

San Jon

Mrs. J. T. White was born in Corydon, Iowa, July 17, 1880. In February 1909, Mrs. White became cooperative observer at Son Jon, where a weather station had been established in mid-1907, and where she had moved in 1905. Mrs. White graduated from Eastern New Mexico Junior College at the age of 57. Before retiring, she worked as rural school teacher, newspaper editor, farmer, and rancher. Her hobbies include collecting antiques and Indian artifacts. Outstanding weather occurrences recalled by Mrs. White include the big snow of December 1918 and the drought during the period 1932 to 1939 which caused considerable hardship to the early homesteaders and cattlemen of the area, and also the big rain of over 6 inches in 24 hours on October 10-11, 1930. Mrs. White states that through the years weather observing has not only proved to be an interesting and fascinating experience, but has also been of value and rewarding in many ways. Many times she has answered requests for average and extreme temperature and rainfall values for the area. Mrs. White received the Weather Bureau John Campanius Holm award in 1960.

NEW YORK

People representing a wide variety of occupations serve as cooperative weather observers in the State of New York. There are farmers of all types, school teachers, college professors, merchants, county agricultural agents, and retired people to name but a few. No such list would be complete without mentioning the womenfolk, mostly housewives, who serve as weather observers in all areas of the State.

Individual observers make interesting and important uses of their weather observations. The observer at Lockport 4 NE, who is an associate county agricultural agent, uses his data to advise fruit growers on the timely application of spray materials during the growing season. At Mohonk Lake, Mr. Daniel Smiley, Jr., keeps accurate annual records of the arrival and departure of numerous species of birds and relates these to the corresponding weather conditions. The phenological stages of flowers, shrubs, and trees are correlated with his weather records by the observer at Oswego.

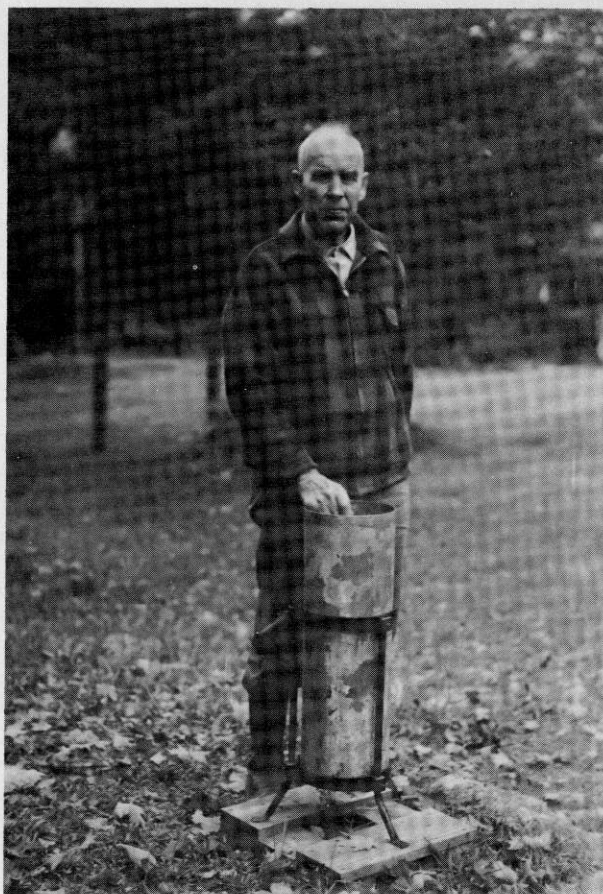
The citizens of many cities in New York State

are kept informed of daily and monthly weather conditions in their area by way of prompt and regular reports of cooperative observers to radio stations and newspapers. Thus, the observer goes beyond the call of duty in order to keep his fellow citizens informed on a subject as important as weather. Cities so served include Lockport, Bridge Hampton, Elmira, Cooperstown, Gloversville, Spencer, Walton, and Hempstead-Malverne to cite only a few. City, county, and State agencies benefit from the weather observations taken by one of their employees who also serves the Weather Bureau in a cooperative role. Cooperative observers at Jamestown, Batavia, Glens Falls, Ogdensburg, Watertown, Poughkeepsie, Chatham, Little Valley, and many others supply weather information to water and utility departments, highway garages, hospitals, State tree nurseries, and law enforcement agencies.

Cooperative observers aid their local schools in many ways. Talks on weather are given to pupils, children and teachers visit their weather stations, and their records aid teachers in programs on weather science. One such observer in New York State is Mr. G. Kenneth Kilpatrick at Lowville. There are many others over the State who contribute to this important service. Other observers give extra time and effort in cooperating with nearby Weather Bureau Offices in special forecasting and observational programs, supplying data for weekly weather and crop bulletins, testing new weather instruments and equipment and reporting details of severe storms and unusual weather phenomena. The observer at Boonville 2 SSW, Mr. Livingston Lansing, conducts snow depth surveys for the State Conservation Department and furnishes special heavy snowfall reports to Weather Bureau forecast offices. Other observers keep careful records on ice conditions in rivers, ponds and lakes.

Among the unsung devotees to duty are the women who serve as cooperative observers. A number of stations in the important river-rain-fall network are tended by women. On many occasions a housewife has braved stormy and wintry weather to get a key measurement of the water-equivalent of the snow cover or a reading of a gage in a fast rising river.

A unique group of cooperative observers in New York State are those at the various locks on the historic Erie Canal, extending from the



Fred Brack

Hudson River to Lake Erie. Some of our good long-term climatological records have been obtained through the "lock" observers.

Cooperative observers contribute their services and weather records in the settlement of numerous lawsuits. With his weather records Mr. Douglas Manning at Alexandria Bay was instrumental in saving the U.S. Government a considerable sum of money in a legal dispute.

Fred Brack

Big Moose 3E

Mr. Brack started his service as a cooperative weather observer in 1929. He is the caretaker of a large estate on Big Moose Lake in the Adirondack Mountains and has become very familiar with the wiles and vagaries of the weather in the mountainous regions of New York State. He says, "snow clouds get hooked onto the mountains and hang on for days." One well-remembered weather event for Mr. Brack was a 4-day snowstorm in March one year that dropped 72



C. W. Bromley

inches of snow. Mr. Brack is a trustee of the local Community Church, a volunteer fireman, and a member of the Big Moose Fish and Game club. He has found weather observing to have been a very interesting activity throughout his long service.

C. W. Bromley **Lawrenceville**

Mr. Bromley began his service as a cooperative observer in 1931. Until his retirement in 1952 his occupation was farming in what is known in New York State as the North Country. During his retirement he has operated a printing shop and, to keep his hand in farming, he has cared for a small flock of chickens. At his present age of 71 he is still able to contend with the long winters and heavy snowfall of the St. Lawrence Valley but he has secured the aid of a mechanized snow blower. Mr. Bromley has always taken great pride in his work as a cooperative observer and the quality of his weather records attests to this.

Arthur J. Brown **Conkingville Dam No. 1**

As an employee of the Hudson River Regulating District Mr. Brown began recording the weather in 1930. In addition to regular weather observing he conducts snow surveys in a thousand-square-mile watershed. Mr. Brown is an active speaker on weather to school groups and local civic associations. He is currently prepar-

ing an article on weather for the local paper. Mr. Brown states that he has enjoyed being a part of the large cooperative weather observer network and has dedicated his efforts toward compiling an accurate weather record.

Robert N. Clark **Lockport 2NE**

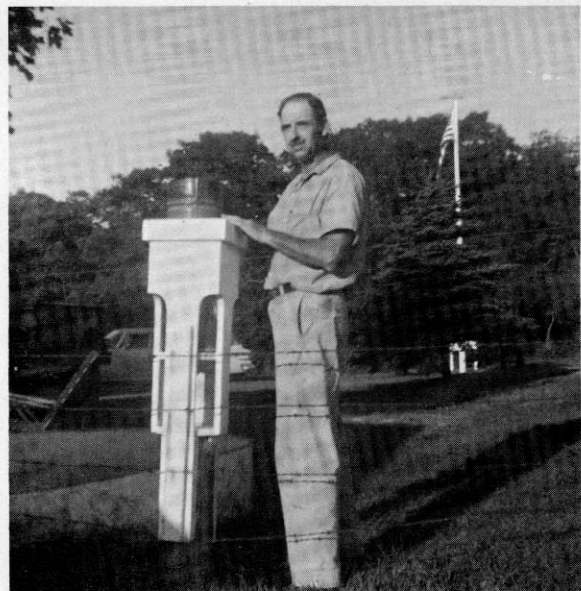
Mr. Clark began service as cooperative weather observer in January 1912. He was awarded a 50-year service pin in 1962. On the occasion of this award he received well deserved recognition and publicity from the press, radio and TV in the Lockport and greater Buffalo areas.

Mr. Clark is affectionately known in the Lockport areas as "the weatherman." His records have been a helpful source of information to many individuals having weather-connected problems to solve.

He retired some years ago from his farming occupation. Mr. Clark continues his avid interest in weather observations and promptly supplies the Weather Bureau each month with a neat and accurate record.

Richard G. Hendrickson **Bridge Hampton**

Mr. Hendrickson began service as a cooperative observer in June 1930. Of his long years of service he says, "it has proved to be a most interesting, challenging, and continually changing hobby." Being located on eastern Long Island and near "Hurricane Alley" Mr. Hendrickson



Richard G. Hendrickson

has taken particular interest in these and other violent coastal storms. His observations of wind, pressure, sky conditions, and other elements have become an integral part of our records of these severe storms.

Because of his interest in, and knowledge of, weather in coastal New York State, Mr. Hendrickson is in great demand for talks to service clubs, civic groups, and schools. His weather observations are published in several newspapers on Long Island.

By occupation Mr. Hendrickson is a poultry farmer, his farm being the oldest Certified Poultry Farm in New York State. He also raises a considerable acreage of wheat, corn, and alfalfa. He has an interesting hobby of collecting guns. His collection includes several muzzle-loading cannon and old muskets.

G. Kenneth Kilpatrick **Lowville**

After his graduation from Cornell University Mr. Kilpatrick moved to Lowville, N.Y., in July 1928. There he began his occupation as a vocational agriculture teacher in the local high school and his assumption of the cooperative weather station soon followed. Mr. Kilpatrick has kept the local newspaper supplied with a report of daily weather conditions. Lowville residents who winter in southern climates are eager for Mr. Kilpatrick's weather report in the newspaper, "to read what they are missing back home." He receives school students at his weather station to instruct them in the instrumentation and operations. This visit has become a regular part of the fifth and sixth grade teaching program in Lowville. Teachers in the high school also make use of Mr. Kilpatrick's weather records in science classes.

Douglas F. Manning **Alexandria Bay**

Mr. Manning was born in England in 1886. He came to America as a young boy and spent his youth in Chicago, Ill. While in Chicago Mr. Manning became acquainted with Professor Cox who was in charge of the U.S. Weather Bureau in that city. Through Professor Cox he secured a rain gage and thus satisfied a strong youthful desire to observe and record the weather. He also acquired a barometer at a young age.

Mr. Manning moved to Alexandria Bay in 1912 and began his career as a cooperative weather observer 20 years later. Over the years he has compiled a weekly weather summary for the

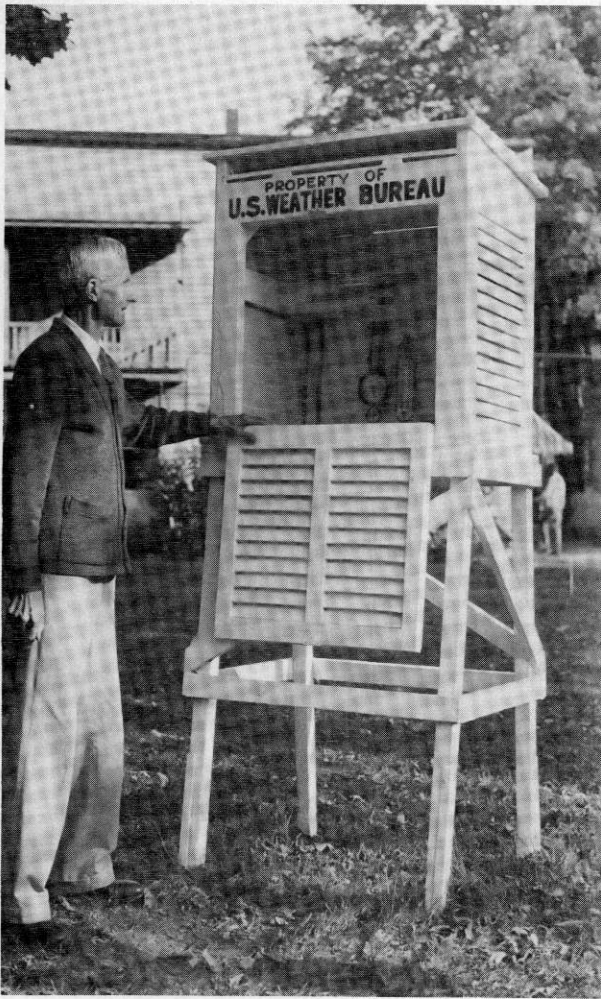


G. Kenneth Kilpatrick

local paper. As an extra duty he has observed and recorded temperatures of the St. Lawrence River during the ice-free season for a number of State interests. Mr. Manning's records of ice conditions in the St. Lawrence River were instrumental in protecting the U.S. Government from an expensive lawsuit. He has made observations of the aurora borealis and through this activity he has had an active correspondence with Professor Störmer of Norway. Mr. Manning says, "I have enjoyed every minute as a cooperative observer and feel more than proud that I am doing the Government and the public a service."

Miss Kate W. Strong **Setauket**

Miss Strong began her interest in weather when as a young girl she assisted her father, Selah B. Strong, who served many years as cooperative observer at Setauket. Miss Strong took over upon the death of her father in December 1931. She remarks that a few days after her assumption of the weather station she was bedridden



Douglas F. Manning



Kate W. Strong

by illness and unable to get outdoors. Although a neighbor measured the precipitation, the temperature observations were missed and Miss Strong was heartbroken over this short break in the Setauket record.

At the age of 85, and despite failing eyesight, Kate Strong with some assistance from friends continues to record the weather. Her contribution and that of her father has resulted in one of the most valuable records the Weather Bureau has on the weather and climate of Long Island.

NORTH CAROLINA

The earliest known voluntary weather records in North Carolina were of temperature only; these began at Chapel Hill in 1820 and at Southport (then Smithville) in 1822. Neither of these records has been maintained continuously; in fact, there is no known weather record in North Carolina which was kept active through the years of the War between the States. The oldest nearly continuous cooperative record is that at Lenoir, for which rainfall records have been kept with only minor breaks since August 1871. The oldest continuous record of both temperature and rainfall is for Weldon; this record began in February 1872 and has continued to the present time with only a single month's data missing. The original observers at Lenoir were Dr. and Mrs. R. L. Beall, while at Weldon the first 21 years of records were kept by T. A. Clark.

Some of the longest one-man records in North Carolina have been kept in remote portions of the mountains. The longest of these was at Rock House, formerly known as Horse Cove, in Macon County. Barry C. Hawkins, a lifelong bachelor, began to keep both temperature and precipitation records there at the age of 16 in December 1891; he maintained these records with but few breaks until the onset of his final illness in July 1958, a total of nearly 67 years. During all this time Mr. Hawkins walked 8 miles across mountain trails to the nearest Post Office to file his monthly reports. The Rock House records indicate an average precipitation of more than 80 inches per year, greater than any other long-term record in the United States, except for the States bordering on the Pacific Ocean.

Another remote mountain record, at the opposite end of the North Carolina portion of the Appalachians, was that of J. E. Parker, who kept

weather records at Parker from October 1917 until his death in March 1963. Mr. Parker's record, more remarkable for its legibility and dependability than for unusual length, earned him the Thomas Jefferson award in the year before his death.

A noteworthy one-man record in the Piedmont Section of North Carolina was that maintained at Monroe by Thomas A. Ashcraft, whose observations began in January 1896 and continued until his death in May 1954, more than 58 years. In the terrible February of 1899, on the morning of Valentine's Day, Mr. Ashcraft reported a low temperature of 20° below zero, a record which still stands as the lowest ever recorded in North Carolina outside the mountains.

In the Coastal Plain the single-observer longevity record is held by a woman, Mrs. Jessie Stevens Taylor, who was observer at Southport from March 1900 until her last illness in 1961. In 1955 Mrs. Taylor was cited for heroism during the passage of hurricane Hazel in the preceding October.

Mrs. Taylor's long record is actually a part of a somewhat longer "family" record. Two others of the Stevens family observed the weather at Southport from 1894 until she took over the work in 1900. She served as Jessie M. Stevens until her marriage to Charles Edward Taylor in 1909. A slightly older family record still continues not too far away in the Coastal Plain at Sloan, where three members of the Sholar family have observed and recorded the weather since January 1893. The present observer is Mrs. Beatrice Sholar, a member of the family by marriage. Other interesting family records are those at Edenton, where observations of the present observer, E. R. Conger, and his father, J. H. Conger, date back to 1897; also at Manteo, where Alpheus W. Drinkwater, his wife, Rosa, and their daughter, Marguerite Drinkwater Booth (assisted unofficially by still others of the family) have kept temperature and precipitation records since 1905. At first Manteo was a second-order Weather Bureau office, but has been cooperative since 1929.

Another unusual family record is that of the Smith brothers, Charles M. and Marvin W., who together accumulated nearly 80 years of records, much of them parallel, in neighboring counties of the western Piedmont. Charles M. Smith began observing the weather at Settle, in Iredell



Collin M. Abbitt

County, but soon moved to Salisbury, Rowan County, where he was observer for 39 years. Meanwhile, Marvin W. Smith continued the record in Settle. The records of both brothers ended with their deaths a few months apart in 1957.

A different sort of "family" has furnished cooperative observers in Tarboro since records began in January 1893. The first observer was E. V. Zoeller, pharmacist; in 1939 E. H. Ward took over Zoeller's Pharmacy, as well as his job as weather observer. In 1960, when Mr. Ward retired, observations were assumed by Milton A. Moore, Jr., a neighboring pharmacist.

Collin M. Abbitt

Roxboro

Collin M. Abbitt has been employed by the city of Roxboro, N.C., for 36 years. During most of that time he has been observing the weather, having sent in his first report in January 1931. His present position with the city is that of Director of Public Utilities.

Mr. Abbitt is married and has six children. He was educated in the Roxboro schools and at the University of North Carolina. He is a Presbyterian, a member of the Rotary Club, and a charter member of the North Carolina Water Works Association.

Mr. Abbitt says: "I have become so involved in observing the weather that it is second nature with me. I am best known by my weather interest, and it keeps me in the public eye. I have

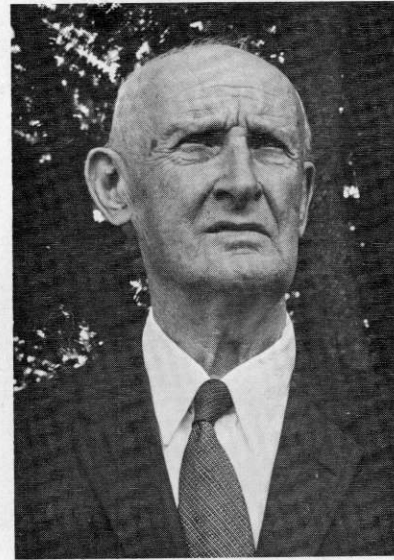


Lucy C. Allen

enjoyed keeping the records and watching with keen interest the changes that occur along with the four seasons."

Mrs. Lucy C. Allen **Neuse**

Mrs. Lucy C. Allen took over the job as river and rainfall observer from her husband in 1916, and since that time has never failed to make a report. Married at the age of 14, she has brought up three children of her own and one foster child; she now enjoys her grandchildren and keeping her home immaculate. She is a dedicated worker in the Baptist Church near her home. During most of the years of her observational work, she walked the 2-mile round trip to the river each morning, but now she drives. Mrs. Allen says: "One of the most interesting things about the work is talking with passers-by who wonder what I am doing, leaning over the bridge-rail!" In recognition of her unbroken record of service, Mrs. Allen received the John Campanius Holm award in 1961.



Frank H. Brown

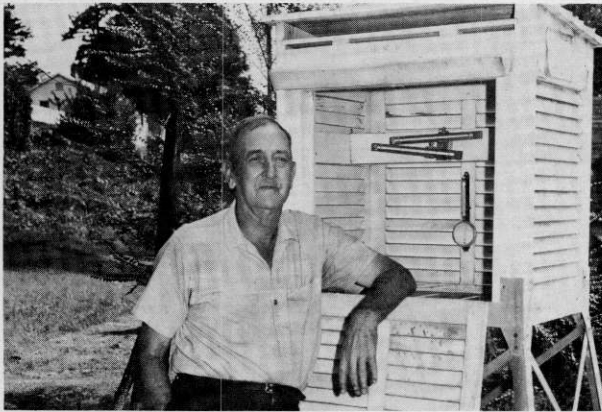
Frank H. Brown **Cullowhee**

Frank H. Brown is the dean of active cooperative observers in North Carolina; his records date back to December 1909. Observing the weather is only one of Mr. Brown's contributions to science. For more than 40 years he served with distinction as professor of chemistry at Western Carolina College, located in his native town of Cullowhee. Mr. Brown's life has been very closely identified with Western Carolina, of which he is an alumnus (class of 1898). He also holds two degrees from North Carolina State in Raleigh. Much of the present growing campus of Western Carolina is built on land once a part of Mr. Brown's farm, but he still holds some acreage on which he and his son and grandson raise livestock.

Mr. Brown's contribution to the development of Western Carolina College was recognized in 1959 when a half-million dollar cafeteria was dedicated and named the Frank Hamilton Brown Cafeteria.

His activity in the field of education notwithstanding, Mr. Brown found time in 1911 to serve as his county's representative to the North Carolina General Assembly, the legislative body of the State. This is a distinction which had been held by his father before him, and has since been held by his son, Frank, Jr.

In recognition of his long, unbroken, and highly



Wayne W. Creasman

accurate, legible weather records of nearly 55 years, Mr. Brown was presented the Thomas Jefferson award in 1964. (Editor's note: Mr. Brown died June 25, 1965.)

Wayne W. Creasman **Tryon**

Wayne W. Creasman has since 1930 taken observations of temperature and precipitation at Tryon, in the heart of the "Thermal Belt" country of North Carolina. During the past few years he has also been river-rainfall reporter to the River District Office at Columbia, S.C. Mr. Creasman especially enjoys this new part of his work, as his is a warm personality and he likes the personal contacts related to rainfall reporting. Mr. Creasman says: "It has been a great honor to have served for so many years as weather observer; we have done the best we could. For the past several years Mrs. Creasman has deserved the credit, as my eyes are failing and she has read the instruments." In recognition of his long and faithful service, Mr. Creasman received the John Campanius Holm award in 1961.

James A. Dennis **Marshall 2NE**

James A. Dennis, born in Cocke County, Tenn. in 1891, has spent his adult life in Marshall except for an interval in which he attended Maryville College and served in World War I. He has been weather observer since 1919, keeping records of temperature and precipitation, and during most of the time of stages on the French Broad River. During almost the same period he has served as Sunday School Superintendent, and for a much shorter period he was Mayor of Marshall. By vocation Mr. Dennis is a grocer, now retired



James A. Dennis

after having worked in both wholesale and retail trade for a total of more than 45 years. Mr. Dennis says: "Being a weather observer has helped me to appreciate all of nature and the outdoors". He received the John Campanius Holm award in 1962.

Miss Gertrude Harbison **Highlands 2S**

Gertrude Harbison carries on a record at Highlands which very closely parallels that of Frank H. Brown in neighboring Cullowhee. The Highlands record was begun by her father, Thomas Grant Harbison, in 1909. He was a scientist and an educator; among other accomplishments, he was instrumental in the establishment of the Highlands Biological Station, now noted as an outpost of a number of educational institutions, and used for the study of a great variety of flora and fauna that can be found nowhere else in the eastern United States. Not long after Mr. Harbison established the weather station Gertrude began to take an interest, and by the time he passed away in 1928 she was a highly experienced substitute, ready and willing to take over and continue the record.

Miss Harbison has been librarian in the town of Highlands for the past 30 years, and takes an active part in the town's affairs, especially those that pertain to educational and cultural development. For her weather observations she has earned her 35-year pin—not counting the observations taken under her father's name—and her fine observational work was recognized by the



James Ashby Moore

Weather Bureau in 1962 when she received the John Campanius Holm award.

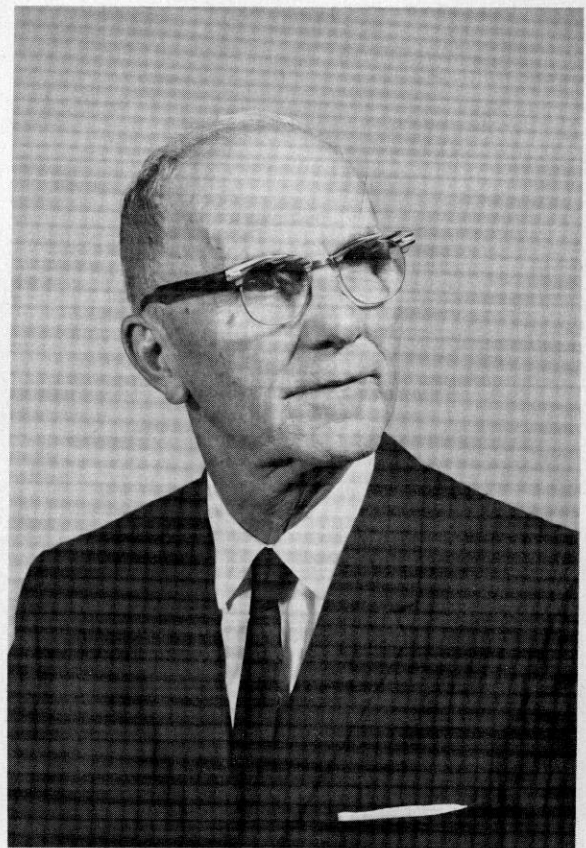
The Highlands station holds the distinction of being the rainiest long-established weather station now active in the eastern United States, averaging almost 80 inches of precipitation per year. Its location is only a few miles from the inactive Rock House station kept by Barry C. Hawkins for so many years.

James Ashby Moore

**Rocky Mount
Power Plant**

James Ashby Moore was born in 1904 on a farm in Halifax County, 1 of 15 children. He attained his degree in engineering at the University of North Carolina in 1930, and went to work for the city of Rocky Mount. In 1934 he took over the duties of river and rainfall observer, and has been equally steadfast in his work for the city and for the Weather Bureau since that time. He is at present Assistant Chief Engineer at the Municipal Power Plant.

Mr. Moore says: "Over the years I have received great personal satisfaction from my work as river and rainfall observer. I am proud and thankful for the longevity of the record, and greatly appreciate the opportunity given me by the city of Rocky Mount and the Weather Bureau to take these observations."



S. Kay Patterson

S. Kay Patterson

Concord

S. Kay Patterson, of Concord, started measuring rainfall in connection with his business, insurance. As his company had rain and rainstorm insurance, he acquired a rain gage and began to keep rainfall records in order to help determine the extent of rain damage covered in his company's policies. In 1933 he was asked to join the Weather Bureau's network of cooperative observers, and has kept official records of both temperature and rainfall ever since. Mr. Patterson says: "I have enjoyed my work all through the years. It has been a good hobby and an educational one as well." Mr. Patterson has spent a good deal of time in passing on his weather knowledge to school children and other interested people; a more genial member of the cooperative observer network would be hard to find. But there is one negative aspect of his weather work in which he takes pride. While most of his friends come up with a prediction now and then,



James L. Rea

Mr. Patterson never goes on record about the weather before it happens. "In that way", says he, "I never have to explain why I was wrong".

Mr. Patterson received the John Campanius Holm award in 1963.

James L. Rea **Plymouth 5E**

James L. Rea has been active in agriculture all his life, and believes that weather is one of the most important factors in agriculture. His 40 years of weather observations have been taken on two different farms of the North Carolina Division of Research Stations. Mr. Rea was superintendent (and weather observer) at Wenaona from 1923 to 1945, and since that time has served in the same capacities at Plymouth.

Mr. Rea holds the Bachelor's and Master's degrees from North Carolina State. He is a past president of his local Ruritan Club and the County Farm Bureau, and was named outstanding farm manager by the North Carolina Society

of Farm Managers for the year 1961. He is active in the Presbyterian Church, and in several civic organizations.

Mr. Rea says: "Being a weather observer has been one of the most rewarding things of my life. It has enabled me to be a close observer of nature and how it affects our daily lives. There is as much interest in the weather as any subject that can be mentioned."

Carl Hugh Spruill

Williamston

Some people travel the world over seeking adventure, but Carl Hugh Spruill has stayed in one place and let adventure seek him. Beginning in 1926 and continuing more than 30 years, he was the one-man crew of the bridge across the Roanoke River at Williamston, bearing alone the responsibility of bridgetender on the drawbridge day and night, 7 days a week. Since 1930 he has also been river and rainfall observer for the Weather Bureau; since 1952 he has measured temperatures as well. Over the years, adventure has come to Mr. Spruill from up the river in the form of floods that drove him and his family out of their home beside the bridge; from down the river in the form of ships as large as the 360-foot Great Lakes freighter, the *Vermont*; from the deep woods that flank the river in the form of rattlesnakes and water moccasins, which he used to kill at the rate of 75 per year; from the highway in the form of automobiles that broke through the bridge rail and landed in his garden, or crashed the drawbridge and plummeted into the river. Many of the occupants of these automobiles owe their lives to swift action by Mr. Spruill and his wife; others less fortunate he was unable to save. Farmers and loggers along the river owe a great deal of their well-being to his timely and conscientious voluntary distribution of flood warnings and river stage forecasts.

Since 1950 the pace has slowed; a series of flood-control dams upstream have tamed the river. Mr. Spruill is now one of four men who work on shifts as bridgetenders, and he and his family have moved away from the house at the river's edge. But he still observes the river and the weather, and remembers that both may be either enemies or allies of man. Mr. Spruill has seen both in all their moods, and understands and respects them.



Mrs. Elizabeth H. Williams

Mrs. Elizabeth H. Williams Rougemont

Mrs. Elizabeth H. Williams has measured the rainfall at Rougemont, N.C., for the Weather Bureau since May 1915. Mrs. Williams took over the task soon after she moved to Rougemont from Virginia as a widow with two children. Throughout the years she has been active in church and community affairs, and has shown a continuing interest in public service. Mrs. Williams is as alert today as ever, and has no plans for giving up her weather observations. In recognition of her dedicated service she received the John Campanius Holm award in 1964.

NORTH DAKOTA

The cooperative weather observer is an effective link between the Weather Bureau and the public that it serves. He is the "weatherman" in his community and the prestige that the Bureau enjoys is certainly enhanced by his dedicated service both to the Weather Bureau and to the community in which he lives.

There are now about 180 cooperative observers in North Dakota. About 129 record maximum and minimum temperatures and precipitation each day, while the remainder record precipitation only. There are 42 observers who also have special recording-type precipitation gages in use which provide valuable data on intensity of precipitation. Many observers provide important

information on the occurrence of severe local storms. A number of observers cooperate by mailing a card each week to the State Climatologist showing the week's temperatures and precipitation. These cards are used to keep current on the week's weather and the data are used in the Weekly Weather and Crop Reports published by the Weather Bureau and also by the Agricultural Statistician at Fargo. A few reports are relayed to this office daily through the cooperation of the Soo Line Railroad, Montana Dakota Utilities Co., and the Corps of Engineers. In the spring, if snow conditions warrant, a number of stations may be asked to furnish special reports on the amount of snow on the ground and its water content so that flood potential may be evaluated in the event of rapid snow melt. Some observers may also be asked to report unusually heavy rainfall for flood forecasting purposes. There are seven stations in the state equipped to measure evaporation during the spring, summer, and fall months—usually April through October.

There are 33 city, State, and Federal agencies that act as cooperative observers. Railroads, power companies, and radio stations are also listed as cooperative observers. The vast majority, however, are individuals representing nearly all walks of life and with a strong interest in the weather.

The observations that have accumulated over the years have given us much basic knowledge of the climate of North Dakota. They have been published monthly by the Weather Bureau in the North Dakota *Climatological Data* bulletins. This bulletin series, dating back to the 1890's, is a major source of information about the temperature and precipitation at specific times and places. From these data, other publications have been produced establishing average conditions of temperature and precipitation and describing their variation in time and place over the years. Thus, there have been established rather accurately the average climatic conditions as well as the extremes that are likely to occur.

There is a need to put this accumulated knowledge into even more useful form. Because of the tremendous volume of data involved, this has been a difficult task. With the development of high-speed data handling and computing machines in recent years, however, these records will

be used in many different ways to study their relationship to the agricultural and economic problems of the state.

F. J. Bavendick's pamphlet on *Climate and Weather of North Dakota*, published in cooperation with the North Dakota State Water Commission in 1947 and revised in 1952, brought together a great deal of information from a variety of sources and made it available for popular reading. It has been a useful book. A freeze bulletin was published in 1963 in cooperation with the Agricultural Experiment Station of the North Dakota State University at Fargo showing the probability of having freezing temperatures after a certain date in the spring and before a certain date in the fall. A number of station publications summarizing the observations made in a community over the years and containing a brief narrative explaining the principal climatic features of the area have been published in cooperation with local firms and groups who have underwritten the cost of printing and then used them for distribution in their local area. The Soil Conservation Service is working on the publication of soil surveys for counties in the state and a climatic section is included. The Agricultural Experiment Station, Soils Department, County Extension Service, and other Agricultural services of the North Dakota State University at Fargo are finding an ever increasing need for climatic information. More and more of their research is being directed toward a more detailed study of the relationship between climate and the growth of plants and animals. Studies are needed on the effect of weather on existing industries in the State and to evaluate the effect of weather on any future industrial development. More and more, our entire economy will be studied in greater detail with respect to the effects of weather. The cooperative observer will continue to play an important part in these efforts and he can be proud of the services he has already rendered and will continue to perform in the future.

There is a sense of pride in rendering this service to his community. His neighbors will frequently call him to find out how much it rained, or how cold, or how warm it has been. Sometimes these requests become burdensome but they accept it as part of the job. They often furnish their reports to the local newspaper for

publication. Sometimes a neighbor may complain that his reading must be wrong! These too, they take in stride.

In North Dakota there are 99 observers with more than 10 years service and 26 with more than 20 years service. There are 3 observers with more than 30 years service. In past years, there have been some even longer records. Mr. F. O. Alin at Fullerton maintained a continuous record for more than 60 years. Mr. S. P. Grane at Marmarth kept up his record from 1909 to 1957. In other cases, the observational duties have been passed down from generation to generation in the same family. Three generations of the Hoof family at Napoleon kept up the record from 1889 to 1946. The Christiansen and Gaebe families at New Salem have a continuous record from 1906 to the present.

There are eight stations located at State institutions which have continuous records at one location for 64 to 74 years. The oldest is at the Grand Forks University beginning in January, 1891, more than 74 years ago. None of the Weather Bureau stations can boast of such stable locations though their records do date back to earlier years. Bismarck records stretch back to September 10, 1874; Williston to January 14, 1879; and Moorhead, Minn. (Fargo) to January 1, 1881.

Theodore B. Eckberg

Kenmare

Mr. Eckberg, a newspaper publisher writes as follows:

"I am a native North Dakotan, born at Sherwood, August 29, 1908, so you can readily see that I have strayed very little!

"My first contact with the Bureau dates back to the very early 20's, when my father, N. A. Eckberg was employed at the School of Forestry at Bottineau, and among his numerous duties, was making the daily weather observations. For some unexplained reason, it was necessary that the daily telegraphic report be filed at the depot at 7 a.m., despite the fact the telegrapher did not report for duty until 9 a.m., and to paraphrase the mail man, it was the responsibility of this embryo weatherman to "trudge through rain, sleet, snow and believe me, plenty of mud" to place that pink telegram in a convenient box on the depot platform. Then too, a daily report was mailed, apparently in the event that the tele-

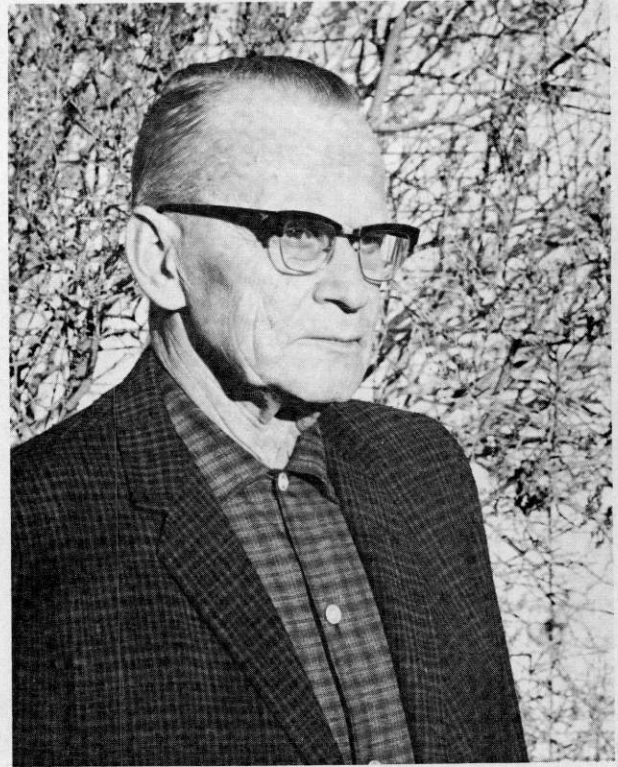


Theodore B. Eckberg

graph wires were down! That daily trip on foot was well over a mile.

"When I came to Kenmare in 1928, I prevailed upon Orris W. Roberts, then meteorologist at Bismarck, to install a station here and except for a brief interruption in the early 30's we have continued making the daily observations. . . . Needless to say the precipitation gage and instrument shelter are in my back yard, though possibly a mile walk in the morning would be of some physical value, but someone will have to do a superb job of selling me on the idea!

"It will always be a conundrum to me why a person would subject himself to assuming these daily observations, year after year, without remuneration, and yet always be in error. . . . It always rained more than you recorded, or the temperature readings were never consistent with your neighbors! The old boy who said "Everyone talks about the weather, but doesn't do anything about it," was a pretty wise character. . . . Do you suppose that your rural observers con-



S. C. Schellenbaum

tinue in their capacity with the thought in mind, that perhaps they can do something about it?

"Anyhow, it has been fun."

S. C. Schellenbaum

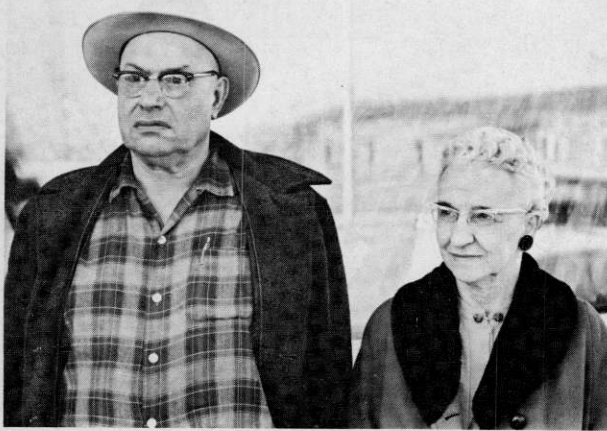
Ryder

Mr. Schellenbaum is more than 65 years of age and continues active in community affairs. He works at the exchange and does quite a bit of income tax work. He is town clerk, school clerk, and also treasurer of his church. His hobbies include gardening, hunting, and fishing.

He was born in Iowa but moved to a farm south of Ryder in 1907. He remarks about that first winter, "We lived in a sod shack and after one severe blizzard our neighbors had to shovel us out." As he grew up he worked in a drug store and also worked at various jobs.

Mrs. Schellenbaum teaches school in Ryder. They have one son now living in Albuquerque, N. Mex., and three grandchildren.

Mr. Schellenbaum started observations in October 1931, starting with a standard 8-inch rain gage. In June 1950, a recording rain gage was added. He remarks about his career as a cooper-



Mr. and Mrs. C. E. Shubert

ative observer, "My weather observations have been interesting. It has been a service to my neighbors."

C. E. Shubert

Mr. C. E. Shubert was born and raised in southern Illinois. He came to Parshall, N. Dak., in 1915 just a year after the town of Parshall was organized. He operated a draying business from 1924-59. Since his retirement, he has continued active in community affairs. He is an alderman on the city council and is strongly interested in politics. He likes hunting and fishing. Mrs. Shubert operates a Hobby and Gift Shop. She was one of a committee of three that prepared an excellent 300-page book on the history of Parshall for the 50th anniversary celebration in 1964.

Mr. Shubert began taking observations in November 1930. He has recorded the lowest temperature in North Dakota, -60° on February 15, 1936. Mrs. Shubert has actively supported this responsibility by taking many of the observations in his absence. Their one daughter, now a teacher of vocal music in Cheyenne, Wyo., also assisted in taking observations when home. They give the daily readings to their local newspaper for publication, and of course answer the usual requests from the neighbors.

Mr. Shubert is 70 years old and certainly appears much younger. When asked about a picture, he wanted his wife to be included because

of her help through the years. When asked how he liked this job, he said, "Being cooperative observer has been interesting. We would feel lost for a time if we gave it up."

OHIO

Although every one is interested in weather, it is our experience that those people who voluntarily take daily weather observations over a period of years are among the best and most conscientious of citizens. Without being fully conscious of it, they are aware that their efforts constitute an unselfish service to their communities; and hence are willing to accept this confining routine without compensation. Their real reward is received in the form of satisfaction in having provided the raw materials needed to describe the climate of their part of the state. In a very real sense, cooperative observers are the "weather men" for their communities, rendering many services for which professional meteorologists in the larger cities are paid. Some in Ohio have made thorough climatological studies on their own; and a few distribute local forecasts copied down from official radio broadcasts.

We in Ohio have our full share of observers who have individually observed the weather for 40, 50, and even 60 years. The record for number of years continuous recording of temperature and rainfall goes to Mr. H. D. Gowey of North Lewisburg, Ohio. His first observations were made in 1832, and his last in 1909—a period of 77 years. Longest service by an observer still on the job is that of Louis Hardtla at Philo. While his official observations started in 1901, his authoritative, though unofficial, measurements began in 1892, using standard, but privately owned instruments. His personal service, then, spans a period of 73 years. In addition to these long periods of individual observations, there are several families in which the work has been handed down from father to son, or husband to wife, thus covering a long period of years. Among these are the Copelands at Millport (three generations from 1892), the Burckholters at the Philo 3SW station (three generations from 1895), and the Richardsons at Willoughby 4N (from 1894—husband to wife).

Although the length of service is not quite so great, the observational record of Arthur L. Smith and his family at the Columbus Valley

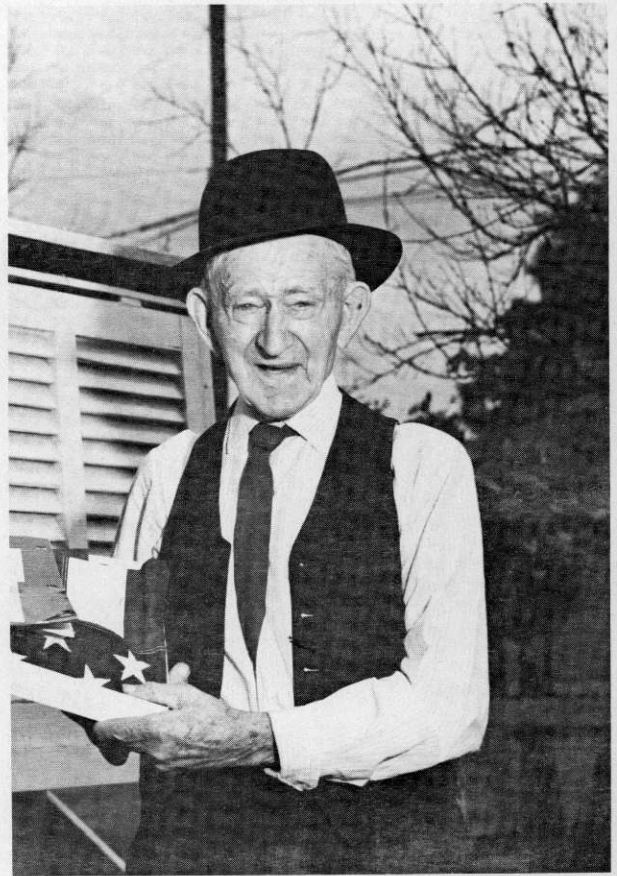


Mrs. Daisy Fitzwater

Crossing station is worthy of special mention. Mr. Smith kept the records with unusual faithfulness for 45 years—from September 1915 through October 1960. It had long been his custom to sign the forms at the beginning of each month rather than waiting until the end; and this he did optimistically for November 1960. However, he never lived to complete the month; and with his passing Mrs. Smith filled out the month without a break. Naturally, the signature appearing at the bottom of this sheet remains “Arthur L. Smith.” It is also worth noting that two members of this immediate family are presently taking official weather observations in Ohio. Mrs. Ada M. Smith is continuing the record at the Valley Crossing station; and her son, Thornton D. Smith is the local observer at Lithopolis 1S.

Mrs. Daisy Fitzwater **West Manchester**

As is true at many weather stations in rural areas, the observational duties at West Manchester are performed by the housewife. However, in this case Mrs. Fitzwater has been listed as the official observer since September 1931. In



Louis Hardtla

spite of advancing age, she continues to measure rainfall each morning, and telephone it to the Miami Conservancy District office in Dayton for use in the operation of flood-control reservoirs. Her reports are also used by the Weather Bureau's River Forecast Center in Cincinnati. Until his death in 1962 her husband made good use of rainfall measurements in his farming operations. He figured large in the development and production of hybrid seed corn for this area; and at one time marketed his own variety, Super-50.

The Fitzwaters are a musical family, a son, daughter-in-law and granddaughter all teaching music in public school systems of nearby cities. Mrs. Fitzwater enjoys piecing quilts and quilting during the winter months and also likes flowers and gardening.

Louis Hardtla

Philo

An observer whose neatness of handwriting and completeness of record from the same spot over a long period of years is seldom surpassed,

is Louis Hardtla. Early in the 1890's he became interested in taking weather observations in order that he might have an indisputable record of temperature and precipitation for settling arguments among his friends. To accomplish this he purchased a set of H. J. Green thermometers, an instrument shelter, and rain gage in 1892, and set himself up as the local weather observer for Philo. After having kept faithful records for 9 years, he was finally appointed by the Weather Bureau as official cooperative observer, continuing to use his own instruments. His 3-inch rain gage was replaced by the standard of the Weather Bureau some years ago, but it is still used as a check, and compares favorably. Both of his original thermometers continued in use for more than 50 years—a record which few observers can match.

Mr. Hardtla is still on the job after having completed 73 years of continuous service, 64 of which are recognized as official. In June 1963 he received a letter of commendation from President Kennedy for his contribution to our knowledge of Ohio climate, and his unselfish devotion to duty. This followed by 3 years presentation of the Thomas Jefferson award for his long and meritorious service.

By profession, Mr. Hardtla is a carpenter, stonecutter, and cement finisher, and from 1924 to 1941 was employed by the Ohio Power Company. He still lives in a house he built by himself many years ago.

Ernest L. Harner

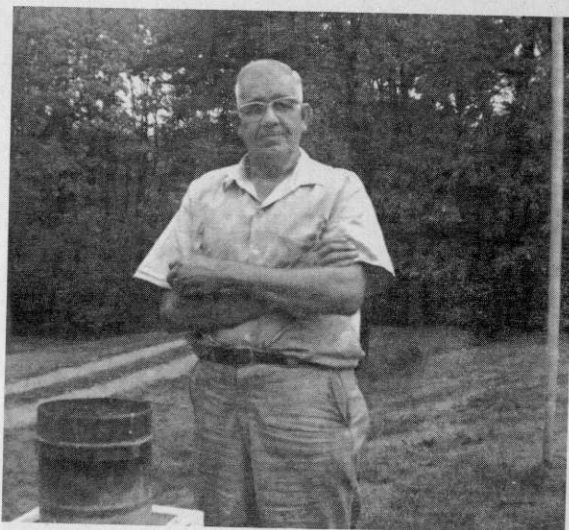
Xenia

Mr. Harner's service as weather observer in Xenia started in 1929, the year of the market crash. However, this coincidence had no effect on his faithfulness to the work, which has been of a high order for the last 35 years. He is a man of two principal occupations. First he operates a modern farm near Xenia with the help of two sons. Second he has worked for many years with the Ohio State Division of Wildlife operating the State Fish Hatchery.

Mrs. Ethel H. Hayes

Wilmington

Although cooperative weather observations have been taken in Wilmington only since 1915, the work has been the responsibility of a single family for all but 2 of these years of record. Mr. Erskine R. Hayes was appointed official observer in March 1917, serving in this capacity until he passed away in 1935. Since this kind



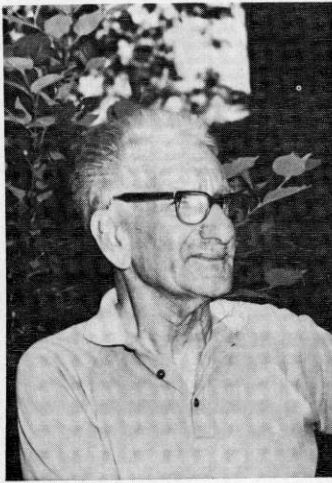
Ernest L. Harner



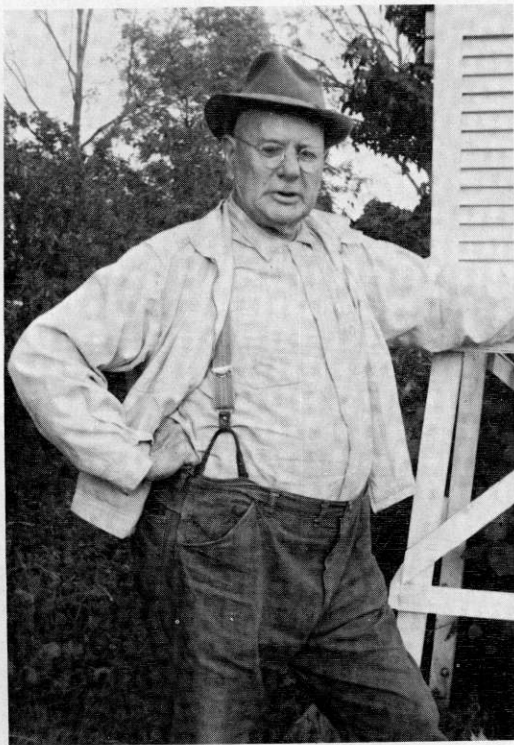
Mrs. Ethel H. Hayes

of service had meant so much to him, it was only natural for Mrs. Hayes to take over where her husband left off. Her length of service has now exceeded that of her husband, amounting to over 30 years. Not only does she record temperature and rainfall daily, but she reports by telephone to the river forecasting center in Cincinnati and mails weekly reports by card during the crop season to the Climatological office in Columbus.

Mrs. Hayes is a person with so many interests and activities that it would be difficult to list them all. Professionally she has served for many



Frank Mascari



Edwin McCormick

years as the Clinton County Subdivision Manager for the Ohio State Division of Aid to the Aged. Also she continues to serve as an on-call hospital nurse. Being interested in civic affairs, she has for the last 10 years been a member of the City Planning Commission. Mrs. Hayes is a charter member of the Business and Professional

Women's Club in Wilmington, a Past President, and its Parliamentarian since 1948. She also is a charter member of Daughters of American Colonists, and of the Clinton County Historical Society.

As if this were not enough, she has long taken an active interest in dramatics. Up to World War II she had directed and/or acted in 25 to 30 plays put on by the Little Theater, and is still active in this pastime. As a part of her work with weather, she serves as counselor for Scout Weather Merit badges. A busy person with widespread interests and many worthwhile activities usually has a hobby; and Mrs. Hayes is no exception; hers is quilting. Many beautiful creations have been formed on her quilting frame which still serves as a means for relaxation and expression of her individuality.

Frank Mascari

Ironton

Mr. Mascari has, since January 1934 continued the weather records for Ironton begun in 1882. He is one of the most faithful of observers in Ohio as can be verified by the completeness of his records and the infrequency with which errors and omissions are detected. By profession, he is a painter and interior decorator; and his artistry has found further expression in the neatness of his flower garden and variety of plants and flowers growing around his home. Any lack of complete biographical information about him can be traced in large part to his inherent modesty and reluctance to talk about himself. However, to his friends and associates, he is known to be a man of highest integrity—a workman commanding the respect of all.

Edwin McCormick

Gallipolis

Mr. McCormick, Gallipolis observer since June 1933, is not the sort of man one would expect to find living on a farm among the hills of southeastern Ohio. Not only is he a true nature lover, but also a naturalist in his own right. Furthermore, he is one with a lifelong dedication to service for his fellowman and his community. He still works and lives on the farm in Gallia County which has been in the family since 1807. But this is no ordinary farm. It is a sanctuary for wildlife and at the same time the location for his own Boy Scout camp. Having been active in Boy Scout work for many years, he built this camp on his own property for the use of boys from all over south central Ohio. For his de-



Jack Weaver

voted service over the last 35 years he recently received the coveted Silver Beaver award in Scouting.

He lists as principal among his hobbies wild-life, flowers, and young people. His philosophy about all three is worth listening to. Each winter he feeds hundreds of birds among the trees surrounding his house; and "is in good standing with deer and other wildlife." Feeling safe from harm in his presence, it is not uncommon for wild deer to approach him in the fields expecting some morsel, but to keep their distance when strangers are around. Mr. McCormick has raised many orphaned animals and birds, even including deer, raccoons, and skunks.

Having these unusual qualities, it was not unusual for him to take an active interest in weather. Official observations began in June 1933, and will doubtless be continued for many years to come.

Jack Weaver

Van Wert

As is typical of many voluntary observers over Ohio, Jack Weaver has for many years con-

tributed significantly to the welfare of the community, not only as the local "weatherman" but also in his day-to-day professional activities. His work as a cooperative weather observer began in March 1931 while employed at the Marsh Foundation in Van Wert. During that period the instruments were exposed on the grounds at the Foundation; and his observational experience actually started in 1927 as he was assigned by the former observer to take the readings much of the time. Hence his actual length of service as of 1965 amounts to 38 years.

Most of his working life up to retirement was spent at the Marsh Foundation, a private institution, devoted to caring for children from broken homes. In recognition of his long service in the interests of these unfortunate children he was presented in 1949 with the Bishop Alumnae Medal by his alma mater, Miami University. In addition, other honors have been bestowed on him for his work with young people. For many years he has been active in Boy Scout work, and for this service he received the coveted Silver Beaver award for scouting. As might be expected of such a man, Mr. Weaver is deeply religious and has for a long time taught the Men's Bible Class at the Presbyterian Church. He is a Mason, and has served as the High Priest, York Right of the Royal Arch Masons in Van Wert.

Mr. Weaver's other activities and achievements in local service are many. After formal retirement from the Foundation in 1953 he taught Industrial Arts in the Van Wert high school until 1962. In spite of all these activities, he has found time to engage in several hobbies. Among them are furniture making, and many examples of his craftsmanship are to be seen in his home.

Verley K. Zinn

New Carlisle

Official rainfall observations have been made in New Carlisle by Mr. and Mrs. Zinn since September 1932. Since timely reports of rainfall amounts are important to the operation of flood-control reservoirs in this area, their reports are telephoned to the Miami Conservancy District Office in Dayton, and made available also to the Weather Bureau River Forecast Center in Cincinnati.

Mr. Zinn is one of these people who made good in his own community where he was born and has always lived. An expert carpenter "of the old school" he has built many fine homes in this

and surrounding towns. Like many such craftsmen, he deplors the shoddy workmanship going into many houses of suburban developments these days. Mr. Zinn's hobbies include furniture making, of which many examples are to be seen in his home.

OKLAHOMA

A rich heritage of climatological data for Oklahoma is now available through the combined efforts of many dedicated cooperative weather observers who have braved the weather elements daily for over 140 years. These range from the few early day pioneers who manned the military posts on the western frontier down to the greatly expanded force of present day observers drawn from all walks of life.

Earliest weather records in Oklahoma were begun by Post Surgeons at Fort Gibson and Fort Towson in July 1824. Fort Gibson was the farthest west in the United States until after 1842 when Fort Washita in Oklahoma and others elsewhere were started. Some 44 climatological stations in the State were operating by the turn of the century, with this number reaching over 100 stations by 1930. Weather records are presently maintained for about 300 locations in Oklahoma.

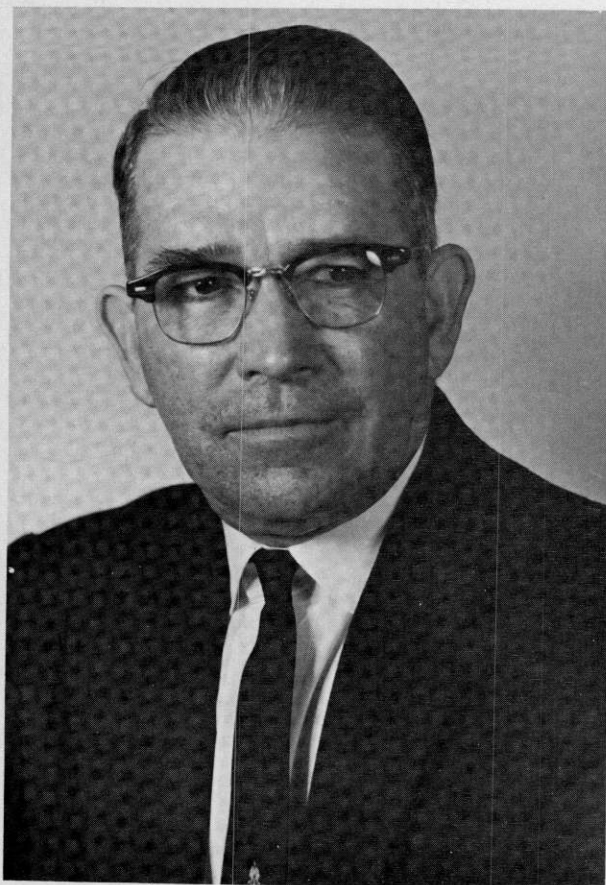
Drought periods as in the early thirties and early fifties have accelerated the use of climatological data in helping solve the problems of Oklahoma's agriculture, commerce, and industry. These invaluable records of temperature and precipitation have provided basic data for some 24 major reservoir and dam projects initiated in Oklahoma since the late 30's, along with about 200,000 installations under the Farm Pond program. Many benefits are being realized today from data gained in Oklahoma's Shelter Belt Studies, Lake Hefner Water Loss Investigations, Sandstone and Washita Watershed Studies, severe storm projects, climatic summaries, and Oklahoma Soil and Water Needs Inventory.

In the following paragraphs are descriptions of the observers and activities at two cooperative stations in Oklahoma. Similar examples have been duplicated at other volunteer stations throughout Oklahoma.

Climatological records at Cloud Chief have been ably continued by the present observer, Mr. Charles McCornack, Jr., since January 14, 1936.

He took over the official observing duties from his father-in-law, Mr. J. P. Stutzman, whose dedicated service dates back to February 1, 1907. Mrs. McCornack has also provided valuable assistance to her father and husband during the 58 years of family operation in maintaining continuity of observations. Mr. McCornack has hopes that the family operation will pass the century mark for the station. Such an accomplishment might not be too difficult for his son, Robert, and daughter Clara Ann, since they now do a great deal of the work in keeping the records under the watchful eye of their father. Mr. McCornack has on several occasions made a 180-mile round trip to the Oklahoma City Weather Bureau Airport Station to pick up replacements for storm-damaged equipment rather than lose record while awaiting shipment. His reliability and excellent service over the years earned for him the John Campanius Holm award in August 1964.

Mr. William E. Pitt, observer at Ada since June 1937, has been a faithful, reliable, and excellent observer for the Weather Bureau, furnishing monthly climatological reports, weekly crop-weather reports, and special rainfall reports. He also cooperated with the Weather Bureau National Severe Storms Project for nearly 8 years by furnishing required forms and charts from recording instruments. He has made use of his observations and data in several ways. First, his interest in weather developed to a point that it became his main hobby and he added a barometer and wind equipment to the temperature and precipitation equipment furnished by the Weather Bureau. Second, he applied his weather data to more efficiently operate his business as a nurseryman. Third, in his desire to share the results of his hobby, he made an agreement with a radio station to make twice daily direct broadcasts of past and current weather data as observed and recorded at his station. He has also hosted many field trips of high school and East-Central State College students over the years. Mr. Pitt, who is affectionately referred to locally as "Mr. Weatherman," is an outstanding example of how a weather observer can serve his community, State, and Nation and still profit personally. Mr. Pitt received special recognition in July 1963 when he was presented the Weather



Albert M. Foss

Bureau's John Campanius Holm certificate for continued excellence.

Looking ahead into the future, continued use of published data will greatly aid in the development of the Central Oklahoma Navigation and Water Supply Projects and make possible the reality of numerous programs yet on the drawing board. The voluntary cooperators in the Weather Bureau's observer program may be justly proud of their priceless contribution to the knowledge of Oklahoma's climate and to that of the United States.

Albert M. Foss

Pauls Valley

Mr. Albert M. Foss was appointed observer at Pauls Valley in 1919 following the death of his father, Arthur M. Foss, who had served since 1902. Mr. Arthur M. Foss was Deputy U.S. Marshall until Oklahoma was admitted as a State in 1907. In 1907 he was employed by the First National Bank in Pauls Valley and retired from that position in 1914. Following his retire-

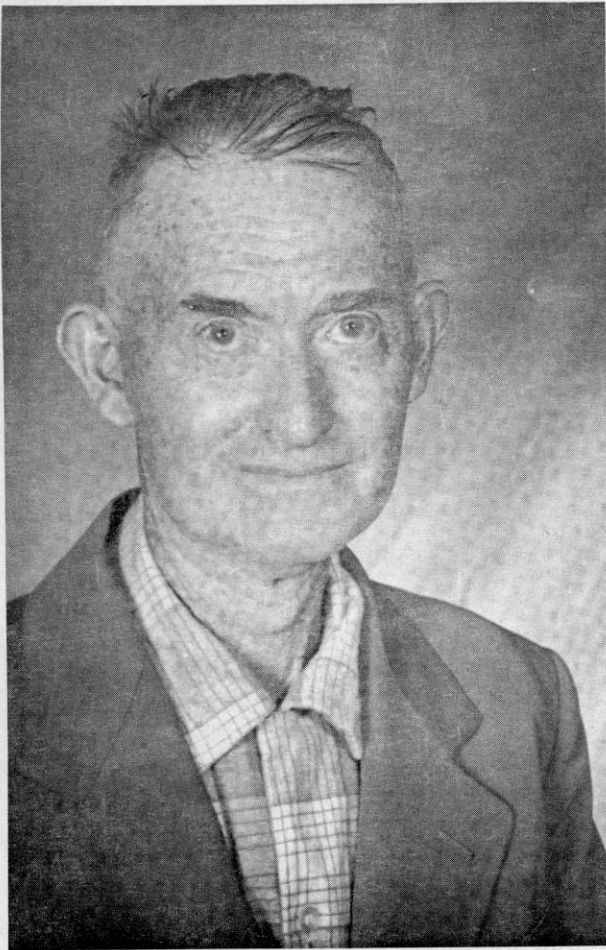
ment he continued with the weather observations until his death. Mr. Albert M. Foss is Vice President of the First National Bank in Pauls Valley, currently is serving as mayor, and is also very active in civic organizations. Although he has a very busy schedule, he has continued the weather observations for sentimental reasons, the weather instruments at the Foss residence having been in the same location for over 63 years. Mr. Foss believes he has one of the oldest minimum thermometers in use by the Weather Bureau today, his having been in use since about 1900. When daily river readings were required for Pauls Valley in 1956, he volunteered to assist with this program. During the floods in the spring of 1957, Mr. Foss had to travel approximately 60 miles in order to obtain the official river stages since bridges and roads were washed out. His interest and devotion to his weather work make him one of the outstanding observers in Oklahoma, for which he was honored in 1960 when presented the Weather Bureau's Thomas Jefferson award. Mr. Foss expressed the following sentiments about his weather observing in a recent letter:

"I suppose sentiment holds me in its grip as I continue year after year as a co-op observer. The feeling still lingers that I am carrying on a job my father undertook when the Indian Territory was new. My interest in meteorological facts as science has revealed them in late years and their bearing on our daily lives has been sharpened by my humble connection with the U.S. Weather Bureau as a cooperative observer."

Ralph H. Guy

Boise City

In 1910 Ralph H. Guy, as an 11-year-old lad, began training as observer at Kenton, Okla. while his father, William H. Guy, and an older brother, William M. Guy, shared the official duties between April 1910 and June 1912. Ralph became official observer in July 1912 and has maintained an enviable record of high quality weather observations for nearly 53 years. His only break in service was from October 28, 1964, to July 8, 1965, during which time he moved to Boise City where he once again has devotedly resumed his observing duties. On September 27, 1959, he became Dean of Oklahoma's cooperative observers. Mr. Guy's consistent efforts and timely re-



Ralph H. Guy

ports well reflect his endeavor to serve. He recently stated "I take great interest in taking weather data for the purpose of gaining general knowledge of local climate and variable weather conditions prevailing in the past years". Well deserved recognition was bestowed upon Mr. Guy in June 1961 when he received the Weather Bureau's John Campanius Holm award.

Martin G. Kizer

Apache

Mr. Martin G. Kizer first assumed the duties of cooperative weather observer in July 1935 and faithfully continues to serve at Apache where he also served as postmaster for 27 years. His strong desire to serve others has been realized by his spirited participation as Cub Scout Master for 13 years and a Sunday School Superintendent for 10 years. He is also well recognized for his past leadership in local civic groups. Because



Martin G. Kizer

of the accuracy and completeness of his records Mr. Kizer was singled out by the Kansas City Weather Records Processing Center in 1961 as one of Oklahoma's superior observers. He also cooperated with the Weather Bureau's National Severe Storms Project for nearly 5 years by caring for additional equipment and mailing the required forms and charts from recording instruments. The *Apache Weekly News* has always been appreciative of his fine cooperation over the years along with other local users of climatological data. The Weather Bureau's John Campanius Holm award was presented to Mr. Kizer in August 1964 for his years of outstanding and continuing excellence. Mr. Kizer sums up his weather work by saying: "I enjoy my work as cooperative observer very much as it means a lot to me to have a small part in such a big job as reporting the weather."

Oliver M. Orendorff

Sallisaw

Mr. Oliver M. Orendorff, while serving as engineer for the city of Sallisaw for 25 years, took over the cooperative observer duties on a temporary basis on January 1, 1930. He accepted this new challenge and only 17 days later he buttoned up his coat and braved the outside elements to check his weather instruments and found the temperature had reached a new record low of 19° below zero. His observing duties soon became routine and during the ensuing 35 years, neither he nor his son, C. M. Orendorff as assistant ob-



Oliver M. Orendorff

server, have ever missed a daily check of the weather. Orendorff on one occasion explained: "I'm just like an old horse, I just head for the gages about the same time each day. I never forget." His unfailing, congenial services have also extended over the past 18 years while he and his son have owned and operated a furniture and appliance store. He has always given freely of time from his business to attend to weather duties. This fine spirit of cooperation was again reflected in recent correspondence: "I am glad to be able to render my service for the past 35 years as a volunteer weather observer for such a great Country as our United States of America, of which I am very proud." It was for Mr. Orendorff's excellent record of dedicated service that he was presented the Weather Bureau's John Campanius Holm award in August 1964.

OREGON

The interests and vocations of Oregon's cooperative observers are as varied as the climate they record. Several are high school students. One is an editor of a large daily newspaper. There are part-time farmers with a few acres, and livestock growers with several square miles; loggers and ministers; school teachers and bankers; miners and druggists; service station operators and cooks, to name only a few of their different occupations. At least nine Federal agencies, an equal number of State agencies, and several departments of various county and city governments are included. Personnel of nation-

ally-known power companies, paper manufacturers, and lumber concerns—in fact, practically every major industry in the State—are represented somewhere among the Weather Bureau's cooperators.

Less than 50 of the 300 officially listed cooperative observers in Oregon are women. It is suspected the number actually doing the job, however, is considerably larger. The wife is almost always the first-line substitute; and very often the husband, busy with farm chores or operation of his business, finds it necessary (or convenient) to let the substitute carry on. The length of service as the "weather man" for the community varies from a few days for one newly appointed to more than 42 years for Phil Brogan at Bend. The combined total service of the ten cooperative observers in the State with the longest periods of record is well over 260 years.

The great variety in Oregon agriculture and industry, reflected by the many different occupations of the observers, is in a large measure the product of the climatic variation found here. Within the State's border the average annual rainfall ranges from less than 8 inches in the driest part to 200 inches at the crest of the Coast Range. Temperatures as low as 54° below zero and as high as 119° above have been officially recorded. Agriculture similarly varies. In the dry cool areas it is limited to the grazing of livestock. In the fairly warm but limited-moisture areas of the central Columbia Basin, and certain south-central portions, vast acreages of wheat and other small grains are grown. In the warmer valleys where moisture is abundant a wide range of crops is grown under intensive farming. Included are commercial crops of many varieties of fruit and berries, walnuts, filberts, hops, vegetables of all types for both the fresh market and processing plants, mint, potatoes, and many others of high cash return. In the coastal valleys where moisture is abundant but temperatures are comparatively cool, the major interest shifts to dairying and the growth of specialty grass seeds. On the middle and upper slopes of the Coast and Cascade Ranges, the heavy rainfall and mild temperatures provide for rapid growth of vast areas of pine and fir trees that support extensive lumbering—the State's number one industry in cash returns. This heavy precipitation has brought about construction of numerous multi-

purpose dams in the streams within or bounding the State. These serve the purpose of flood control where needed, with the impounded water being used to produce 18 billion kilowatt hours hydro-electric power annually, and the irrigation of hundreds of thousands of acres of highly productive farm land. The production of great quantities of cheap power has accelerated growth of many industries.

The cooperative weather observer has played a major role in the initiation and success of these industries. The record of rainfall and temperature that he has maintained provided a sound estimate of the crop potential for each area without the heartbreaks of trial and financial failure that has so often marked agricultural undertakings without such records. His rainfall records have clearly indicated the areas where flood control dams were most needed, and where water in economically practical quantities for irrigation and hydroelectric power production could be impounded. His recording rain gage charts, submitted to modern techniques of the statistician, have foretold the maximum problems of runoff during the most intense storms. This has permitted the efficient construction of spillways, culverts, bridges and many other drainage facilities necessary to handle that runoff. His records on the highest mountain slopes are an essential reference for those concerned with winter sports and summer recreational programs. This is true both for the people who plan and finance these activities and those who build and service them.

The cooperative observer is the unsung hero of the Weather Bureau's flood warning service, which in Oregon alone has saved an untold number of lives and many millions of dollars worth of property. At the onset of heavy rainfall he telephones his 24-hour totals (sometimes totals for even shorter periods in the more extreme situations) to collection points where they are in turn relayed by teletypewriter to the Weather Bureau River Forecast Center in Portland. Here a trained staff evaluates all figures received and computes the expected runoff along the different streams. This is interpreted into terms of river heights that will be reached. Advisories or, if necessary, warnings are then issued. Livestock, even people, can be evacuated from low-lying areas; machinery, equipment and in some cases

household furniture may be moved to higher ground ahead of the flood. In the cities, when expected heights warrant it, large quantities of merchandise are removed from store and warehouse basements. In many cases the cooperative climatological observer is also the river observer, and when a major flood gets under way he will need make frequent readings of the changing river level to forward to the Forecast Center. These are necessary in order that that office may know whether or not the river stages are in close agreement with the forecast; and, if not, permit its change in time for necessary precautions to be taken.

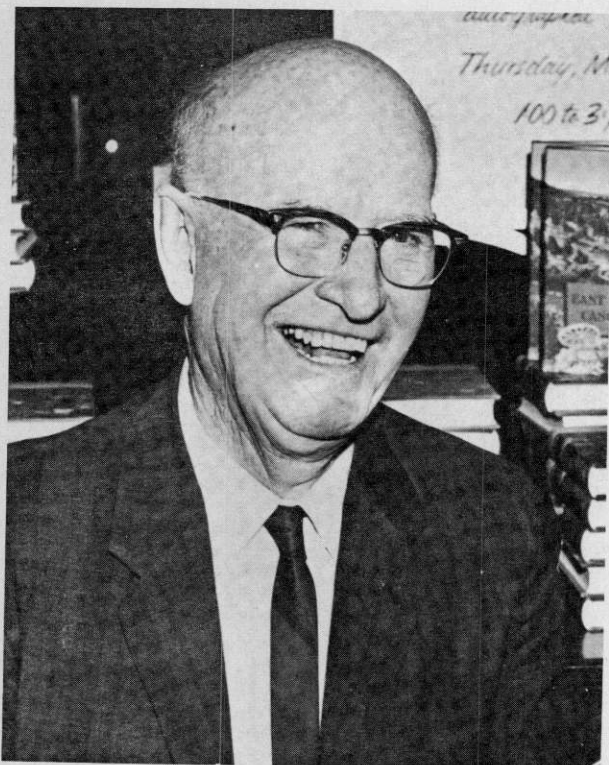
In Oregon, where the climate is one of the greatest natural resources, and yet capable of creating some of the greatest problems, the importance of the cooperative weather observer can never be overestimated. No other volunteer group better or more effectively serve their community than this corps of 300 dedicated people. The records they compile will continue to increase in use and value in proportion to the technical advances made in the State's agriculture and industry.

Phillip F. Brogan

Bend

Author, archaeologist, climatologist, paleontologist, geologist, historian, newspaper editor and civic leader would all combine to only partly describe Phil Brogan, Oregon's senior cooperative weather observer in period of service. He was born at The Dalles, Oreg., on March 23, 1896. After graduating from the University of Oregon he arrived in Bend in June 1923 to go to work for the *Bend Bulletin*. One of the several miscellaneous jobs assigned him was to take the city's daily weather observations for the U.S. Weather Bureau. (Prior to that time the newspaper had been the designated observer with the work being parceled out first to one employee and then another. With Phil's arrival it became a one-man job and has remained so ever since.) In the 42 years since then he has risen to the rank of editor of the *Bulletin*, central Oregon's largest daily newspaper.

Throughout that entire time the Bend climatological record has been forwarded promptly at the end of each month, complete in all details and neatly prepared in Phil's own clear handwriting. During the last 25 years he has maintained a recording rain gage in addition to a full



Phillip F. Brogan

climatological station. These records too have received the same thorough Brogan treatment. In the 12 years, 1937 through 1948, aviation weather service was added to his duties, requiring once every three hours, day and night, that an airway observation be made and telegraphed to a Weather Bureau collection center. On the few occasions that he has been away from Bend, a substitute observer has always been found. A missing observation in a Phil Brogan record is unknown.

When the Weather Bureau inaugurated the Thomas Jefferson award in 1960, Phil Brogan became one of the first observers in the United States to receive it. This is one of his most treasured awards among the several he has received over the years for his contributions in many scientific fields. In June 1961, a "Phil Brogan Day" was celebrated in Bend. Hundreds of people from all over the Northwest, and many points far outside of it and representing almost every facet of major public and private interests, attended to pay honor to this friendly man whose interests and accomplishments are manifold.

In October 1963, at the Charter Day observance at the University of Oregon, he was given the Distinguished Service award for outstanding contributions to the State of Oregon. That same year his very popular book *East of the Cascades* was published. Innumerable articles of his dealing with the geology, archaeology, paleontology, and history of central Oregon have been published. Add to this the fact that he has contributed more than any other one man to the basic climatological information for that part of the State, and it is realized no one better deserves the title of Mr. Central Oregon.

Leonard L. Gilliam

Heppner

Mr. Leonard Gilliam was born in Morrow County, Oreg., on March 12, 1886. As a son of an eastern Oregon pioneer family his roots are deeply entrenched there. Mr. Gilliam, though now a man in his late seventies, is nevertheless a second generation cooperative weather observer. In 1933 he took over the continuation of the observing duties begun by his father, Frank Gilliam, in 1911. Thus, for 54 years the Gilliam family has been the Weather Bureau's cooperative observer for Heppner. This period of service began only 8 years after the tragic Heppner flood of June 14, 1903, in which more than 250 people lost their lives and the entire lower part of the city was destroyed.

Mr. Leonard Gilliam, also like his father before him, owned and operated a hardware store in Heppner until his retirement a few years ago. He has an abiding interest in his community and has always been quick to make his weather records available for their widest possible use. In 1942 a weighing rain gage was added to his full climatological equipment and has remained there ever since. For several years, until the program was discontinued, he was a crop-weather reporter, telegraphing his 24-hour temperature and precipitation record to the Portland Weather Bureau daily throughout the crop season. He has since continued conscientiously to forward a weather and crop card each week for the preparation of the National and State *Weekly Weather and Crop Bulletins*. His monthly records have always been outstanding in their neatness, legibility, and completeness. Few indeed are the observations that have ever been missed. In 1963 he was presented with the Weather Bureau 30-

Year award for his service as a cooperative observer.

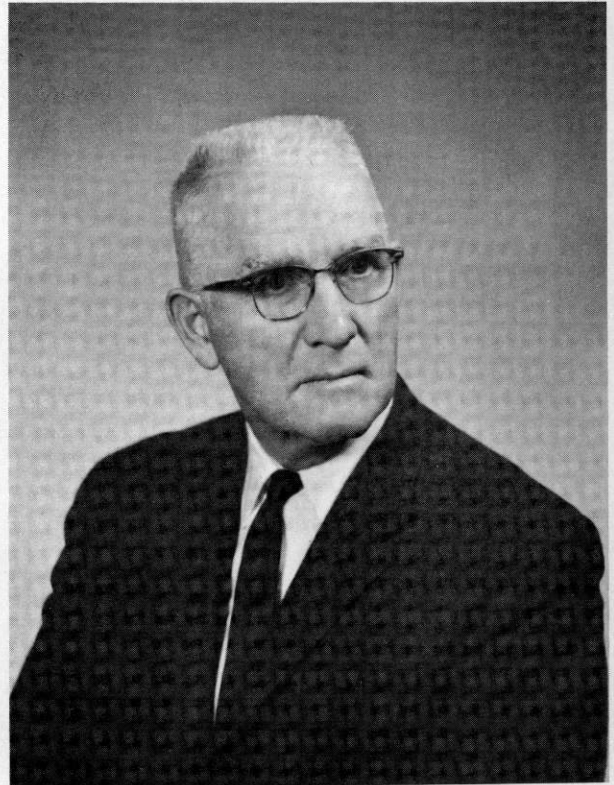
Herbert B. Howell

**John Jacob Astor
Experiment Station**

Herb Howell, the very friendly and efficient Superintendent of the John Jacob Astor Experiment Station, was born at Astoria, Oreg., on October 8, 1894. He graduated from Oregon State University in 1916. In January 1921, while serving as county agent at Grants Pass, he added to his other duties the job of keeping the weather records for that city. He remained as the Grants Pass cooperative observer until the end of 1932. He continued in agricultural research work, and in that field recognized the practical use of weather data in agricultural experimentation. In 1937, as the Superintendent of the John Jacob Astor Experiment Station, he initiated a weather observing program for the experiment station. This was primarily for research purposes; but he furnished copies of his records to the Weather Bureau, and they were published in *Oregon Climatological Data*. This later became an official station of the Bureau and has been one of the most dependable from its very beginning right up to the present time. Mr. Howell's forms arrive promptly after the end of each month, very neatly and legibly prepared and complete in minute detail.

Mr. Howell has a deep, sincere interest in the continuous improvement of crops and livestock. His entire adult life has been devoted to this, and during that time he has held many important positions in the State agricultural program. Significant gains have been made in the improvement of Oregon's coastal dairy herds, their forage and the dairy industry in general during the nearly 30 years he has directed the John Jacob Astor Experiment Station. In addition he has been very active in his community—as member of the Presbyterian Church, the Astoria Kiwanis Club, and Board of Directors of the Clatsop County Red Cross. In this latter position he performed outstanding service in rescue and readjustment efforts during the great 1948 Columbia River flood.

Through the years that Mr. Howell has carried on the cooperative weather observer work, he has given innumerable talks to community and school groups on the weather and its importance in their lives and industry. In 1962, through his whole-



Herbert B. Howell

hearted cooperation, a full evaporation station was added to his regular climatological observing program. These records, too, have been maintained in the same accurate, meticulous, Herb Howell manner.

In 1961, he received the Weather Bureau's award for 35 years of service as a cooperative observer. In 1963, he was 1 of only 23 people in the entire United States to receive the John Campanius Holm award.

Ralph J. Kleger

Clatskanie

Born in Portland, Oreg., on August 2, 1909, Ralph Kleger is the youngest of Oregon's cooperative observers to have 30 or more years of Weather Bureau service. Mr. Kleger takes an active part in many facets of his community life. He was a member of the school board for 6 years, a member of the Farm Bureau, a member of the Board of Elders of the Clatskanie Presbyterian Church and a serious worker in many other worthwhile activities. He operates a very successful dairy and tree farm, including his own



Ralph J. Kleger

sawmill in which he cuts several thousand board-feet of lumber each year.

He began taking weather observations on his farm 3 miles west of the city of Clatskanie in 1935. During the first several years a standard climatological station alone was maintained, but in 1954 a weighing rain gage was added to the Clatskanie equipment. Throughout the station's history excellent records have characterized both services. In 1965 he received the Weather Bureau's 30-year award.

This station is located very close to Clatskanie and is the only station for that area. It is also in the very center of a thriving dairy industry as well as that of several other agricultural and industrial interests. As a result, Mr. Kleger's records come in for a wide range of local uses. Users include heating and air-conditioning interests, contractors, military operations, and agricultural research people. Its proximity to some of the Northwest's greatest stands of timber has prompted extensive use of those records in forest research studies. His climatological observations are regularly made available to the local newspaper and have been a subject of many feature stories. Whatever the need has been, it has always found in Ralph Kleger and his records an excellent source of information.

Mr. Kleger says: "I have been observer at Clatskanie, Oreg., since the station was estab-

lished at our farm in May 1935. During this span of years, besides frequent heavy rains the most outstanding weather phenomena have been the heavy snow of January 1950 which gave us a total of 68.5 inches of fresh snow. On the 15th it lay 27 inches deep and didn't vanish completely till February 12. I well recall the severe unseasonal cold of November 15, 1955, when the temperature dropped to 8° and killed or damaged many trees and shrubs. The windstorm of October 12, 1962, will also be remembered.

"Weather records from this station have been available to the public thru frequent news items in the *Clatskanie Chief*. Records have also been utilized by the local Drainage Districts, the Soil Conservation Service and this was one of three stations whose records were used in the *Study of Oregon's Climate For The Forest Industry* by William P. Lowry in a September 1960 publication. A local lumber company once called on my records to contest the freight charges on a car load of lumber. A gasoline distributor determined his evaporation factor from my records, and they were once even used as testimony in a murder case.

"Being an observer has intensified a natural interest I have always had in the weather and I look forward to continuing for many more years."

Mrs. Lillie M. Wise

Milton-Freewater

Today, Mrs. Lillie Wise, the Milton-Freewater observer, lives within 4 miles of that modern little city. Excellent roads and public transportation are available at practically her doorstep. This has not always been the case. For 22 years of her more than 30 years of service she was the cooperative observer at a station known as Howardville. There was no town or even a settlement. The exact source of the name is unknown, but she and her husband owned and operated a cattle ranch here on a high plateau known as Smith Mountain. This was located in the foothills of the beautiful but rugged Wallowa Mountains, at an elevation of about 3,600 feet and some 12 miles from the nearest post office.

Mrs. Wise is the only one of Oregon's five cooperative observers with 30 or more years of service who is not a native Oregonian. She was born at Leaburg, Ind., on April 12, 1899. She began keeping the Howardville weather records on January 1, 1933. Because of its location in

the headwaters of a major drainage area, this station's records were particularly significant to the Weather Bureau water supply forecasting program. Its remoteness in a very sparsely populated area from which no other weather observations were available further emphasized its importance. Each month during the heavy precipitation season her reports were eagerly awaited both at the Boise and Portland Weather Bureau Water Supply Forecast Centers. Regardless of the weather rarely, if ever, did Mrs. Wise let them down. At the end of many of those winter months the snow was stacked up 2 to 3 feet deep. No vehicle of any type available would move in that area, but Mrs. Wise completed her report promptly on the last day of the month. Her husband would don skis to travel the 2½ miles to a more or less frequently traveled road. Here with luck he would catch a series of rides to the post office some 9 miles farther on. The records, in her neat precise handwriting and complete in every detail, would be among the first to be received at both Portland and Boise—unlike most observers she was making two different mailings.

In 1955 circumstance made it advisable to sell out and move to Milton-Freewater. Shortly thereafter a vacancy in the cooperative observer network occurred there, and once more Mrs. Wise was "drafted." The "soft living" of urban life has not, however, lessened in the least the excellence of her reports or the promptness of their dispatch. There are few, if any, among the Weather Bureau cooperative observers whose record of voluntary public service under most arduous conditions can surpass that of Lillie Wise.

PENNSYLVANIA

Trying to gain a better understanding of the environment in which man dwells has been a favorite subject of interest for untold generations. In Pennsylvania this is well illustrated by the fact that some of the earliest known weather observations recorded in this country were taken in and around Philadelphia during the early part of the 18th century. "Mr. de S." recorded morning and afternoon temperatures at Germantown from November 1731 through October 1732, 45 years before the signing of the Declaration of Independence and 56 years before Pennsylvania joined the Union.

While weather observations were taken by numerous individuals during the mid and latter

1700's, it was not until 1790 that a long and continuous record of temperature and precipitation was begun in Pennsylvania. Mr. Charles Pierce took daily readings at Morrisville in Bucks County from January 1790 through December 1859, a remarkable period of 70 years which has not been equaled by any other observer in the Commonwealth to the present day. At a site only 4 miles southwest of Morrisville (Fallsington) the record was continued by Ebenezer Hance from January 1860 through March 1876 and by Mahlon Gillingham from October 1878 through October 1887, a 94-year period—the longest early weather record in the State.

As the population increased, especially during the latter half of the 19th century, so did the number of weather observers with the result that prior to the establishment of the United States Weather Bureau as a civilian agency on July 1, 1891, a total of 274 observers took observations at 229 stations scattered throughout the State. Since then more than 1,200 have participated in the effort to learn more about the weather and climate within Pennsylvania. The total of nearly 1,500 weather observers, comprising 50 military installations; 73 Federal (other than Weather Bureau), State and local agencies; 168 institutions and private companies; and more than 1,100 individual citizens, constitutes a sizable army of dedicated men and women who over the years have made and are continuing to make a very worthwhile contribution to the field of meteorological observations in Pennsylvania.

Present-day observers within the State, who number more than 300, continue to follow in the traditions established by their predecessors. Many go above and beyond that which is required or expected, sometimes under adverse and difficult circumstances, in order to carry out their designated responsibilities. Yet due to the innate modesty and quiet reserve of the typical cooperator many of these outstanding and interesting experiences are obscured from public view. Those that have come to recent public attention in Pennsylvania include the following:

During the March 1964 floods as in previous floods Mr. Ira Taylor, the river and rainfall observer at Clearfield, continued to take observations once every hour even after being forced to flee his own residence because of high water. After driving some distance to obtain the vital

data he relayed the current information to the Weather Bureau, Red Cross, Civil Defense, and local electric utility companies.

During the January 1959 ice flood Mr. Lester L. Watson was marooned at the Meadville Sewage Disposal Plant where he is employed. Not being able to take the observations he arranged for a substitute to carry on the job and forward the necessary information to the Pittsburgh Weather Bureau Office. On many occasions Mr. Watson has given freely of his own time to make representative water content samplings in and around the Meadville area and has often done this based on his own knowledge of heavy snow cover without the necessity of a request from the Pittsburgh River Forecast Office.

During the January 1959 and March 1963 ice floods Mr. Louis A. Malarkey of Parker devoted considerable time and unusual effort to obtain information regarding the location of ice gorges in his vicinity by walking a 4-mile stretch of railroad track to determine the exact location of these gorges. He then reported this information to the Pittsburgh Weather Bureau Office.

Mrs. Lily B. Garber of Torpedo broke her leg while taking observations on January 9, 1959. Being a very conscientious observer, she immediately arranged to have another member of her family or a hired man take daily observations while she continued to maintain the records and to make telephone calls relaying the data to the Pittsburgh Office. As soon as she recovered she resumed her full duties as observer at Torpedo.

With some observers, family interest in weather observing is so strong that the program is handed down from one generation to the next. Of the presently active observers in Pennsylvania, the Hart family is an excellent example. Mr. George Hart began his weather observing career at Doylestown in February 1915 and continued until his death in May 1959. So well entrenched was the family custom that his son George M. Hart became a cooperative observer at nearby George School in July 1950 and has been serving ever since, nearly 60 years of family service. Because of his experience as an observer and interest in the program, Mr. Hart is a valuable asset to the Neshaminy Valley Watershed Association of which he has been an active member for a number of years.

While numerous observers, both past and pres-

ent, have served for many years, there are now seven of these presently active in Pennsylvania with 30 or more years of service. Following are brief biographical sketches of each of these observers.

C. J. Allen

New Park

Mr. Allen began taking weather observations at New Park August 20, 1924, at the age of 14. He received a 40-year service pin in August 1964 for his long and continuous devotion to duty.

Keith B. Allan

Shippensburg

Professor Allan began taking weather observations on the campus of Shippensburg State College November 1, 1932. In the course of teaching geography at the college, he includes some meteorological and climatological instruction, making use of the weather records he has compiled during his more than 32 years of dedicated service.

Professor Allan says, "The keeping of weather records is an interesting but exacting hobby. People of all walks of life call at nearly all hours to ask about temperatures and precipitation data. This may include data ten or fifteen years old. Insurance, construction and fuel companies are especially interested in this type of data. Because of this I have made many contacts and friends I would not have made without this interest."

Charles W. Bayler

Sunbury

The weather station at Sunbury differs from most of those in Pennsylvania. In addition to the standard temperature and precipitation observations, river readings are also taken from several different types of river gages. The data obtained by Mr. Bayler are reported daily by radio to the Federal-State Flood Forecasting Service at Harrisburg. Mr. Bayler also makes additional reports of river and rainfall data to two utility companies and city engineers when conditions warrant such as during periods of heavy rainfall and/or floods. To reach the river gages Mr. Bayler travels nearly a mile and climbs over a 6-foot wall. He has been doing this almost daily since his service began August 1, 1933. (Mr. Bayler died March 11, 1965 after the above was written.)

Miss Retta M. Crumb

Linesville

In the spring of 1912, Mr. Ralph Ferris, engineer in charge of the Pymatuning Lake Project



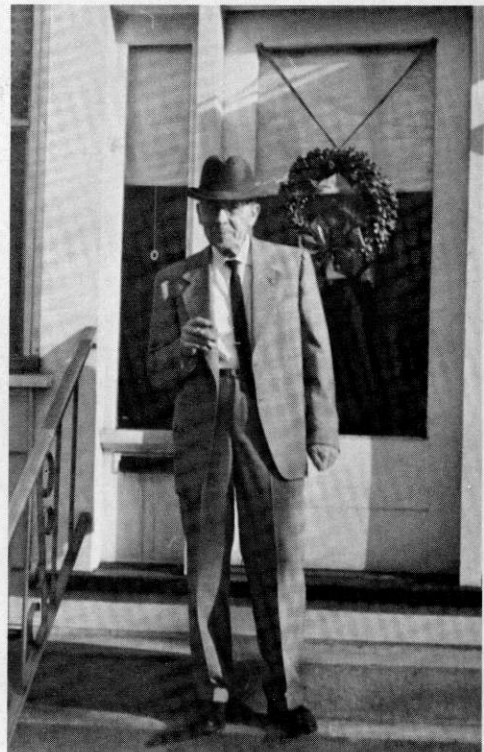
Miss Retta M. Crumb

near Linesville asked Miss Crumb to take charge of reporting weather conditions in the area, reporting rainfall, snowfall, wind direction, character of the day, etc. After 2 years the Weather Bureau took over the program and she has been reporting ever since, an enviable period of more than 50 years. According to her, "Being a Weather Observer has made me weather conscious above most people. I have enjoyed the work very much. Unusual weather conditions have been reported such as severe storms, deep snow and rain. I recall a number of years ago reporting 'snow rollers' in great numbers (snowballs up to 2 feet or more in diameter rolled by the wind). Another outstanding event was 5.28 inches of rain in 6 hours. I am most grateful to the Weather Bureau and to the men in charge of it for the 50-year service pin presented to me before the grandstand full of spectators at the Crawford County Fair August 27, 1964. I am 89 years of age and enjoy fairly good health."

William W. Marsteller

Uniontown

Weather observing at Uniontown is almost a family tradition. Although official weather records date back to 1888 when Mr. William Hunt, father-in-law of Mr. Marsteller, became an official observer for the Weather Bureau, daily records of temperature, character of the day, storms, wind direction, and air pressure extend considerably farther back into history when Mr. Hunt became interested in weather through an



William W. Marsteller

enthusiasm for trout fishing. He served as observer until 1915 when Mr. Marsteller, an optometrist, became the official observer.

During his nearly 50-year tenure as volunteer cooperative observer, Mr. Marsteller has answered many requests for weather data from mining engineers and other individuals. For many years daily as well as monthly data have been summarized by Mr. Marsteller and furnished to the local newspaper. As he has so aptly stated, "It takes a little time to keep the records accurately and make the reports but I feel it is time well spent. In all of my nearly 50 years of service I have not missed a monthly report."

Miss Louise Vetterlein

Paupack

Miss Vetterlein's father was cooperative observer for 18 years prior to his death in 1929. At that time she took over the weather work, thus carrying on a family weather record now 53 years old.

Miss Vetterlein owns a home that is nearly 200 years old and located on a farm purchased by her grandfather in 1876. She is a retired school teacher, is active in civic and religious affairs in her community and is a member of the Order of the Eastern Star.



Miss Louise Vetterlein

She says, "Being a cooperative weather observer is a satisfaction that may be compared in a way to gardening and the fun of finding new growth each day. The gratification of weather recording comes from looking at nature's work, affected by no helping hand. Being able to take nature's measure almost makes the observer feel he is participating in the work of nature. The daily newness of weather stimulates the person who reckons it precisely in universal language such as 0.24 inches of rain. We measure and record an element necessary to all our lives. We announce to the world, which depends on weather, that a certain amount of an indispensable energy form becomes available. These are the satisfactions of recording the weather which I have been doing for 35 years."

Miss N. Dixie Wineman

Derry

The Wineman family is one of those in which weather observing is a tradition. With the exception of a 2-year period, 1922-24, weather records have been kept by members of the family since September 1896 when David Wineman, the present observer's father, began taking observations. Miss Wineman began assisting her father in June 1919 and later her brother Ted, prior to assuming full responsibility in July 1938. The 68 years of record is one that Miss Wineman is justly proud of since it comes from one of the

longest active cooperative stations in the State. She received her 45-year service pin in June 1964.

According to an August 5, 1935, letter found in the files, Miss Wineman wrote that after some heavy rain over about a 72-hour period she measured 7.66 inches before the rain gage was washed away by the current of water flowing through her yard. She retrieved the gage by wading through 40 inches of water after the rain slackened.

PUERTO RICO AND U.S. VIRGIN ISLANDS

The comparative stability of the tropical weather regime in the sunny Caribbean by no means minimizes the important role of the cooperative weather observer in the Commonwealth of Puerto Rico and the U.S. Virgin Islands.

Located in the easterly trade wind zone at the eastern extremity of the Greater Antilles Chain, these hilly islands possess so wide a range of temperature and rainfall variations over such short distances that only through the efforts of some 150 cooperative observers is an accurate gage maintained of the climatic pulse of the area. Annual precipitation for example can vary from 254 inches in the Luquillo Mountains of eastern Puerto Rico to less than 20 inches on the southwestern coast only 60 miles away.

The impact of weather and climate on the economy of these islands is of no small consequence. Despite tremendous strides in industrialization as a result of Puerto Rico's "Operation Bootstrap," agriculture remains of major importance to the island's economy. Sugarcane is the principal crop followed by tobacco, coffee, bananas, and pineapple. Naturally, rainfall is of prime importance to all these crops with a favorable wet-dry season relationship vital for sugar cane. In rainfall-deficient areas irrigation is necessary. In addition to the agricultural problems, Puerto Rico's fast growing industrial community leans heavily on consideration of the weather factor. Air-conditioning and water cooling problems, air pollution sources, plant and machinery corrosion from salt content of the air, all are of vital concern to local manufacturers. The cooperative observer station network has been invaluable in recent years in providing climatic data in support of all these activities. Like his partners to the north the cooperative observer in Puerto Rico serves with

no salary hoping that his contribution may be one more piece toward solving the puzzle of local weather vagaries.

The cooperative weather observer is equally active in the U.S. Virgin Islands some 40 miles to the east of Puerto Rico. The three islands of primary importance are St. Thomas, where the capital is located; St. Croix the largest; and St. John, the smallest. Agriculture is not as important as in Puerto Rico. Only in St. Croix is there sufficient flat land for farming. Here again sugarcane is the lead crop. Pasturage and the raising of cattle, sheep, and goats are other farm activities. Tourism continues to increase. Hotel owners, contractors, and builders are ever cognizant of the water supply problem and constantly turn to the data from the cooperative observer network to gauge their all-important water supply piped from roof top catchments into individual cisterns. In St. John, the home of the new Virgin Islands National Park, the National Park Service has given the program a tremendous boost by providing observers and assisting with transportation and logistical problems.

The usual interesting cross section of people and occupations makes up the cooperative observer network in the Caribbean. Retired business men on lush estates, National Park Service rangers, harbormasters, housewives, hotel managers, agronomists, cattle ranchers, sugar mill workers, hydroelectric employees and many others make their contributions to the program. Perhaps a point of comparison with Stateside networks is that transportation to many of the stations is more of a problem when inspection or maintenance time comes around. For example, to reach St. John it is necessary to take a fast launch from St. Thomas (there are no airstrips) and then, to reach some stations, a further roadless drive by Jeep. In Puerto Rico the mountain stations require several hours of twisting and turning over the interior roads to reach a station 40 miles away.

As for the observer himself, the Caribbean area has its share of old faithfuls as well as a goodly number of "freshmen." Periods of service range from less than a year at the new stations up to 30 years for the old hands. But in general, the service averages between 10 and 20 years. The majority of observers in Puerto Rico are asso-

ciated with either one of the great old sugar plantations or with the Water Resources Authority. Many of the sugar mills "Centrales" have records dating back to the days of the Spanish-American conflict. This rich heritage of data has been guarded and maintained faithfully by the plantation owners who are the first to admit the importance of climate in their sucrose production. In many cases, although on record as an institutional observation, the same employee has been taking the observations for long periods. For example, at Central Coloso on the west end of the island whose record goes back to 1899, Mr. Severiano Flores has been making the observations for over 30 years. For him this is a personal honor and a responsibility even above and beyond his daily job at the sugar mill.

Another outstanding observer in Puerto Rico and a recipient of the 1963 Holm award is Mr. José Carlo Soler of Cabo Rojo who has been with the cooperative program for 23 years. Also meriting special mention is the work of Mr. Luis G. Veray of Toa Baja, Central Constancia, just west of San Juan. Don Luis took over the observations in 1944 from a record dating back to 1899. The Toa Baja station located on lowlands near the La Plata River is often flooded from river overflow. Through the years Mr. Veray has developed a keen understanding of the behavior of this river and is ever faithful in reporting excessive rainfall amounts to the local airport station, day or night. His loyalty and great interest in meteorology earned him the Holm award for 1964.

In the U.S. Virgin Islands the cooperative network is made up of more individuals than institutions as compared to Puerto Rico. The National Park Service is the only large "Institutional" type cooperator other than Harvlan Sugar, Inc., now operating in St. Croix in place of the former Virgin Islands Corporation.

In St. Croix the cooperative program is fortunate to have the enthusiastic interest of a gentleman who has contributed more than his share of time to assure continuous records not only at his own station but also at others on the island. He has often driven miles out of his way to take over for a sick neighbor as well as seeing that good continuity is maintained at some of the institutional stations by training new observers.

An agronomist with the U.S. Department of Agriculture Experiment Station, Mr. Axel L. Frederiksen in many ways has been an unofficial field representative in St. Croix. The following comments recently received from him express the importance of the cooperative program not only to St. Croix but to all the islands.

"Keeping track of the weather in St. Croix is pretty much the national pastime. Since we have only rainfall to water our pastures and crops, and since we catch all our household water on our roofs and store it into cisterns, rainfall in St. Croix is often the subject of more discussion than even sex or baseball.

"Here at the U.S.D.A.'s agricultural experiment station, the data provided by the network of cooperative observers on the island is used in our extension work with the farmers, in helping a prospective home builder decide on the size of his roof and cistern capacity of his home, and especially during our most recent drought—September 1963 to date—in providing a firm basis from which to calculate and justify deficiency payments to sugar cane growers as well as emergency supplies of livestock feed for our cattle, sheep, and goats.

"Actually, our most outstanding cooperators on this island are two ladies: Mrs. Bodil Lawetz of Estate Annaly and Mrs. Asta Parris of Estate Cotten Valley. Neither one makes active and almost daily use of the weather data in their jobs as I do—for them it has been for the most part a labor of love."

Puerto Rico and the U.S. Virgin Islands owe much to these loyal citizens as they keep watch on the tropical wiles of Mother Nature—a task not always performed without self-sacrifice and personal discomfort.

RHODE ISLAND

In contrast to many quickly perishable things in our lives, weather data gain in value with every observation that is added to the record. Long records of weather data are being built up in the smallest of the States. Rhode Island, with a combined land and water area of only 1,214 square miles, naturally has the smallest cooperative observer network of all the States but the quality of its output has earned it a reputation

worthy of its great effort. Weather data in Rhode Island are collected from four cooperative locations and two Weather Bureau sites. In addition to the invaluable contributions from the organizational stations at Kingston and Newport, outstanding cooperative stations operated by private individuals are located in Greenville and Woonsocket. The Weather Bureau owes a particular debt of gratitude to these two faithful cooperative observers for without their records no detailed account of the climate of southern New England would be possible. Here, then, in Rhode Island, is a splendid example of teamwork and service to the public shared almost equally by individual volunteers and government employees.

The observations, in common with those from the other 49 States, are run through a computer in Asheville, N.C. The end product of the computations are publications useful to many corporations and individuals throughout the State. For example, they help farmers and backyard gardeners figure out when they can plant, architects to decide how well insulated a building will have to be to bear up under winter's chill, and towns to estimate how big their snowplows should be. Industries that need certain weather conditions for production can find out where in the State to find them. On the one hand they help predict the need for irrigation equipment, on the other the need for flood control works.

Rhode Island's observers frequently answer inquiries about weather events and furnish information to news media when interesting phenomena occur nearby. Hurricanes, when they come, and coastal storms discourage weather observing but the State's observers are exceptionally faithful in the most tumultuous weather. Telephone calls reporting the occurrence of sudden severe weather are frequently made to the Weather Bureau office in Providence. The resulting warnings have, in the past, saved life and property.

Both of the individual cooperative observers in Rhode Island deserve credit for jobs well done but this publication specifically lists only those with 30 years service. Rhode Island is proud of Edwin K. Marrah, who is more than modest regarding his fine record of almost 34 continuous years as an official cooperative observer.



Edwin K. Marrah

Edwin K. Marrah

Woonsocket

Mr. Marrah says: "My first interest in the weather came about while I was working on the construction of a new sewer plant in 1929. The engineering crew on the job always estimated rainfall amounts. Results showed we were very poor guessers. I decided to find out how precipitation was measured and that was the start of a long career as a weather observer. I officially began as observer for Woonsocket in March 1931 and changed to river and rainfall observer on January 1, 1956. In fact I had been providing high water data to the River Forecast Center since 1936.

"You know, in spite of my long period of record, I cannot remember any one anecdote connected with the job. I suppose that's because there were so many thrilling weather events on so many days. One thing I do know, you would be surprised to learn how many people, after reading my name in the newspaper in connection with readings of rainfall or snowfall, call and ask what the weather is to be that day or the next. Although they've heard the weather forecast on radio or TV they somehow figure I have the correct forecast. So, in spite of the fact that I tell them that I'm not a weather forecaster, they still want my opinion on the day's weather.

"I know one thing—observing the weather is interesting work. Weather's changeability fasci-

nates me. I hope to be observing it for the Weather Bureau for a long, long time."

SOUTH CAROLINA

The economy of South Carolina is constantly changing; spectacularly in some areas, less rapidly in others. Even agriculture, which is still a very important sector in the economy, is shifting its emphasis from some crops to others. All of these changes require research and planning for the success of the new enterprises that move into the State, or old ones that are expanding. Industrial planners, contemplating a move into South Carolina, almost always want to survey the climate of the State to evaluate its potential contribution to the success of their plans. A dedicated group of cooperative observers, over the years, has provided the State and its individual communities with a wealth of information, which can now be used to help in developing a diversified and healthy economy. Additionally, in South Carolina, these observers provide reports which allow the weather services to issue flood and storm warnings, as well as agricultural advices.

At a number of places weather observing is a family tradition, with the duties handed down from one member of the family to another over long periods of time. Examples are the Jeter family at Santuck and the Sease family at Little Mountain, both since 1893; the Brandt family at Walhalla since 1916; and the Gillespie family at Effingham since 1918.

It might also be pointed out that as a by-product of these activities, the voluntary observer is writing a day-by-day history of his community, in which each member may identify his experiences with the kind of weather which accompanied them.

At this time, South Carolina has six cooperative observers who have each served more than 30 years. Short biographical sketches of each follow:

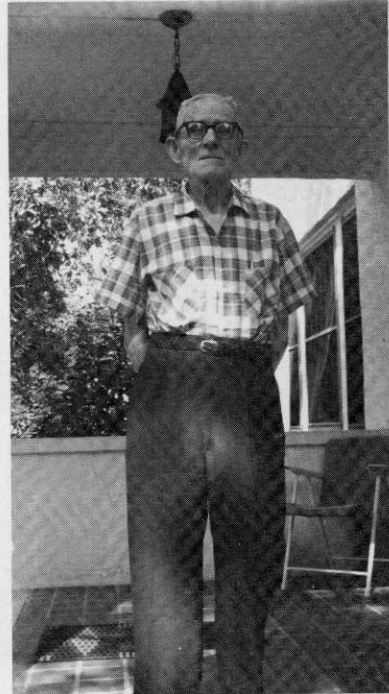
Clyde C. Clark

Caesars Head

Mr. Clyde C. Clark has been the cooperative weather observer at the highest mountain station in the State, Caesars Head, S.C., for more than 30 years. The winters here are the most rugged in South Carolina, but the weather reports have



Clyde C. Clark



Frank B. McCoy



James C. Faris

been as consistent as any. Mr. Clark is to be commended for his devotion to duty under the stress of the mountain winters.

James C. Faris

Catawba

Mr. James C. Faris had served as River Observer from December 1934 to March 1949. In March 1949 the river gage readings at Catawba were discontinued, but Mr. Faris remained as rainfall (river) observer, a function in which he

is currently continuing. His father, Mr. James C. Faris, Sr., was river observer from December 1907 to December 1934. The Catawba station was established in July 1906, and except for a short early period, has been operated by the Faris family through most of its history.

Frank B. McCoy

Aiken

Mr. McCoy began taking observations at Aiken April 16, 1916. Of the currently active observers, his is the longest period of service in South Carolina. He is a spry and lively 82, and seems to be enjoying his many activities. His wife participates in some observational work, furnishing rainfall reports to Charleston for the Edisto River Basin. Mr. McCoy has three children and five grandchildren. He is a member of the First Baptist Church, the Knights of Pythias, and was voted the most distinguished Mason in South Carolina for 1963.

Perry C. Quattlebaum

Conway

Mr. Perry C. Quattlebaum was a recipient of the Holm award in 1962, and has been a river and climatological observer since October 1930. The Quattlebaum family, which includes three brothers, Paul, McQueen, and Perry, and a sister, Marjory, took turns in taking observations from December 1899 to October 1930, when Perry assumed the role permanently. This family has



Perry C. Quattlebaum

been remarkable for their devotion to this work and excellent reports have invariably marked their tenure.

The Quattlebaum family is a very old one that dates back to colonial times. They have always been active leaders in their community. The father of our observers was on the staff of two early post Civil War governors and was the first Mayor of Conway upon its incorporation in 1898. Mr. Perry has been his community's local "weatherman." School children and grownups are always interested in his thermometers and rain gage. He has disseminated educational material such as hurricane and tornado films for the Weather Bureau.

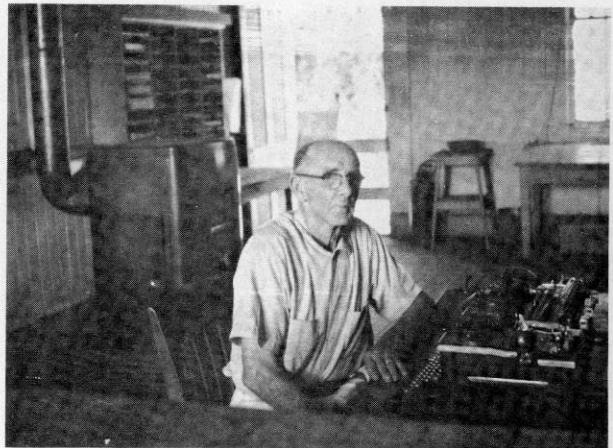
Miss Elizabeth Russell

Anderson

Miss Elizabeth Russell was awarded her 30-year pin by the Weather Bureau in August 1964. On accepting the pin, Miss Russell said, "I am very grateful for the pin. I enjoy being a weather observer. I've had it so long I don't want to give it up. My friends ask me why I don't, I tell them I enjoy it." Last year Miss Russell became the seventh person in South Carolina to receive the John Campanius Holm award, in honor of the service she and her family have rendered. Miss Russell's grandfather on her mother's side of the family, R. B. Dean, was weather observer from 1901 to 1905. Her father, H. H. Russell, took over the station in 1905 until 1934, when Miss Russell succeeded him.



Miss Elizabeth Russell



William E. Spearman

William E. Spearman

Chappells

Mr. Spearman has served as River Observer at Chappells, S.C., since November 1927. He was the recipient in 1962 of the Holm award. He was cited for his unusual diligence in taking and reporting river and rainfall observations, sometimes under hazardous and extreme weather conditions, and for his efforts in disseminating warnings with substantial savings to the community. Mr. Spearman has four children and three grandchildren. He is a deacon in the Chappells Baptist Church, a member of the school board, and a former magistrate.

SOUTH DAKOTA

South Dakota is basically an agricultural State with a climate that is marginal for some of the principal crops. The development of the best crops or best variety of a crop largely depends on climatic information. Therefore, the work of the cooperative weather observers, as a whole, has been very important in the economic development of the state.

An example of a dedicated observer is Mr. Henry Twete who took observations at Victor from 1926 until his death in late 1964. Shortly before his death he said, "The most difficult part of observing the weather is to get the average snowfall and the average depth. My work as a cooperative observer has been interesting and I have enjoyed it very much."

Many of the cooperative weather observers in the State contribute information to their community by furnishing the weather observations to the local newspaper or posting the observations publicly. Mr. S. S. Judy of Forestburg made a special contribution when he prepared for publication *Central South Dakota Weather from 1873-1960*.

A. R. Cox

Redig 9NE

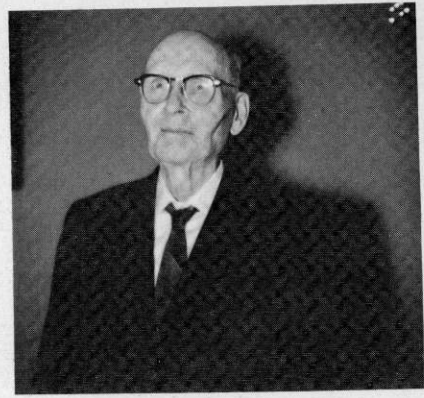
Mr. Cox, a long-time rancher in northwestern South Dakota, kept the weather records near Redig from 1914 to May 1965.

He enjoys good music and reading, especially about general science, astronomy, geology, electronics, and business economics. Mr. Cox comments as follows about his work as a cooperative weather observer:

"I do not recall any unusual incidents or hardships brought on by my cooperative observer duties although there were some uncomfortably cold horseback rides in stormy winter weather to mail the monthly reports. Our ranch house has always been remote from any mailing place. [Editor's Note: Mr. Cox lived 12½ miles from the stage line and therefore had to make a round trip horseback journey of 25 miles to mail his records.]

"It has been a pleasure to serve as a cooperative weather observer. Today's knowledge of weather and climate requires myriads of facts. What is more natural than a desire to contribute a few of these facts? It is very important that we know all that we can about the weather.

"It has been pleasant to occasionally receive



Henry Twete

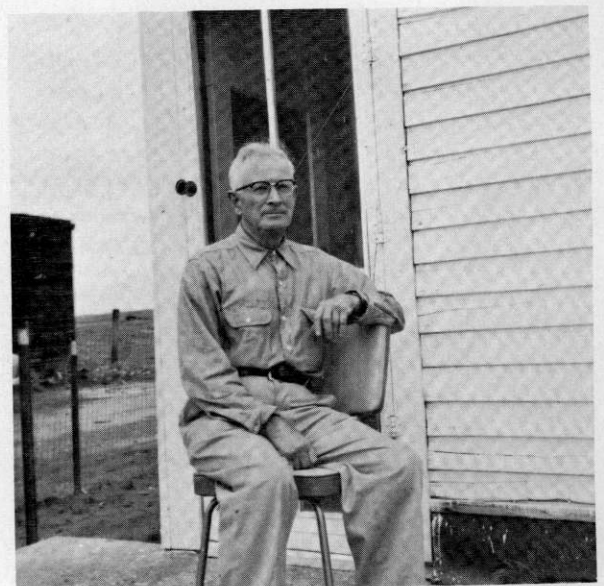
words of thanks from those who translate weather observations into benefits for the people of America, as well as from others."

Ernest E. Gelhaus

Webster

Mr. Gelhaus, farmer and civic minded citizen, has been the official Webster weather observer since 1932. He says, "Even before then I kept weather records for several years for Edgar McFadden, the world known plant breeder who was using our farm as a nursery for his wheat experiments."

Mr. Gelhaus' hobbies are hunting, fishing, playing volley ball, and stone cutting. Mrs. Gelhaus has been of great help to him in taking weather observations, as has his son, Melvin.



A. R. Cox



Mrs. Thomas H. Gillaspie

Mr. Gelhaus comments as follows: "Clouds and precipitation, winds and temperature, fascinate me, as do the other elements of nature. I have concluded that no 2 days are exactly alike, just as no two people are exactly alike."

Mrs. Thomas H. Gillaspie **Midland**

Mrs. Gillaspie, volunteer observer for more than 30 years, came to South Dakota from her home State of Illinois in 1905. She helped prove-up three homestead claims, by living on her father's, her own, and her husband's claims at various times during the homestead year.

Mrs. Gillaspie's son, Thomas, became the official cooperative observer at Ottuma, S. Dak., in 1928 and she succeeded him in 1933. In 1945 the station was moved to Midland where Mrs. Gillaspie has taken weather observations since then.

Hobbies of Mrs. Gillaspie are reading current literature, crocheting, horticulture, and all types of hand sewing. She is the mother of 4 children, grandmother of 13, and great-grandmother of 3.

S. S. Judy **Forestburg**

Mr. Judy, observer since 1910 at Forestburg, was born in 1888 on the farm on which he has lived ever since. A civic-minded individual, Mr. Judy has served on many local and community committees and was a member of the State legislature in 1925 and 1927.

Mr. Judy says, "My primary hobby is recording weather data, and I have collected weather records for this community dating back to 1873. It gives me great pleasure to give out weather information to interested parties. I also collect



S. S. Judy



Wm. Lammle

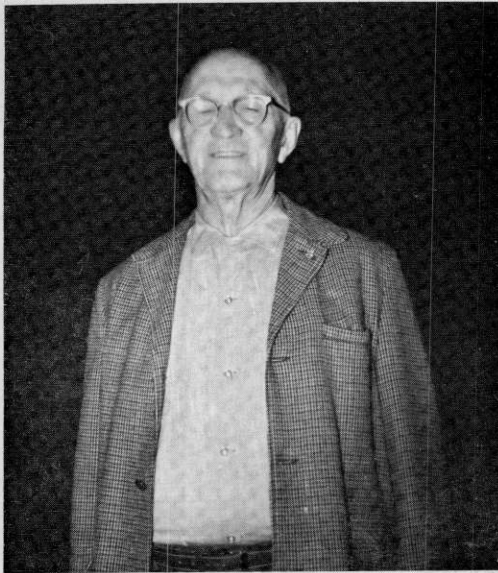
pioneer articles and have upwards of 100 items at present.

"I have gathered information about the pioneer days and compiled it into a publication that contains 74 pages of weather data, including the drought of the early nineties, when fields were seeded, but there was no crop to harvest."

Wm. Lammle **Roscoe**

Mr. Lammle, weather observer at Roscoe, has also served in various capacities in church and community affairs, and helped prepare a history of the vicinity for Roscoe's Diamond Jubilee.

His hobbies are gardening, particularly flower raising, reading, bowling, but most of all, watching the weather. Mr. Lammle says:



Arthur Suess

“Our weather station was started here on December 1, 1934. Since then almost 500 inches of precipitation has fallen. Our greatest daily rainfall was on June 19, 1964, when 4.25 inches fell in 2 hours. The worst windstorm during the past 30 years came on July 21, 1964, when wind velocity reached some 80 miles per hour and there was much damage to buildings in town and on farms.

“One of my rewards for being a cooperative weather observer is that I am able to give out reliable weather data and settle arguments about how cold, how hot, or how wet it was. The U.S. Weather Bureau renders an important service at a low cost to the American public.”

Arthur Suess

Menno

Mr. Suess, a long-time weather observer in Menno, was born there in 1888 and has lived in Menno all of his life except for 6 years in the Navy. He has served on many responsible civic and community committees and was recently re-elected for another term on the Board of Education of Menno School District No. 2.

Mr. Suess' hobbies are hunting, fishing, and sports of all kinds. He played baseball for 15 years, and served as umpire for 30 years. He says: “It has been a pleasure for me to serve as a volunteer observer for nearly 37 years. The work has broadened my education regarding the

weather and climate. I hope that, when I lay down the reins as cooperative observer, a good replacement may be found so that the Menno weather records will be continued.”

TENNESSEE

Tennessee, since the early days of the Republic, has contributed its share of conscientious, tough, courageous, industrious, civic-minded individuals ready to serve the Nation, State, community, or fellow citizen. This has been particularly true in regard to the corps of voluntary weather observers some of whose records date back prior to the Civil War. More requests reach the Weather Bureau in Tennessee each year from persons wanting to take weather observations, without pay, than can be used in some locations.

The group of dedicated individuals taking daily weather observations has gone about their task through the decades steadfastly compiling a series of continuous records encompassing climatic conditions in the State reaching from the Mississippi River in the west to the Unaka Mountains in the east. These records have answered many questions about the weather and climate in the past and will continue available for future uses. Some of the observations of rainfall and river stages have been telephoned to full time Weather Bureau offices and used to make forecasts and operational decisions on the spot before assuming the role of historical weather records.

Several observers in Tennessee have shared their enthusiasm for recording nature's weather events with other members of their families. As a result, high quality records have been continued to be kept by the same families for long periods of time. Some notable examples of the work at a particular location being passed on from one generation to the next deserve individual mention.

Mrs. Gertrude Woods has continued since August 1905 the weather records that were started by her father, R. S. Montgomery in 1883. A brief biographical sketch of this remarkable person appears below.

Mr. Thomas Fleming has been observer at Ashwood for over 25 years continuing a family record that started officially in 1883, and unofficially in 1856. He received the Holm Award in 1960.

Mr. Edgar M. Babb, observer at Newport, is carrying on a series of observations for the Weather Bureau started in January 1914 by his father, the late Carl M. Babb, who began reading the river gage for the U.S. Engineers in 1902. After acting as substitute for some time the son took over the job of observing in January 1960 and has done an excellent job in continuing this very good climatological record.

Several other observers are continuing family records which have run for various lengths of time. In other cases members of the family act as substitute observer during the absence or illness of the regular observer.

No acknowledgement of services rendered by cooperative weather observers would be complete without tribute to the many private institutions and government agencies that have made such a large contribution to observational work. Many of these have had a direct interest in the data like the Tennessee Valley Authority which has compiled such a wealth of detailed rainfall data for more than 25 years. Other governmental organizations making a sizable contribution have been the U.S. Corps of Engineers, the U.S. Fish and Wildlife Service, the National Park Service, the University of Tennessee Experiment Stations, and many city governments. The Tennessee Copper Company at Copperhill has kept accurate records for over 50 years and several other private concerns have contributed many years of records.

Weather records made by cooperative observers have met with a multitude of uses in Tennessee and their full use still has remained largely unexploited. In planning and design of the many multipurpose structures creating the many large lakes in Tennessee, climatological data has played a major role. Inadequate structures would not have alleviated the danger of floods while over-construction would have been vastly expensive. This is but one example of the many uses of climatological records.

Agriculture, construction, health, transportation, recreation, and many other aspects of the economy utilize the knowledge of the climate gained from a long record of observations. The problems answered by these data in Tennessee are too numerous to mention and range all the way from determining the location of a major industry to deciding what clothing to wear. Scores of



Mrs. Gertrude M. Woods

requests are received for climatological information or records each month from engineers, scientists, attorneys, salesmen, architects, contractors, Federal, State, and local government agencies, insurance companies, railroads, trucking firms, health agencies, and many other organizations and individuals.

Ben P. Hazelwood

Jackson

Mr. Hazelwood has been observer since October 1929 at Jackson, Tenn. This appointment followed his assumption of the job as Superintendent of the West Tennessee Agricultural Experiment Station. Recording of the weather has been a part of the experiment station's operation since 1909, first under the supervision of the Superintendent S. A. Roberts until 1929 and since 1929 under Mr. Hazelwood. During recent years the equipment and records have been greatly expanded at the station. Mr. Hazelwood is very active in charitable work.

Mrs. Gertrude M. Woods

Palmetto

Mrs. Woods will be 92 on October 9, 1965. She is in reasonably good health, has good hearing, and reads without glasses. She has completed her 60th year as a weather observer, thus continuing

a record started by her father, R. S. Montgomery in 1883.

She was presented the John Companius Holm award in June 1960, and the Thomas Jefferson certificate in 1965. In July 1965 she received a letter of commendation from President Johnson for 60 years of observing the weather. She proudly wears what she calls her "4 Star Badge" which consists of four honorary pins: 1. Life membership in Tennessee Congress of Parents and Teachers, 2. Life membership in Womens Auxiliary of Presbyterian Church, 3. 50-year pin as U.S. Cooperative Weather Observer, 4. 25-year pin in Order of Eastern Star.

In 1927 when the American Meteorological Society met in Nashville, Mrs. Woods read a paper entitled "Duties and Experiences of a Cooperative Observer." In connection with the meeting, the *New York Times* published the story of Mrs. Woods as a special feature.

TEXAS

The first weather observers in Texas were the Spaniards who established and maintained the missions in extreme West, South, and East Texas between 1682 and 1800; and the Anglo-Americans who colonized South, Central, and East Texas from about 1821 to 1850. Usually without instruments, and without guidance, these early settlers realized the importance of describing the weather in their logs, journals, and diaries along with other miscellaneous but pertinent data. While these early documentations of Texas weather are somewhat piecemeal and confined mostly to a description of the unusual or severe weather, nevertheless they constitute a valuable contribution to the climatic history of the area.

The first organized approach to the keeping of weather records in Texas came with the establishment of a large number of military posts across the Texas frontier between 1840 and 1860. The earliest of these records are from Fort Houston in Anderson County, near the present site of Palestine. Maximum and minimum temperature, and precipitation observations were taken from January 1842 to January 1868. Many of these military outposts were maintained only a few years, others lasted until the outbreak of the Civil War in 1861, while a few lasted until settlements were sufficiently well established for civilian observers to take over the task of observ-

ing the weather and thus maintain a continuity of record to the present day.

A settlement on Saint Joseph's Island, offshore from Rockport, maintained rainfall records from April through October 1846, while the early settlers of Fredericksburg began a systematic recording of temperature and precipitation in August 1849. By 1855 there were 21 weather stations in Texas for which data were published by Blodget. (L. Blodget, *Climatology of the United States*, Lippincott & Co., Philadelphia, 1857, 536 pp.)

Two early educational institutions contributed to the climatological history of Texas. Larissa College, near Jacksonville, took observations from January 1858 to December 1859, and Parsons Female Seminary, at Webberville (near Austin), from January 1859 to April 1861. Texas Agricultural and Mechanical College began temperature and rainfall observations in May 1882, and these have been continued, except for a few breaks, through the present day.

From 1873 to 1891 the increase of civilian weather observers in Texas closely paralleled the rapid economic development and population growth during this period. By the time the Weather Bureau was officially established as a part of the U.S. Department of Agriculture in 1891, a hard core of volunteer observers was ready and waiting. By 1890 there were about 80 active weather stations in Texas, more than three-fourths of which were manned by volunteer civilian observers. In the period following Reconstruction, many small communities were established, but failed to survive and develop. Settlers moved around a lot. These facts are reflected in the weather records and the brief tenure of many of the observers. Few observers stayed on the job for long periods of time prior to about 1900. A notable exception was Mr. C. Runge, who served as weather observer at New Ulm for more than 20 years, from July 1872 to December 1892.

One of the most remarkable records of weather observation in Texas was established by the Earle family at Hewitt, in McLennan County. Maj. I. H. Earle began taking and recording weather observations on his ranch near the present site of Hewitt in May 1879. On his retirement in January 1916, after nearly 37 years as an observer, his daughter, Dr. Hallie Earle, continued the

work until her retirement in April 1963. Father and daughter account for 84 years of weather records at Hewitt. This station is the oldest continuously operated station in Texas.

Other early cooperative observers with truly outstanding records are Mr. John Carter, who served for 48 years at Luling, from October 1893 to November, 1941; Mr. W. Y. Barr who served 49 years at Huntsville, from May 1, 1889, to September 30, 1938; and, Judge H. E. Haass, who served 52 years at Hondo, from April 1899 to March 31, 1951. At Stephenville officers of the First National Bank purchased a rain gage, and made daily rainfall observations for 47 years, from January 1, 1895 to April 30, 1942. There were 11 cooperative observers in Texas who began service before 1900, and who continued in this capacity for 30 or more years.

By 1900 there were 111 weather stations in Texas, and by 1910 this number had grown to 180. Most of these were cooperative stations. The number increased to 216 by 1920 and to 251 by 1930.

After 1900 several cooperative observers have long and distinguished records. Mrs. Pearl Smith served nearly 54 years at Brownwood, from July 1905 to April 1959; Mr. Michael Kangerga was the cooperative observer at Henderson, from July 1, 1908, to June 29, 1962, a span of 54 years; while Mr. W. S. Ownsby served 47 years at Cleburne, from August 1913 to January 20, 1962. Mr. Kangerga was presented the John Campanius Holm award for his outstanding accomplishments in the field of meteorological observations on July 6, 1960, the first cooperative observer in Texas to receive this high honor.

Among the observers currently active in the cooperative program, two have served more than 50 years. Mr. R. M. Jones, at Clifton, began taking weather observations in February 1911 and now has more than 54 years to his credit. Mr. J. J. McMickin, at Memphis, began as observer in April 1907, and has now served continuously for 58 years. Mr. McMickin has served as cooperative weather observer longer than any individual in Texas, past or present.

From its modest beginning, the cooperative observer program in Texas has now grown to include several hundred observers. The size of this number is, in itself, a tribute to the people of this State who are willing to give unselfishly so much

of their time in service to their community and to their Government. It also points to the fact that the entire climatological program for Texas is dependent upon the cooperation of these volunteer weather observers for its success.

At a number of Texas weather stations, the cooperative program has been largely a family affair. The records of the Earles (Hewitt), the McClearys (Honey Grove), the Newmans (Mexia), the Koenigs (Runge), and the Kenedys (Sarita) are detailed below. Two other families with long records of active participation in the cooperative program for more than one generation are the Stevens family at Coleman, and the Hubbard family at Kaufman.

Mr. J. E. Stevens took over as weather observer at Coleman, June 1, 1910, and this work has remained in his family ever since. Mr. Stevens served until his death in 1916 and his wife continued the records until her death in 1925. Their son, Mr. W. J. Stevens, took over the work and served until his death in January 1963. Mr. W. J. Stevens is succeeded by his daughter, Mrs. Mary A. Stringer, the present observer. Mrs. Stringer is assisted in this work by her sister, Mrs. Frances Dibrell.

61 years of observations have been taken by the Hubbard family at Kaufman. Dr. B. J. Hubbard became the cooperative observer, June 1, 1904, and served to March 1922. He was followed by his daughter, Miss Bertha Hubbard, who served to July 1924. Dr. Hubbard's son, Frank V. Hubbard took over the work and continued as cooperative observer until his death in August, 1961. His wife, Mrs. Lillian A. Hubbard, assumed the observational duties at that time, and is the present observer.

Harry Allen

Mr. Allen began his duties as a cooperative weather observer, March 8, 1935. He is a long-time resident of Goldthwaite, and is in the sheet metal and plumbing business. Prior to 1941 he served as Superintendent of the City Water Department.

Roy Lee Black

Mr. Black began taking rainfall observations at Crowell on February 1, 1932. He is a long-time resident of Crowell with interests in banking, farming, and ranching. Mr. Black is Vice President of the Crowell State Bank, and a former member of the Crowell city council. He has two children, both married, and three grandchildren.

Goldthwaite

Crowell

Mrs. Veda Daugherty**Seymour**

Mrs. Daugherty has been taking weather observations at Seymour since August 1925. During this 40-year period she has recorded temperatures ranging from 120° F. [the highest official temperature of record in Texas] to 14° F. below zero. Mrs. Daugherty was born Veda Carolyn Shawver, in Mesquite, Tex., on August 4, 1891, and with her parents, moved to Seymour at the age of 15. She married Claude Daugherty on February 13, 1917. Her principal hobbies are flower gardening and collecting odd pieces of china and crystal.

Carl J. Hagen**Gonzales**

Mr. Hagen has been keeping the rainfall records at Gonzales since October 1, 1929. He also reads the river gage on the Guadalupe River at Gonzales, and reports the river stage to the San Antonio River District Office. Mr. Hagen was born in Hamilton County on May 30, 1901. He started work with the Central Power and Light Company in 1927 as Power Plant Operator and is now the Chief Operator. His hobby is electrical work, and he is active in civic affairs.

Pat D. Holt**Gatesville**

Mr. Holt has been keeping temperature and rainfall records at Gatesville since February 1, 1935. He was born August 26, 1887, in Royse City, Rockwall County, Tex., and came to Gatesville in April 1906. Mr. Holt joined the U.S. Army in 1918 and served at Camp Travis, Tex., and at Sheridan, Ala. He purchased the *Gatesville Messenger and Star-Forum* in 1925, and continued in the newspaper business until his retirement on January 1, 1957. Mr. Holt married Miss Katherine Mayo in 1919, and they have one son.

R. M. Jones**Clifton**

Mr. Jones has been an official Weather Bureau cooperative observer at Clifton for more than 54 years. He received a diamond 50-year-service pin in 1961, and was presented the John Campanius Holm award for outstanding accomplishment in the field of meteorological observations, November 7, 1962. Mr. Jones was the second cooperative observer in Texas to receive this high honor.

Mr. Jones was born in Alabama on February 3, 1881, and moved to Texas in 1884. He states that, "My father was a close observer and predictor of the weather, and from him, I got my

**R. M. Jones**

first interest in the weather when I was just a beginner in school."

In 1891 Mr. Jones began to keep his first weather records, and in January 1896, he began to keep records in an almanac. He moved to his present location 9 miles east of Clifton in 1906. Mr. Jones received his appointment as Weather Bureau cooperative observer in February 1911.

Mr. Jones reports that, "More than 20 inches of rain fell from June 28 to July 3, 1899. This is the most rain I have ever recorded at one time. The year with the most rainfall was 1919, when I recorded 63.24 inches. In late December of 1929, 29 inches of snow fell. February 12, 1899, was the coldest day of any time since I have kept records. It was 10° below zero in the house."

Mr. Jones comments further, "I have always liked to study the weather, and it has been a hobby that I have enjoyed. The compensation that I have received for keeping records for the Weather Bureau is a feeling of useful cooperation."

Mrs. John G. Kenedy, Jr.**Sarita**

The Kenedy family, owners of the La Parra Ranch, Sarita, Tex., have been responsible for the weather observations at Sarita since the station was established, March 1, 1899. Mr. John G. Kenedy was the official observer from this date to February 1934. Two of his employees, Otto Reichel and Jesse Thornham served as observers during much of this time. Mrs. Elena S. Kenedy,

wife of John G. Kenedy, Jr., took over as cooperative observer, March 1, 1934. Prior to becoming an official cooperative observer, Mrs. Kenedy helped her husband and father-in-law keep the record of precipitation on the ranch.

Mrs. Kenedy relates, "I took over the duties as cooperative observer because there was no one else on the ranch to do it, and I must say it has proved interesting to me, particularly during the hurricane seasons.

"I have enjoyed being a cooperative weather observer, and find all the personnel most friendly and agreeable."

R. J. Klump

Muleshoe

Judge Klump has served as cooperative weather observer at Muleshoe since the establishment of the station on August 1, 1921. He was born at Oxford, Iowa, on March 12, 1883 and lived on a farm there until January 1909, at which time he settled on a 320-acre farm in Bailey County, Tex. During the following 10 years he lived on this farm, which he had developed from virgin prairie. In January 1920 he moved to Muleshoe as County Judge, in which capacity he served for 4 years. Judge Klump also served a number of years as City Clerk at Muleshoe.

Mrs. Paul F. Koenig

Runge

When Mrs. Koenig took over as weather observer at Runge, Tex., on February 1, 1933, she assumed the work of a cooperative effort that began there on March 1, 1895. Weather observations were taken by the firm of Reiffert and Tips, later changed to Reiffert and Frobese. Mrs. Koenig reports that, "Possibly the greatest service rendered to the community by this firm was the receipt and posting of cold wave warnings received from the Weather Bureau office in New Orleans. Telephones were then used to relay these warnings quickly to the whole community. This service was discontinued with the advent of radio." A 1925 photograph of the Reiffert and Frobese store shows a cold wave warning posted on the front porch of the building.

Mrs. Koenig was born on a farm south of Runge, in Karnes County, in 1896. She was educated in the Runge Public Schools, and after graduation in 1915, she taught school for 6 years. In 1921 she married Paul F. Koenig who was also a native of Runge.

Mrs. Koenig assumed the job of cooperative



Mrs. Paul F. Koenig

observer with a deep feeling of pride and responsibility since she was continuing the work of her husband, Paul Koenig, who had measured the rainfall and kept the weather records for the firm of Reiffert and Frobese.

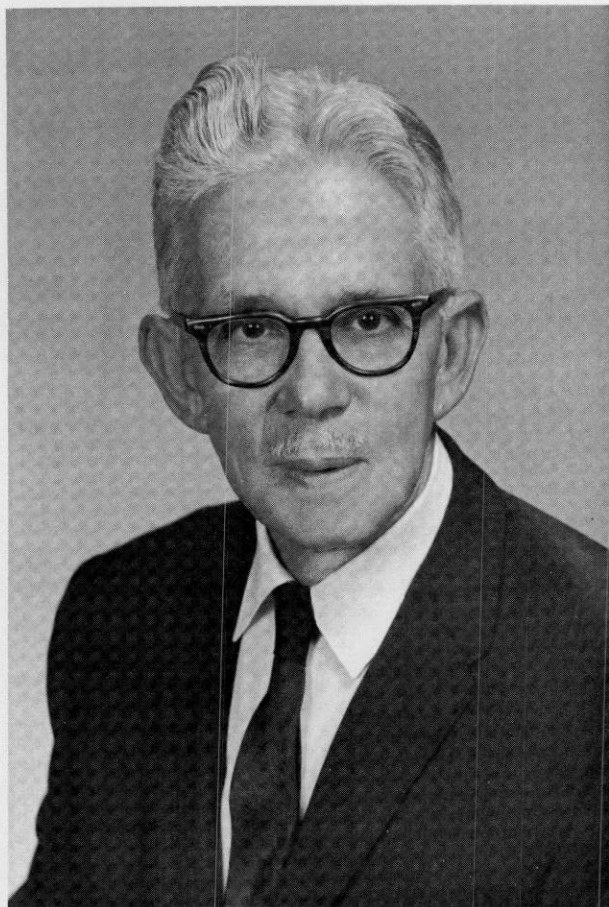
Mrs. Koenig reports that there have been floods, droughts, hurricanes, tornadoes, heat waves, and severe cold, but that these are all unusual and that ordinarily, Runge is a pretty nice place in which to live, weatherwise.

She writes, "I now have my 30-year pin, which to me symbolizes personal satisfaction in having been of service to the Government in interpreting and reporting the weather."

Robert M. Laperouse

Sugar Land

Mr. Laperouse has been taking weather observations at Sugar Land since March 1, 1925, and is the senior cooperative observer in the Upper Coastal area. Mr. Laperouse, a veteran of 47 years in the sugar industry, has been employed by the Imperial Sugar Company since January 26, 1924. He began his employment as an assistant to the Chief Chemist. Later he became

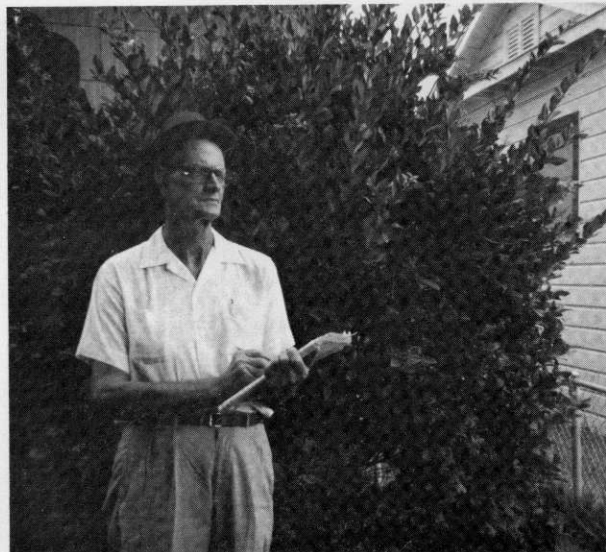


Robert M. Laperouse

Chief Chemist, and in June 1952, he was promoted to the position of General Plant Superintendent. He was promoted to Plant Manager in 1955, and in March 1964, he was elected Vice President—Refinery Operations.

A native of New Iberia, La., Mr. Laperouse was born September 23, 1897. He began his sugar career in that State, where he worked for several plants, before going to Cuba for 2 years. In Cuba he was employed by the Guantanamo Sugar Company as a chemist.

Mr. Laperouse is very active in both professional and civic affairs. His hobbies are stamp and coin collecting, fishing, gardening, and photography. Mr. Laperouse states that, "As a cooperative observer, I have had the elements to contend with in taking observations, as well as other disagreeable situations, such as slippery icy conditions, snow, heavy rains, hail, ants, wasps, bees, and on one occasion a snake daring me to come near the rain gage.



Thomas E. Lewis

"My helping the Weather Bureau in predicting the weather in the future, and helping the farmers and builders in this area is ample reward for my service to the Bureau."

Thomas E. Lewis

Liberty

Mr. Lewis moved to Liberty in 1925 and began his service as a cooperative weather observer, January 26, 1933. He has continued this work without a break in service throughout these years. Whenever it was impossible for Mr. Lewis to record the data personally, there was always a member of his family or a friend to assist.

On many occasions he has been helpful to farmers, stockmen, and fishermen by notifying them of danger from floods. In 1942 he led in moving people and livestock from the low lands during a very damaging overflow of the Trinity River.

Mr. Lewis recalls, "I went in to move an old colored man from his home in the river bottom. The water was over waist deep in the house. We loaded the furniture in my boat, including a chest of drawers that was floating around in the room. When we reached land we found a 3 pound, live big-mouth black bass in one of the drawers."

About his work as an observer, Mr. Lewis writes, "There has been a lot of satisfaction of knowing that I could be of service to my community and to my Government by serving as cooperative weather observer."

Richard M. McCleary**Honey Grove**

Mr. McCleary has been cooperative weather observer since August 1, 1924. He took over the job from his brother, Mr. G. W. McCleary, who was the station's first observer after its establishment in March 1916. Thus the keeping of weather records in Honey Grove has been a family affair. Mr. McCleary is a banker, and has been very active in the civic affairs of his community.

He writes, "I have enjoyed keeping the record of the rainfall of Honey Grove for approximately 40 years. I think that it is very important to have the record of rainfall kept, especially for agricultural purposes. I have always tried to cooperate with the Bureau and furnish them any information requested at all times.

"I want to assure you that I hope to complete a 50-year record, as your cooperative weather observer, and more if possible."

J. J. McMickin**Memphis**

A cooperative weather station was established at the Fort Worth and Denver Railway station in Memphis, Tex., in July 1905. Mr. McMickin, at the age of 16, went to work at the station office in December 1906. Four months later, in April 1907, the station agent gave him the job of keeping the weather records, which he has been doing continuously ever since for a total of 58 years. Mr. McMickin has already served as a cooperative weather observer longer than any person in Texas either past or present. He is now 81 years of age and still attending to his daily observational chores.

Mr. McMickin treasures a 50-year service pin from the U.S. Weather Bureau, a 50-year pin from the Masonic Lodge, and a 57-year pin as an employee of the Burlington Railway. He retired from the railroad in December 1963.

Mr. McMickin adds this bit of philosophy about his long service as a cooperative observer, "My years have had many pleasures, and I consider these pleasures my pay. In dollars and cents, the pay has been small but the trust and honor large. We all are honored by how useful we have been."

Miss Josephine Newman**Mexia**

Observations at Mexia have been taken by the Newmans (father and daughter) since August 1904. Miss Newman first began taking weather observations in May 1909 upon resignation of her father, Mr. Isidore Newman who had served

**J. J. McMickin**

from the time the station was established in August 1904. Miss Newman continued as observer until June 1913 at which time she moved to Dallas, and her father again became the local observer. Because of illness in her family, she resigned from her position in Dallas and returned to Mexia. She resumed her weather observational duties there on November 1, 1921.

H. N. Patterson**Taylor**

Mr. Patterson has been the cooperative weather observer at Taylor since August 1933. A Weather Bureau office was established at Taylor on November 13, 1901. In 1933 the regular Weather Bureau employee, Mr. E. W. Torrance, was given a new assignment, and Taylor was made a cooperative weather station. Mr. Patterson volunteered to take over the job without pay, and has been the official weather observer at Taylor ever since. While Mr. Patterson has recorded a variety of weather since he became an observer, the event he recalls the most is the rainstorm that occurred September 9-10, 1921. 23.11 inches fell at Taylor within a 24-hour period. Nearby Thrall, Tex., received 38.20 inches, at that time an all time United States record for a 24-hour period.

Mr. Patterson is in the insurance and loan business. When vacation time rolls around, one

of his secretaries or a friend reads the instruments and records the data.

Edwin Ramey

Dimmitt

Mr. Ramey has been the official weather observer at Dimmitt since January 1923; however, he was keeping unofficial records of the rainfall on his ranch near Dimmitt as far back as 1911. Mr. Ramey was born in Alto, Tex., on January 14, 1890, and moved to Dimmitt in 1902. His hobby is wild Canada geese. He states that it required 17 years for him to get a wild goose to lay eggs at his ranch, but that one or more has nested there each year since that time. His friends call him "Goose" Ramey.

G. H. Spiser

Eden

Mr. Spiser became the official weather observer at Eden, in Concho County, April 1, 1935. Besides recording temperature and rainfall for the Weather Bureau, Mr. Spiser also serves as a cooperative observer for the Lower Colorado River Authority, a state agency.

R. R. Traylor

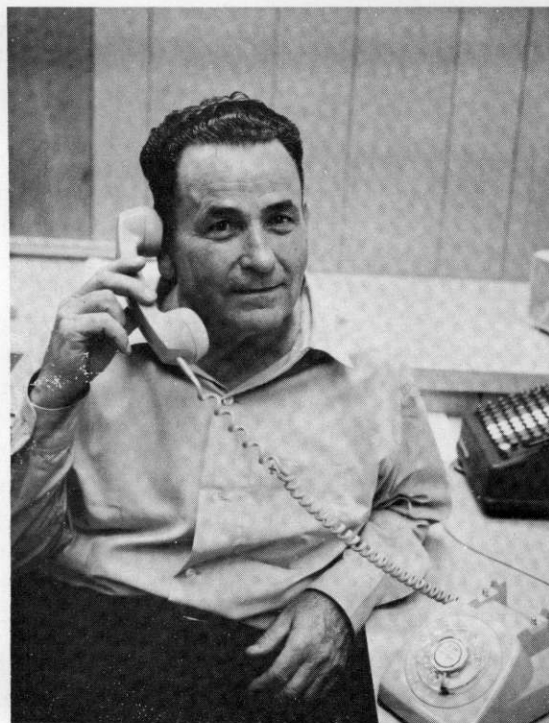
Matagorda

Mr. Traylor has been cooperative observer and storm warning displayman at Matagorda since May 1, 1926. He is a native of Matagorda, born on March 16, 1903. Mr. Traylor attended Austin College and Texas A. & M. University. In addition to his interest in weather, his hobbies include wildlife studies. Mr. Traylor has experienced a variety of weather since he began his observational career, but hurricane Carla (September 1961) is probably the lady he will remember the longest.

Ruby J. Welch

Naples

Mr. Ruby J. Welch, better known by his friends as "Rube," joined the corps of cooperative weather observers in December 1934 while living in a three-room frame house on the banks of the Sulphur River in Bowie County, Tex. "Rube" measures both rainfall and the river stages of the Sulphur River. Twice Mr. Welch was forced out of his home by floods. In 1938 the water rose to a depth of about 3 feet inside his house. Then in 1945, the river flooded and crested at 37.60 feet, an all-time record, but not before Mr. Welch's house and furnishings were washed away. Enough lumber was recovered from the destroyed house to build a one-cow barn. Some of the household furniture was found along the river bottoms including a \$500 Government savings



Ruby J. Welch

bond which was in a picture frame that had been hanging on a wall.

At one time, when telephone service was about to be discontinued along the 5 miles from the Sulphur River to Naples because of the lack of subscribers on the line, Mr. Welch bought the telephone line and maintained it himself for several years.

Mr. Welch was forced from his riverside home a third and final time when his homesite was needed for additional highway right-of-way. This time Mr. Welch moved to Naples, some 5 miles west of the Sulphur River. Since that time he has commuted from his home in Naples daily in all kinds of weather to read the gage and report the rainfall and river conditions.

In 1963 a nostalgia for the river country which he loved so well prompted Mr. Welch to build a cabin on the Sulphur River not far from where he and his wife raised their family of five children. Although he continues to live in Naples, he, his family, and friends visit the cabin where they enjoy hunting, fishing, fish fries, squirrel stews, and just plain relaxing.

Throughout the area, Mr. Welch has furnished information which enables cattlemen to evacuate their cattle from the river bottoms and sportsmen to make their plans for hunting or fishing.

He says that, "through the years, the job of observing the weather has turned into a matter of pride in service and a personal satisfaction."

UTAH

Saturday, July 24, 1847: "There was a thunder-shower [toward evening another writer says], and it rained over nearly the whole valley; it also rained a little in the fore part of the night. We felt thankful for this as it was the generally conceived opinion that it did not rain in the valley during the summer season."—Diary, Wilford Woodruff. This is a report of weather in the Salt Lake Valley, written on the day the pioneers first entered the barren desert of the Great Salt Lake.

These diaries might be considered the beginning of the cooperative observer program in the west. While instruments were not available and there was no coordinated program of collection, such as exists today, the information recorded is our only source of information on climatic conditions during that period of time.

These early observers, like those of today, had a good sense of humor and maintained it as they adapted to the rigors brought on by the vagaries of climate in this new land. In the autobiography of another early pioneer, Parley P. Pratt, we find the following entry: "Friday, January 25, 1850: We passed through Round Valley, made about ten miles, camped on the heights. Some four miles south of the Sevier River. It was still snowing." "Saturday, January 26, 1850: In the morning we found ourselves so completely buried in snow that no one could distinguish the place where we lay. Someone rising began shoveling the others out. This being found to be a tedious business, I raised my voice like a trumpet and commanded them to arise. When all at once there was a shaking among the snow piles, the graves opened and all came forth! We called this Resurrection Camp."

Among these early pioneers who took a great interest in the weather of the community was John Crook. Mr. Crook was 1 of the 10 original settlers of Heber Valley, Utah. These settlers entered the valley on May 2, 1859, and Mr. Crook

kept a daily journal of weather variables, Indian troubles, and the physical hardships of this pioneer development.

In 1873 Mr. Crook acquired some weather instruments from the Smithsonian Institution and kept continuous records until January 1893, when the U.S. Weather Bureau appointed him official observer and installed standard equipment. His personal contributions continued up to his death in March 1921 at the age of 84. One of his sons, H. G. Crook, picked up the program at once and continued the record until April 1939, when the present observer, Lindsay W. Crook, a nephew, moved the instruments a few blocks away to his home. Mr. and Mrs. Lindsay Crook have now completed 25 years of service, making a total of 71 years of official Weather Bureau record under the Crook banner, and over 100 years of continuous recording of weather information. This is the longest continuous record by one family in the State.

The first official weather observations in the State were taken by the Signal Corps at Corinne, Utah. Sergeant William McElroy took the first observation on February 2, 1871. This station was later moved to the capitol at Salt Lake City; but interested townspeople took up the program some years later, and a long period of weather record is available from the cooperative observer program.

One of these conscientious observers was Mr. Charles H. Clifford of Brigham City, who in addition to maintaining the observational program at Brigham City since 1954, kept the records at Corinne from July 1, 1960, until his advancing age restricted him in November 1962. Mr. Clifford is one of the few men of record to maintain two climatological stations simultaneously for any extended period of time.

As of August 1964, Utah had 164 full climatological stations taking observations of both temperature and precipitation, and an additional 15 observers who report precipitation only. Other than a few Weather Bureau and Federal Aviation Agency stations, these are all manned by cooperating individuals or companies who receive no remuneration for their efforts other than the sense of contributing to the scientific knowledge of their area. These stations range in elevation from 2,700 feet at St. George to 10,694 feet at Blowhard Mountain, a newly estab-



LeRoy Babcock

lished station manned by the Federal Aviation Agency radar personnel.

Then there is the father and son team of J. J. Starley and Wells P. Starley of Fillmore, Utah, who several years ago published the then 66 years of weather record for the station and distributed it to those in the community who had need for it. Mr. Wells Starley is still continuing the observational program of the family which now totals more than 71 years of record.

Another father and son team, who have contributed significantly to the program, is Mr. James M. Anderson and Leslie J. Anderson of Manti, Utah. Mr. James M. Anderson was the first observer in the State to complete 50 years of individual weather record as an official Weather Bureau observer. Mr. Anderson took his first observation on June 7, 1908, and continued his interest in weather up to his death of September 19, 1959. Leslie assisted his father with the daily observations after his return from military service in the Air Force in 1946; and since his father's death he has maintained the same conscientious regularity as his father. There is not a missing month of record since the family began.

Mr. LeRoy Babcock was born in Grass Valley, Piute County, Utah, on December 10, 1885. He attended school in several central Utah towns, and then worked as a car and engine repair helper at the mines in Carbon County for several years. In 1908 he decided to become a rancher and homesteaded 160 acres in Uinta County. The following year on July 3, he married Isabelle Case and brought her to a small log cabin which he had constructed on his homestead. Here he raised his family of four children, living there until May 1964, when he and his second wife moved into town a few miles away.

Mr. Babcock accepted responsibility for the weather station, the first in the area, in January 1923, and continued observations until shortly before his death in November 1964. His family assisted him in maintaining excellent weather records with seldom a missed observation over the many years.

His station was known as Mt. Emmons for years, but in June 1953 the post office changed the name of the town to Altamont.

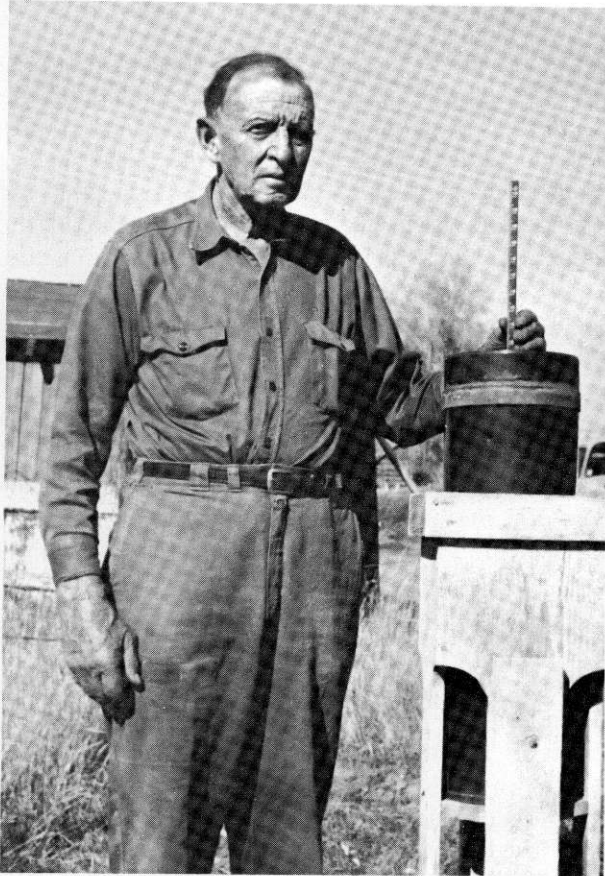
The cooperative observer program in Utah has not been restricted to individuals only. Many industrial and educational institutions have contributed years of service. Among these are Utah State University at Logan whose record began in 1890, the Denver and Rio Grande Railroad Company at Thompson in 1905, and the Strawberry Water Users Association at the Spanish Fork Power House in 1909. Also the Utah Power and Light Company operates several stations in the program, as does Mountain Fuel Supply and Kennecott Copper Company, among many others.

These are only a few examples of the character and willingness to serve exhibited by men and women who are responsible for the cooperative observational program in the state of Utah. From humble log cabins on isolated ranches to the windblown tops of majestic mountain peaks, each observer has contributed to our knowledge of the climate of the State.

Fred Brown

Loa

Fred Brown was born March 10, 1891, in Ogden, Weber County, Utah to Benjamin F. and Phylotte Pack Brown. The family moved to Loa in Wayne County during 1892 and helped pioneer the surrounding country. Mr. Brown has



Fred Brown

been actively engaged in building up the county since he was old enough to work, and has served in civic and religious capacities. At the present time he is owner-manager of the Brown Builders Supply Company in Loa.

Mr. Brown started taking weather observations in 1935 and has furnished the Weather Bureau with a valuable record since that time. In cases of emergency his family has assisted him in maintaining a long and complete record. He advises that each night after closing his store, he records the weather on his way home, and has enjoyed his duties as weather observer very much. Many people in his town have received information from him concerning temperatures, precipitation and unusual weather phenomena.

Paul Carlisle

Alpine

Paul Carlisle was born December 30, 1902, at Alpine, Utah. He was married on October 24, 1924, and has raised three children. Mr. Carlisle has been a farmer all of his life. He enjoys all



Paul Carlisle

forms of outdoor activity, and his special hobbies are hunting and fishing. He has not failed to "get his deer" in many years.

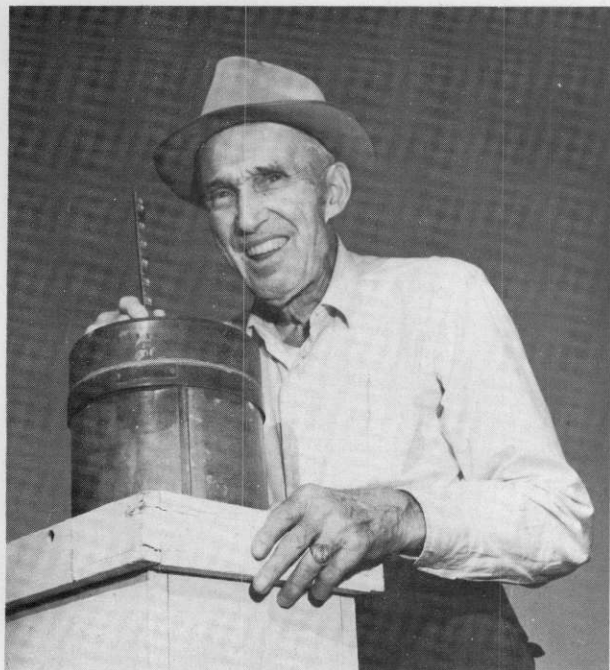
His interest in weather was inherited from his father, Thomas F. Carlisle, who began taking observations in 1911. In 1933 Paul took over the weather program. The Carlisle's (Mrs. Carlisle is secretary at the local school) have spent considerable time summarizing the old weather records so that they can readily answer the many questions that come up about their local area. Their three children have each taken turns helping out during the years, but are now scattered from Bunkerhill, Ind. to San Jose, Calif.

Mr. Carlisle reports that he has really enjoyed the weather program and appreciates the opportunity to serve his neighbors and the Weather Bureau.

Frank Hatch

Scipio

Frank Hatch was born in Bountiful, Utah, on October 30, 1882, and has lived in Utah all of his life. He graduated as an electrical engineer from the University of Utah in 1907, but followed this career for only a short time. For many years he has resided in Scipio, engaged in dairy farming. He imported one of the first electric milking ma-



Frank Hatch

VERMONT

Of the more than 60 official Weather Bureau stations in Vermont, many are operated by cooperative observers. Each station contributes to the vital climatic record of the State. Also, data from these individual stations may be a part of special research projects. For example, the University of Vermont intensively studies the relationship between weather and maple trees. From this, the work of the cooperative observer becomes more valuable to the maple sugar industry for which Vermont is famed. Some observers, also, make special observations of the growth and development of plants, especially of the lilac. These phenological data make the climatic record of Vermont more valuable to agriculture.

The University of Vermont also sponsored the use of modern computers to analyze the daily observations for various Vermont stations. In this way were derived weekly information on averages and probabilities for climatic items including temperature and rainfall. These are useful to agriculture and also to other industry and the general public. The university also has published averages and probabilities for various freeze severities. Every station with a long period of record was used in this study.

In Vermont, a number of stations are operated by companies, institutions, or branches of government other than the Weather Bureau. Of these, 12 have served for 30 years or more. The Fairbanks Museum, at St. Johnsbury, for example, has maintained a record from the same site since January 1894. Various members of the Fairbanks family had previously made observations which extend back to 1858.

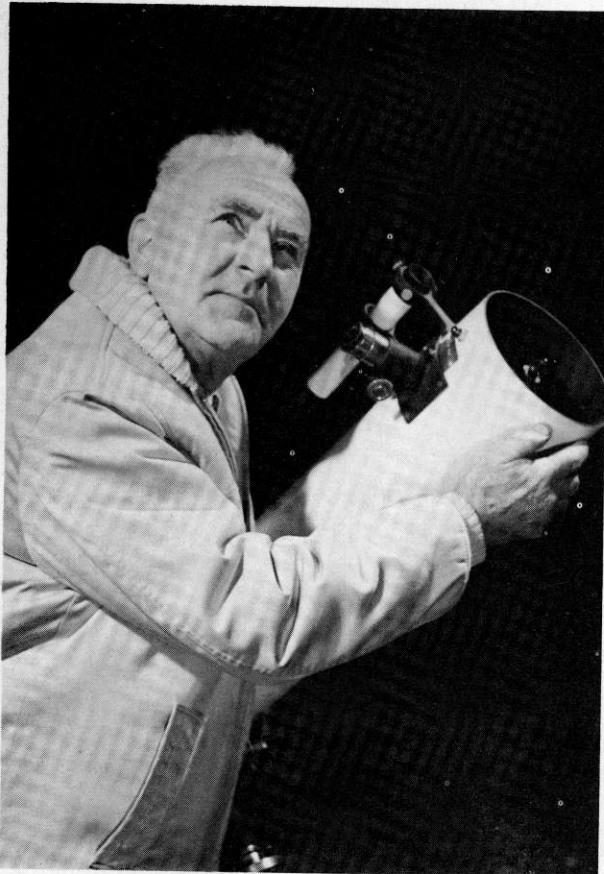
The individual private citizen, interested in and devoted to the study of weather, is the heart of the cooperative program. An example of such an individual is Mr. Paul W. Bohne, of Bennington. Mr. Bohne, an orchardist now retired, is very active in local civic and church activities and is a member of the Selective Service Board. He became a cooperative observer in 1952 and a special Synoptic Station reporter in 1962. The latter responsibility he shares officially with his wife, Ethel. Mrs. Bohne has always been an active and very helpful partner through the years.

Mr. Bohne has been outstanding in his enthu-

chines and takes great interest in horses and livestock. He is the father of nine children and enjoys traveling with his family. They have made numerous trips to both coasts.

Mr. Hatch began taking observations in 1924, and was recently given the Campanius Holm award for his 40 years of faithful service. The consistency and completeness of his records are due partly to his carefully training members of his family in observational procedures and insisting upon prompt and accurate reports. All of his children have participated in the program, and he is now training his grandchildren to assume some responsibility.

Both Mr. and Mrs. Hatch feel that the weather program has been extremely helpful to them in training their family. They say: "The experience of taking consistent weather observations taught our children better than almost anything else the value of reliability. For example, our daughter, Helen, left a party on the range and rode ten miles on horseback to get home in time to take the weather observation. We sincerely wish to thank the Weather Bureau for this opportunity."



Paul W. Bohne

siasm, interest, capability, and dependability. He has taught, without salary, the fundamentals of meteorology and astronomy to some 20 classes in the Bennington elementary schools. In recognition of this, he was recently named in the Teachers Association Bulletin as: "The Lay Person Contributing the Most to Education." He is a frequent speaker before groups on weather service topics. He gives unsparingly of his time to promote meteorology and the understanding of Weather Bureau services. In addition to exceptionally accurate weather reporting and all their local civic activities, Mr. and Mrs. Bohne find time to enjoy another hobby, antiques.

In some cases observational responsibilities have been handed down from one generation of a family to another, resulting in long valuable records. Included in this category are the Cornwall and Mays Mill stations.

The Hon. Stuart T. Witherell is Judge of Pro-



Stuart T. Witherell

bate, Addison County. Observer at Cornwall since December 12, 1950, he carries on a family tradition begun May 1886 by his great-grandfather, Mr. Henry Lane. Henry was succeeded, after about 1 year, by his son, Charles who continued for 42 years until his death in 1928. Charles was succeeded by his wife, Sarah, who continued for over 22 years until her death in 1950. As a true family operation, children and other members of the family have through the years taken the observations when the principal observer was ill or absent.

The Cornwall station is notable as one of the longest in continuous service in the Nation. The station environment has changed very little through the years. In anticipation of continuing in the future, Judge Witherell recently planted lilacs furnished by the University of Vermont to be used in a study of weather's relation to bloom dates and other phenological data. He received the John Campanius Holm award in 1964.

The May family, including Mr. and Mrs. Fred May, Senior and Junior, has maintained the weather station at Mays Mill since July 1919. The younger Mays took over in 1938. The family operated a sawmill (from which the station took its name) until March 1936 when the mill was lost in the record floods of that month. The station was then relocated across the North River about a quarter of a mile downstream. In Janu-

ary 1960 the station was moved back across the river to its present site. The Mays have been faithful and dependable observers through the years. The present observer, Mrs. Gladys E. May, continues the same tradition.

Data compiled over the years by cooperative observers are constantly in use by engineers and others as a basis for design of drainage systems, the design and operation of industrial, home, and farm buildings, and the settlement of insurance claims, lawsuits, and even friendly arguments. Many observers in Vermont are a part of the Bureau's flood-warning network. They make special telephone reports to the River Forecast Center whenever heavy rains occur, and continue to report at intervals until the rain ends. Some also make special readings of river stages.

Especially in Vermont, cooperative observers have their mettle tested by the elements. Trying times are most numerous in winter, when cold winds, deep snow, or biting sleet transform this usually pleasant chore to a challenging or even dangerous task. Ice storms make treacherous footing and usually also freeze shut the door of the instrument shelter. Patience and ingenuity are called upon to open a frozen door without disturbing the readings of the thermometers inside. To continue for 30 years or more this voluntary service is the enviable record of three individuals now serving.

Gilman W. Ford

West Burke

Mr. Gilman W. Ford has served West Burke as cooperative observer since July 1, 1930. His high esteem as the local weather authority is well deserved. Mrs. Ford's interest and cooperation has also contributed to the excellence of his 35-year station record. Mrs. Ford maintained the high standard of his records during periods of Mr. Ford's absence or illness. In addition to recording the usual climatic data, the Fords regularly report all heavy rains to the Bureau's River Forecast Center. Weekly samples of the winter snow cover are taken and measured to obtain the water equivalent of the snow on the ground. These data are vital in calculating watershed yields and potential flood hazards. Mr. Ford operates an insurance and real estate business.

Lawrence L. Leonard

Somerset

Mr. Lawrence L. Leonard continues a family service as cooperative observer. This was begun

by his father, Mr. B. B. Leonard, a half century ago, in 1914. Lawrence's own service has spanned a third of a century, from April 1932. Records from Somerset are of special interest because of its high elevation above sea level, nearly 2,100 feet. Summers are relatively cool. Freezing temperatures are not unknown even in July and August. Summer freezes occurred in 1943 and 1964, for example. Somerset has furnished a valuable source of hydrologic data used to study snowmelt. The Leonards have the distinction of being the only family with year around residence in the township of Somerset. Mr. Leonard is supervisor of the New England Power Company's Somerset Reservoir. Waters released flow through seven turbines before reaching the Connecticut River.

L. H. Pomeroy

Enosburg Falls

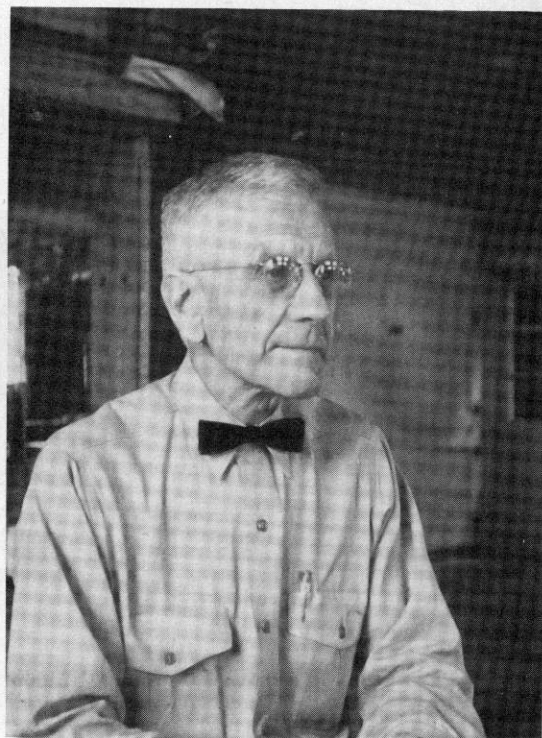
Mr. L. H. Pomeroy is prominent in the floral and greenhouse industry. The Pomeroy family interest in weather therefore comes naturally. As an observer, Mr. Pomeroy continues a family tradition going back to August 1899, when Mr. L. Howe Pomeroy became the first of a line of family observers. He was succeeded in 1915 by Mr. J. W. Pomeroy, who served until 1920. In 1920 Mr. J. E. C. Pomeroy took over and continued for 6 years. The present Mr. Pomeroy became the official observer January 1, 1927, and has thus served with great credit more than a third of a century. This record is enviable in itself, but even more so as a part of a family record of nearly two-thirds of a century. During World War II his service as weather observer was unavoidably interrupted for a few years.

VIRGINIA

The cooperative weather observers of Virginia can be proud of their heritage since Thomas Jefferson, one of the pioneers of weather observing, was a native of their State. This great and versatile man, even in the midst of all his other duties, could still devote a portion of his time to the problems presented by nature. He kept daily records of temperatures and other elements for over 40 years. Many of these observations were taken at Monticello, near Charlottesville. He induced others in the State and in different parts of the country to make similar records simultaneously in order to study trends and patterns of



H. M. Bowman



Dr. Walter S. Hough

weather. Observers with many years of exceptional service perhaps possess some of the qualities and certainly the interest of Thomas Jefferson. They also have many other responsibilities yet manage to supply us with daily observations. These observers receive little thanks and it is hoped that this publication will help to demonstrate how much their efforts are appreciated. In this report we will recognize all observers in Virginia with at least 30 years of service. This by no means implies a lack of appreciation for the many observers in the State with fewer years of service.

H. M. Bowman **Timberville**

Mr. Bowman has been the observer at the Timberville station since it was established on July 1, 1935. He is the Postmaster at Timberville and has enjoyed being able to give the official amount of rainfall and to verify the temperature to settle the many friendly arguments.

Dr. Walter S. Hough **Winchester**

Dr. Hough began taking observations on July 30, 1930. He was born January 3, 1893, on a farm near Ruffsdale, Pa. He received his B.S. degree from Valparaiso University, his B.A. degree from Stanford University, and his M.A. and Ph.D. degrees from Ohio State University. During World War I he was in chemical warfare service. From 1919-20 he was plant quarantine inspector for the Federal Horticultural Board. He established the Winchester Research

Laboratory of the Virginia Agricultural Experimental Station on July 1, 1921, where he served as an entomologist until his retirement in 1963. He is the author of many scientific papers on insects and their control.

Mr. Hough's answer to the question, "What has it meant to you to be a cooperative observer?", was: "I have been interested for many years in the relation of weather to biological phenomena such as occurrence of agricultural pests, effectiveness of spray treatments, and size and condition of the fruit crop. Keeping daily records enabled me to note weather data that might have escaped my attention, had I not been an observer."

Rev. Plummer F. Jones **New Canton**

The Reverend Plummer F. Jones began taking observations in March 1905 and except for several months in 1914 has continued to the present. His nearly 60 years of service as a weather observer exceeds that of all observers in Virginia and is one of the longest in the Nation. He started taking observations at Arvonnia but in 1913 the station was moved to its present location at New Canton. In 1961 he was awarded the John Campanius Holm award for his complete and accu-



Rev. Plummer F. Jones

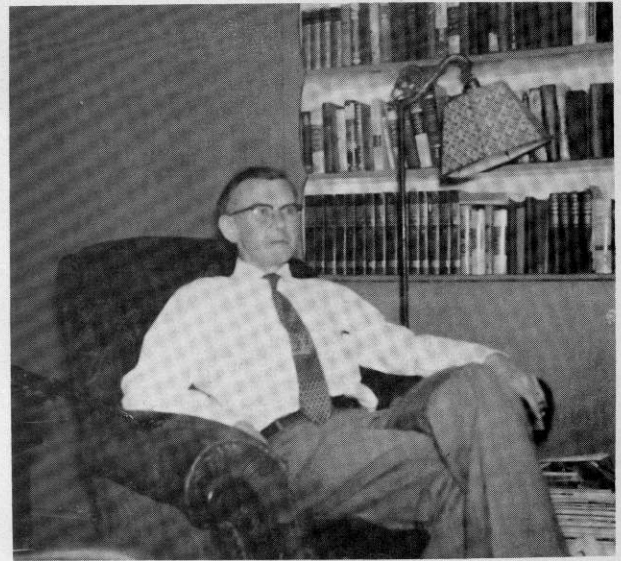
rate observations through the years. He is a graduate of William and Mary College and Union Theological Seminary at Richmond. Before entering the ministry he was a teacher and newspaperman. He has written a number of magazine articles and is the author of the book, *Shamrock Land*. He spent 35 years as a pastor of churches in West Hanover Presbytery in Piedmont, Va., served as Superintendent of Schools for Buckingham County for more than 25 years, and has always been a strong advocate of effective equalization of educational opportunities in Virginia. When asked what it has meant to him to be a cooperative observer, he once wrote, "There is little excitement in the ordinary sense in observing the weather. Concomitant with observing the weather and making the daily records, one comes across many wonderful things of what some call Nature. These things are exciting only to those who are in tune. Clouds change their forms every minute of every day of every month of every year. Watching the weather makes one or incites one to watch everything. And everything is wonderful."

John E. McCulloch **Buchanan**

Mr. McCulloch is the vice president of the local bank at Buchanan and has served as a climatological and river observer since March 7, 1931. This station has a long and valuable record taken by members of the same family. Mr. D. D. Booze, the original observer, served from around 1890 until 1931, when he was succeeded by his son-in-law, Mr. McCulloch.

Thomas J. Proffitt **Columbia**

Mr. Proffitt has been a cooperative observer at the Columbia station since September 1, 1933. He has spent all of his life in Fluvanna County,



Thomas J. Proffitt

Va., and is the owner of a general store in that area. For many years Mr. Proffitt measured the James River water levels at a strategic location until a radiotelemark was installed at Cartersville. He reports that it is always nice to have the weather instruments convenient, and on unusually hot or cold days checks the temperatures for his own satisfaction.

Mrs. Tirzah L. Coates Spiggle **Woodstock**

Mrs. Spiggle started taking observations on October 1, 1915, at the age of 12. She carried on the tradition begun in 1889 by her uncle, Herbert Miley. He was succeeded by her grandfather, aunt, and father, giving a family record of 75 years. Her length of service (nearly 50 years) is exceeded by only one other in the State. She is such a devoted observer that she even pays someone to take her observations when she is away. Since she has been taking observations most of her life she considers it a hobby.

Henry P. Taylor **Walkerton**

Mr. Taylor, who was born in Richmond, Va., April 15, 1891, and received his B.A. and M.A. degrees at the University of Virginia, studied French during the summer of 1911 at Grenoble and the following summer at Alliance Francaise at Paris. He taught a class in French at the University of Virginia from 1911-14. This expe-



Mrs. Tirzah L. Coates Spiggle

rience was valuable during his service in France during World War I.

On Mr. Taylor's return from military service he operated a small cannery business and later with a partner began growing the raw products, formed a corporation, and built their own factory. In this enterprise Mr. Taylor became directly interested in the effect of weather conditions on their business. On July 10, 1932, he became a cooperative observer for the Weather Bureau. Mr. Taylor fully realized the value of accurate weather observations and records and has shown scientific interest in the field of meteorology.

Mr. Taylor has been president of the Tidewater Cannery Association of Virginia, has been a



Henry P. Taylor

member of the Board of Directors and the Administrative Council, and in 1950 was president of the National Cannery Association. He has been a member of the Board of Directors and of various committees of the Virginia State Chamber of Commerce, and the Virginia Manufacturers Association, and was vice president of this association in 1956.

WASHINGTON

Washington, celebrating its 75th anniversary of Statehood in 1964, has weather records which have been kept in some localities for the past 100 to 115 years. Earlier records include those kept at U.S. Army hospitals: Fort Colville 1861-80; Fort Townsend 1859-86; Fort Vancouver 1849-68; Fort Walla Walla 1857-87; Fort Steilacoom 1849-68; and at other military installations for brief periods between 1850 and 1890.

In addition to temperature and precipitation data, numerous notes concerning unusual weather can be found in many of these old record books. An interesting example is found in the Fort Vancouver Meteorological Register for the winters of 1862 and 1868 when thick ice covered the Columbia River in the Portland-Vancouver area.

Weather reporting stations were established by the U.S. Signal Service between 1875 and 1890. In 1890, there were 4 voluntary weather observers in eastern Washington and 12 in western Washington reporting to the Signal Service. It was not until after 1890 that a major expansion began in the weather reporting network.

The cooperative weather observer program as we know it in Washington today began between 1890 and 1900. Prior to 1890, weather data had been collected and summarized for 27 locations in Washington Territory. Of these, 9 reporting points were east of the Cascades and 18 west of the mountains. The length of record ranged from one to 24 years.

In addition to the cooperative weather observers furnishing reports published each month, there are others displaying storm warnings, submitting special reports for flood forecasting, reporting for recreational activities and other uses.

Interests and vocations of the cooperative weather observers are many. In some cases, the weather records are kept by public or private utilities and business organizations where an employee is assigned this duty. By far the greatest

number are individuals having an interest in weather and a desire to serve their community. The cooperative weather observers represent a cross section of the most civic-minded people in the State. These people willingly devote a few minutes of their time each day to recording weather data of benefit to the entire area.

The knowledge of our climate is enhanced by this information. In some instances, stations have remained in one location and records have been kept by members of the same family since before the turn of the century. Time and effort required by the observers depends on the climate and location in the State. A few of the cooperative observers living in the heavy snowfall areas of the mountains are snow-bound from November until June. In some instances the observers travel 10 to 20 miles on snow shoes to bring the records out each month, or at least a few times during the winter season.

Climatological records kept over the years are becoming increasingly important. In addition to references made by business, industrial, and agricultural interests, an increasing number of persons seeking locations for recreation and retirement are finding useful information in weather statistics. It is only through the efforts of the faithful cooperative weather observers that it is possible to answer many of these inquiries regarding the climate of Washington.

Harry S. Buckner

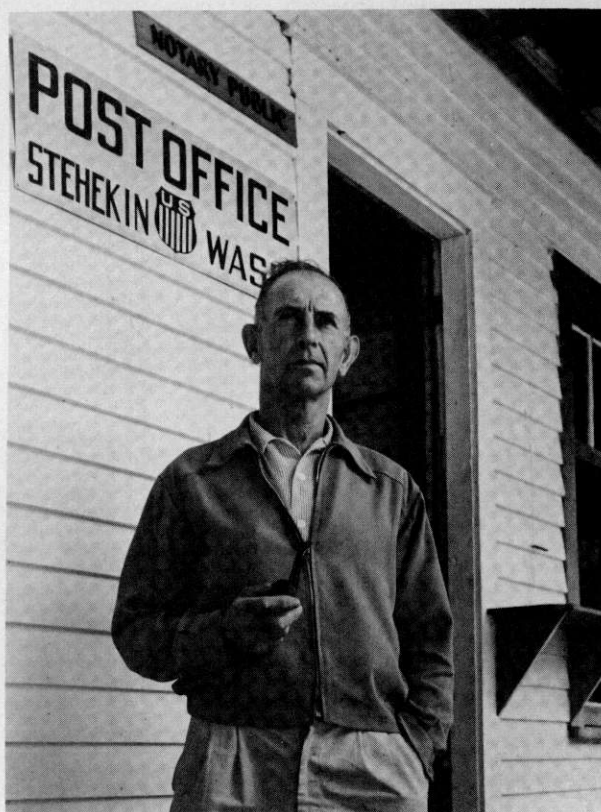
Stehekin

Mr. Buckner was born in Hanford, Calif., in 1895 and moved to Stehekin, Wash., in 1911. With the exception of the first two winters, he has resided continuously at Stehekin since 1911.

Located in the Stehekin River valley at the upper end of Lake Chelan, his residence can only be reached by a 55-mile boat trip from the lower end of the lake or by a small plane equipped with pontoons.

Upon arriving at Stehekin in 1911, he began clearing the land for an orchard and farming. In addition to being an orchardist and farmer, he has served as Postmaster for several years. At present, most of his time is devoted to being storekeeper, postmaster, and to his favorite sport, fly fishing in the mountain streams.

In looking back over his years as cooperative observer, Mr. Buckner said recently, "I have thoroughly enjoyed taking care of the weather station here since April 1917 and have derived a



Harry S. Buckner

lot of satisfaction from the knowledge that these records have contributed, to a small degree, to the overall picture of the climate in this country."

Walter O. Eckert

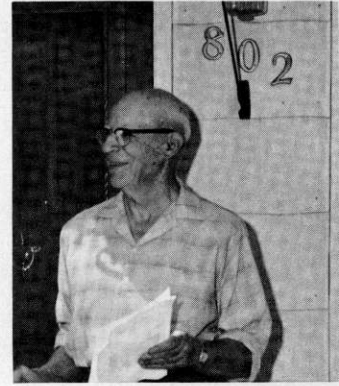
Grapeview

Mr. Eckert, born in Auburn, N.Y., in 1877, moved to Washington in 1890 and has resided continuously at his present homesite on a small island in Puget Sound. When he was a young man, his interest was aroused in weather and it has increased over the years. He has indicated that one of the pleasures of being an observer is following the daily and seasonal changes which occur in weather.

In October 1907, he became the cooperative weather observer at Grapeview and at present has the distinction of being the senior cooperative weather observer in length of service in the State. In 1960, Mr. Eckert received the John Campanius Holm award for outstanding service as a cooperative weather observer. He was very active in the early development of grape production on the island and has always taken part in civic affairs.



Walter O. Eckert



J. C. Kittel



Guy G. Gibson

Guy G. Gibson

Davenport

Mr. Gibson was born in Spokane County in November 1884 and came to Davenport in 1901. After graduating from high school, he spent a

few years on a homestead in Stevens County and working in Spokane. Enlisting in the armed forces, he served overseas during World War I. After returning to Washington, Mr. Gibson began working in the county treasurer's office at Davenport and served as county treasurer from 1935 until retiring in 1959.

Mr. Gibson became the official weather observer at Davenport in December 1925 but actually began keeping some of the temperature and precipitation records in 1917. His father, C. C. Gibson, was the official weather observer from 1917 until 1925. (Editor's note: Mr. Gibson died May 23, 1965.)

J. C. Keller

Wilson Creek

As manager of a grain elevator in the dryland wheat producing section of Washington, Mr. Keller recognized the importance of weather on the economy of the area. He began as a cooperative weather observer in 1929. Prior to the time his station was included in the official network, he constructed an instrument shelter and began keeping weather records.

Over the past 35 years, he has observed crop failures and dust storms during dry periods and prosperous years when sufficient moisture was available.

Born in Odessa, Russia, in 1888, he came to this country in 1889 and to Washington in 1903. He has resided in Wilson Creek, and has been associated with the grain elevator business since 1919.

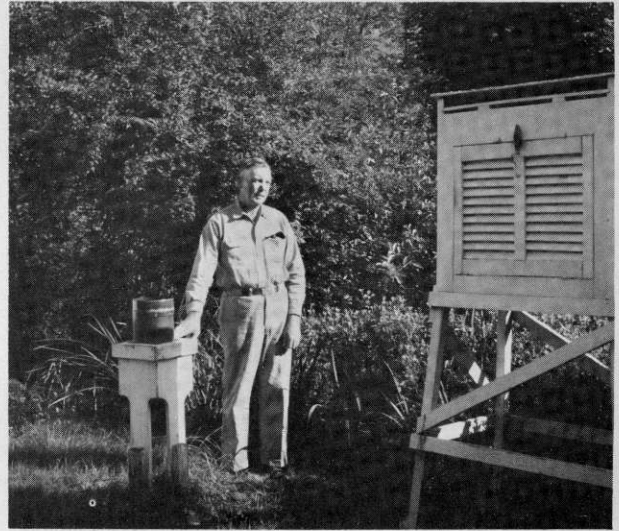
J. C. Kittel

Ritzville

Mr. Kittel, born near Ordway, S. Dak., in 1882, came to Washington in 1915. He was engaged in the abstract and title insurance business until his



Mr. and Mrs. E. L. Kurtz



C. A. Little

retirement a few years ago. Since retiring from business, Mr. Kittel has devoted more time to his favorite hobbies, gardening and the growing of flowers.

Mr. Kittel has expressed his interest in the cooperative weather program as follows: "While I accepted the appointment as cooperative weather observer in 1916 primarily as a means of having first-hand information about weather conditions as it affected my hobby of gardening, over the years I have derived much satisfaction from being able to furnish requested information about the weather, especially as to rainfall, and from being a part of a nationwide agency to record and preserve information about the weather."

Mrs. Mona Kurtz Irene Mountain, Wauconda

Mrs. Kurtz, a teacher by profession, spent many years teaching in the public schools of Okanogan County. Beginning as a cooperative weather observer in 1925, Mrs. Kurtz took over the weather station from her mother-in-law, Mrs. Margaret Kurtz, who served as cooperative weather observer from 1914 to 1925.

The Kurtz ranch is located at the base of Irene

Mountain. Rainfall and snowfall records kept by Mrs. Kurtz over the years have been used many times by agricultural and water resources interests in Okanogan County.

Mrs. Kurtz has been assisted in this work by her husband, E. L. Kurtz.

C. A. Little

Kosmos

Mr. Little, residing in a narrow scenic valley in the foothills of the Cascades, began as a cooperative weather observer in June 1933. He has observed changes in his area from primarily lumbering with a limited amount of agriculture in a few valleys to the development of hydro-electric projects. Frequent references have been made to weather records from this area.

In thinking over his work as an observer, Mr. Little recently said, "The many years I have served as a cooperative weather observer in the State of Washington have been very interesting and rewarding in experience. It gives me much satisfaction to be a fellow worker among the other cooperative weather observers."

C. J. Moss

Vancouver

Mr. Moss spent many years as an engineer in the Pacific Northwest and Alaska. His early interest in weather was partly due to the work being done by his father-in-law, Mr. A. A. Quarnberg, horticulturist specializing in the propagation of nut and fruit trees in the area. Mr. Quarnberg recognized the importance of weather data and became the cooperative weather



Charles E. Thew

observer at Vancouver in 1895 and continued until his death in 1933.

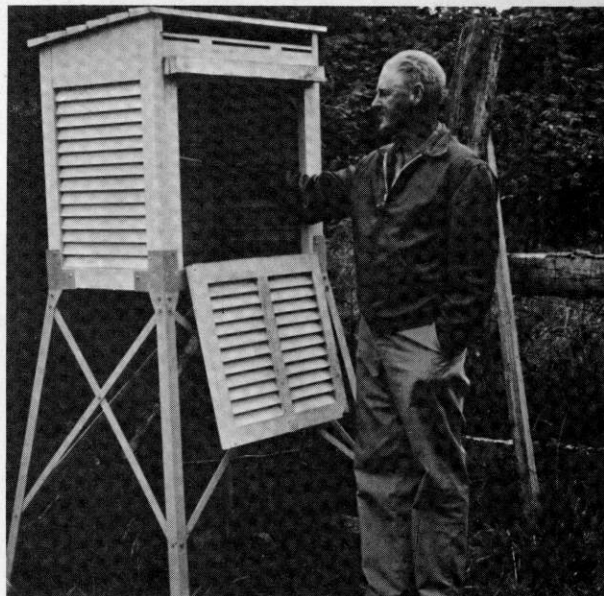
The weather station has remained in the same location since it was established and the observations were taken over by Mr. Moss in 1933. Probably his most unusual experience as an observer occurred during the severe storm which crossed western Washington on October 12, 1962. Having a small hand anemometer, Mr. Moss was interested in determining the speed of the wind. He managed to get out in the yard and obtain a reading of 92 M.P.H. before looking up and observing part of the roof of his home being blown away and decided it was time to make a quick retreat to a safer location.

Charles E. Thew **Willapa Harbor**

Mr. Thew received the John Campanius Holm award in 1960 for his outstanding service as a cooperative weather observer in the Willapa Harbor district. His service began in January 1923.

As an employee of a telephone company, Mr. Thew easily recognized the importance of accurate weather information. Largely through his own efforts, he has acquired such weather equipment as a 40-foot storm warning display tower, anemometer, sunshine recorder, hygrothermograph, and other equipment.

In addition to being a climatological observer, Mr. Thew (age 88) is the storm warning displayman. He also maintains a river warning system.



Culver Willis

A float installed on the Willapa River is connected with his residence. When the alarm sounds, he consults tide tables, wind direction and speed, and if conditions warrant, he advises waterfront interests.

Culver Willis

Olga

Richard C. Willis homesteaded near Olga on Orcas Island in 1886 and became the first cooperative weather observer in the San Juan Islands in 1891. His son, Cecil S. Willis, took over as cooperative observer in 1908 and continued until 1927.

Culver Willis, son of Cecil and grandson of Richard Willis, has been the official observer since 1927. However, Culver's mother, Mrs. Frances Willis, was always very interested in weather and kept many of the records while her husband was the observer. She continued to assist in keeping the climatological records until confined to her home in recent years.

Other members of the Willis family have assisted in keeping the records. Some member of the Willis family has read the thermometers and recorded the precipitation every day since the station was established in 1891. During the early days, the records for 1 week were destroyed by fire, otherwise, the record is continuous since 1891.

In 1964, the Willis family received the Thomas

Jefferson award for outstanding service as a cooperative weather observer for more than seven decades. Present to share in the pleasure of receiving this award were Mrs. Louise Willis, age 92; two daughters, Miss Frances Willis, Mrs. Jack Barfoot; a son, Culver; and their families.

WEST VIRGINIA

Contributions of cooperative observers to the development and welfare of West Virginia are difficult to measure, but are very great indeed. For example the Corps of Engineers has been interested in more than 100 water-control projects in the State and these projects require an intimate knowledge of precipitation characteristics. This information was available from observations taken by cooperative observers.

Their temperature readings have furnished building engineers with an abundance of heating degree-day data. As the State of West Virginia initiates the development of recreational parks and winter sports areas, snow and temperature data from cooperative climate stations give pertinent indices of success for these future undertakings.

West Virginia may take justifiable pride in such a fine group of observers and their accomplishments, and it is indeed fitting to give a brief sketch of two who have the longest length of service.

Charles A. Suter, Jr.

Piedmont

Mr. Suter rounded out a half century of service as a cooperative weather observer in June 1965. He began observing the weather on his own in 1913 when still just a high school student. On July 1, 1915, he became the official cooperative observer for Piedmont. Some 33 years later he also became the observer for Frostburg, Md., about 16 miles away where he now lives, and he still continues as the observer at both stations.

Mr. Suter says, "I enjoy good health and my interest in meteorology and astronomy (both just hobbies) has done much to keep me mentally awake. I do a little teaching with Boy Scout groups and sometimes talk to the local Rotary Club on the 'space science'." He was given the Weather Bureau's Thomas Jefferson award in 1965.

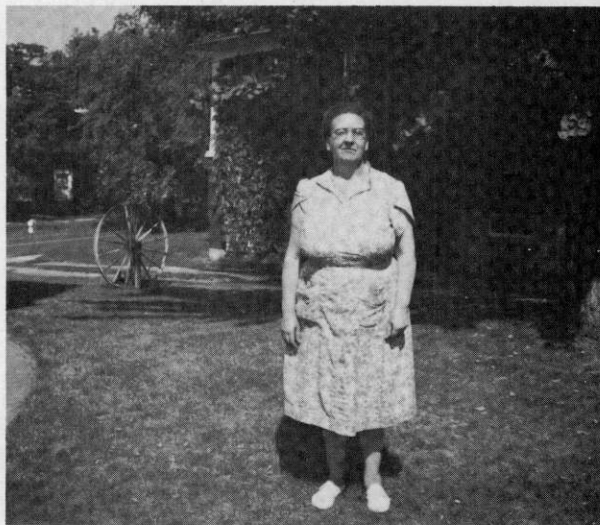
Miss Eleanor J. White

Harpers Ferry

Miss White, river and rainfall observer at Harpers Ferry has a complete file of monthly



Charles A. Suter, Jr.



Miss Eleanor J. White

reports covering the entire 30 years of her service as a voluntary observer. She very willingly answers many telephone calls and inquiries from friends, neighbors, and newspapers for rainfall, snowfall, and river stage data. She reports to the Washington, D.C., Weather Bureau whenever the river stage reaches 4 feet, or when $\frac{1}{2}$ inch of rain falls within her 24-hour measuring period.

Miss White relates that her interest in river

stages, flooding, and rainfall was probably stimulated by the fact that her mother, at the age of 10, was marooned for 20 hours on Big Island in the Potomac during a severe flood.

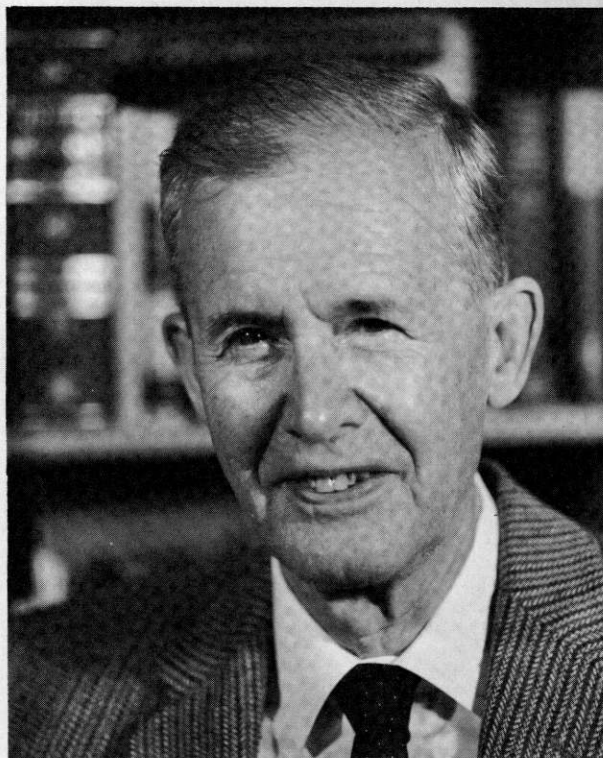
Miss White says, "This work has meant much to me. It gives me a reason to get out each day (a 2-mile walk to read the gage) and has afforded opportunities to make many friends during my 30 years with the Weather Bureau."

WISCONSIN

Wisconsin has a long proud history in taking and recording weather observations. Fort Crawford, Fort Winnebago, and Fort Howard made up the first network with observations beginning in the early 1820's and ending in the late 1840's. When the danger of Indian uprising was over the Forts were closed. The Smithsonian Institution established a network of stations in the State during the 1840's and 1850's. One of these stations, Beloit College, was established January 1, 1850, has 115 years of daily record, and is an effective part of the present cooperative program.

Mr. Paul O. Feldrappe of Plymouth has taken observations for 55 years. Several scores of observers have records that extend from 30 to 50 years. The Lups family of Manitowoc took daily observations from January 1852 to November 1933. Observers now deceased with 50 or more years of weather observations are Mr. Emil V. Wernick of Hillsboro, 57 years; Mr. George H. Carpenter, of Pine River, 53 years; and Mr. George Washington Smith of Burnett, 50 years. Institutions with long records of cooperation with one or more stations include: The University of Wisconsin, Wisconsin-Michigan Power Company, Wisconsin Valley Improvement Company, Wisconsin Conservation Department, Northern States Power Company, Wisconsin Electric Power Company, Eagle Printing Company, Lake Superior District Power Company, Sheboygan Press, Soil Conservation Service, and Corps of Army Engineers.

The tens of thousands of observations that have been collected throughout the years have, and still are, being used in solving problems in industry, commerce, and agriculture. In addition to the many climatological summaries that have been prepared, studies have been made for specific purposes using the elements that the cooperative observers measure or record.



Ralph N. Buckstaff

Ralph N. Buckstaff

Oshkosh

Mr. Ralph N. Buckstaff has been the cooperative observer for Oshkosh, Wisconsin since September 21, 1924. In 1964 he was honored with the Thomas Jefferson award. He is a retired industrialist, and devotes much of his time to the study of astronomy, meteorology, archeology, as well as other natural sciences. He has published a number of scientific articles and frequently lectures. The Buckstaff Observatory is equipped with five telescopes and many meteorological instruments. He is the President of the Oshkosh Public Museum Board and Curator of its natural history department.

Paul O. Feldrappe

Plymouth

Mr. Paul O. Feldrappe is the senior cooperative observer in Wisconsin with 55 years of service. This is the second longest individual record in the State. Mr. Feldrappe was born January 3, 1882, and has lived in the same house all his life. He was appointed cooperative weather observer January 1, 1910.

In addition to the usual instruments at a cooperative station, he has a thermograph, barograph, and wind vane. He is especially inter-



Paul O. Feldrappe



Walter C. Rowland

ested in barometry, thunderstorms, clouds, and the stars. In more than three-quarters of a century of observing clouds he has only seen two thunderstorms come from the east. In 1961 he was presented with a John Campanius Holm award for outstanding observations.

John Grygleski

Phillips

Mr. John Grygleski has been the cooperative weather observer at Phillips, Wis., since July 18, 1928. He has cooperated with the cranberry frost

forecaster by telephoning shelter and bog temperatures during critical periods, regardless of the day or night.

Walter C. Rowland

Waupaca

Mr. Walter C. Rowland has been the cooperative observer at Waupaca since November 18, 1927. He was born at Iola, Wis., on August 23, 1898. He retired from the Wisconsin Public Service Company after 38 years of service. Mr. Rowland is married and has 4 married children and 17 grandchildren. Since retiring he has been enjoying the surrounding chain of lakes and his family. He still enjoys taking weather observations and plans to continue for many more years.

WYOMING

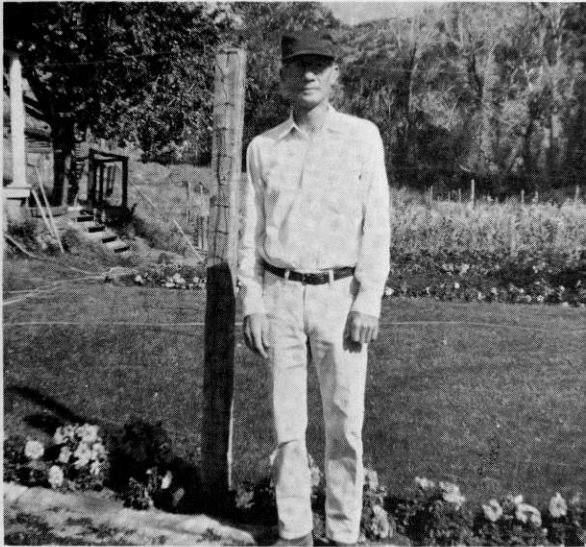
Here in Wyoming, we are very proud of our weather observers, many of whom have kept records in excess of 10 years. It would be quite difficult to list all of the observers who have kept weather records under adverse conditions or who have exerted extra effort over long periods to keep accurate records. This is because Wyoming observers work in climates which include the windswept plains, the dry (at times quite cold) desert, and the mountains, which may expect snowfall nine to ten months of the year. Consequently, most areas of the State require that the observer expend extra effort at times in order to keep accurate records.

Since many observers are interested in uses that are made of the records, we note that there is increased use of the records in research studies since data from several stations have been put on punch cards at the University of Wyoming. More recently, temperature probability and precipitation probability studies are being published. Of course, routine uses of the records continue in water supply and river forecasting, and in weekly weather and crop reports, as well as the uses that many private concerns give to the records.

Harry E. Ferguson

Hecla

Mr. Ferguson has been keeping a weather record at Hecla since November 1929. In 1962 he received the John Campanius Holm award. Mr. Ferguson has resided in the Hecla community since birth except for 6 years (1923-29) when he lived in Cheyenne, Wyo. His father was a cattle rancher in the area beginning about 1878. During his tenure as weather observer, Mr. Ferguson



Harry E. Ferguson

has been employed by the water department of the city of Cheyenne.

In conclusion, Mr. Ferguson says, "Weather patterns seem to have changed during the past 35 years; this, and weather generally (to me) becomes more interesting each year."

John R. Kortez

Leo 6SW

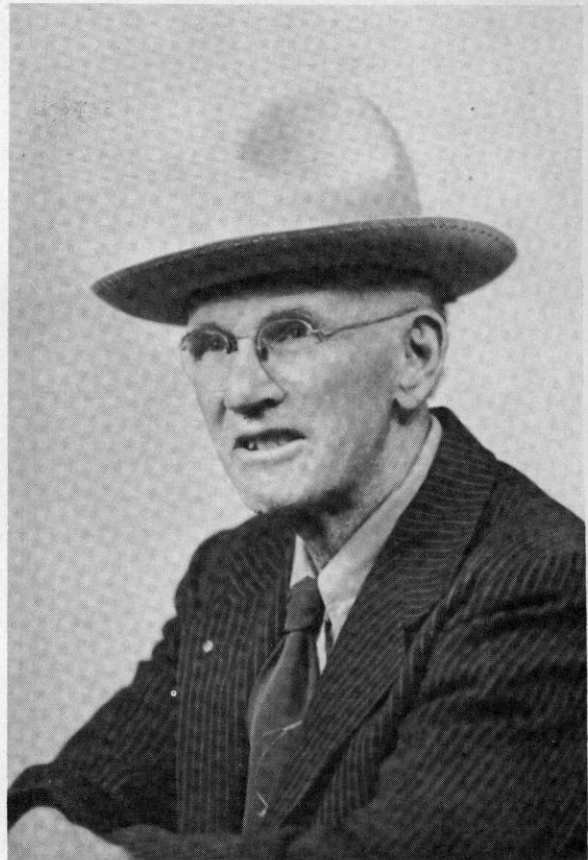
Mr. Kortez has been keeping a weather record at Leo 6 SW since January 1930. He is a rancher having lived in the Leo area all of his life. His father, Andrew, homesteaded the area around the turn of the century. Kortez Dam, on the Platte River nearby, was named after the family.

Mr. Kortez' hobbies include jade polishing. Mr. Kortez, being quite a modest man, indicated that he neither deserved nor desired the publicity connected with his weather observation record. We feel, however, that this short treatise is due him for a brilliant record.

R. H. Platt

Encampment 10 ESE

Mr. Platt has been keeping a weather record at Encampment 10 ESE Wyoming since November 1928. Mr. Platt came to Wyoming with his parents in 1885 in a covered wagon. He later attended the University of Wyoming and the University of Nebraska. He has been a rancher most of his life, as well as a big game hunter, miner, and an active member of the Masonic Lodge. His "pride and joy" is the room of big



R. H. Platt

game trophies and the collection of rocks and ores at his home.

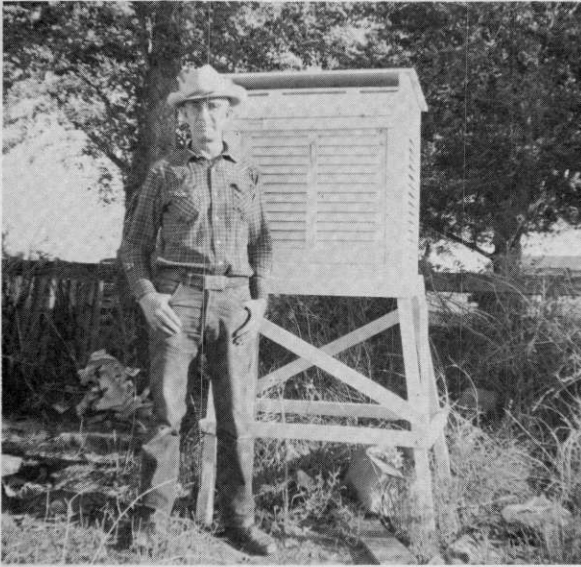
In addition to his many activities, Mr. Platt has reared a family of three sons and one daughter, and one of his sons tends the weather record during an occasional absence of Mr. Platt. Mr. Platt says, "We take great pride in these records (weather) and think it a fine thing to be able to do this. It seems to me that this is sort of a public duty to do this, as the weather means so much to our economy."

Leonard T. Sedgwick

Spencer 10 NE

Mr. Sedgwick has been keeping a weather record at Spencer 10 NE, Wyo., since October 1932. However, the weather station has been in the Sedgwick family since 1917. Mr. Sedgwick has lived in the Newcastle, Wyo., area most of his life and has been engaged in the ranching business as a livelihood.

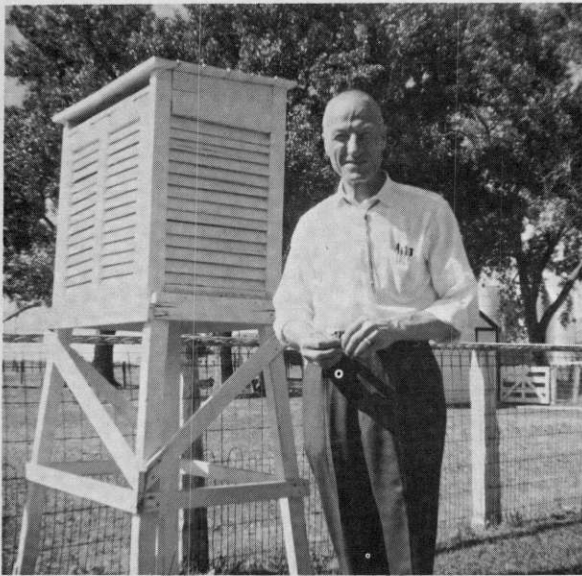
During his tenure as weather observer, Mr. Sedgwick recalls the 1949 blizzard quite vividly



Leonard T. Sedgwick



Roy L. Zum Brunnen



R. L. Staats

and indicates that he would rather not relive some of his experiences during the 1949 storm.

R. L. Staats **Chugwater**

Mr. Staats has been keeping a weather record at Chugwater, Wyo., since September 1927. In 1961 he received the John Campanius Holm award.

Mr. Staats moved to Chugwater from Nebraska in the early 1920's and was employed by a local bank before going to work for the Swan Land and Cattle Company in 1927. Besides rearing a

family, Mr. Staats has served as Mayor of Chugwater and has been active in civic affairs in and around Chugwater. Mr. Staats has always taken pride in the town of Chugwater and has helped "push" for many improvements in the town. In conclusion, Mr. Staats says, "I have not accomplished enough that I or anyone else could toot a horn about." We beg to differ with him!

Roy L. Zum Brunnen

Kirtley

Mr. Zum Brunnen has been keeping a weather record continuously at Kirtley since May 1937 and prior to that he kept a record at the same location from June 1904 to September 1907. However, weather records have been kept by members of the Zum Brunnen family at Kirtley since 1904, except for a 2-year period from May 1935 to January 1937. In 1960 Mr. Zum Brunnen received the John Campanius Holm award.

Mr. Zum Brunnen recalls coming to Wyoming with his parents as a child from Iowa on an immigrant train in 1889. He has lived in the Kirtley area most of his life where he has engaged in ranching and farming. Here, near Kirtley, he reared his family, and here, about a year ago, Mrs. Zum Brunnen passed away.

In talking about the weather, Mr. Zum Brunnen feels that there has been little change over the past 60 or 70 years. He says that about the only thing one does not see any more are the prairie fires that formerly burned across the plains.

CHAPTER THREE

Recipients of the Jefferson and Holm Awards

Cooperative observers qualify for various awards. These include length of service awards for 10, 15, 20, 25, 30, 35, 40, 45, and 50 years of service, a special service certificate for exceptional or unusual service in emergencies, a certificate of service for institutions serving 25, 50 or 75 years, and the Jefferson and Holm awards.

The Thomas Jefferson certificate is given for "unusual and outstanding accomplishments in the field of meteorological observations" and the John Campanius Holm certificate for "outstanding accomplishment in the field of meteorological observations".

The Thomas Jefferson award was named in honor of the third President of the United States who kept an almost continuous record of the weather from 1776 to 1816. The Holm award was named for a Lutheran minister who is the first person known to take systematic weather observations in the United States. The Reverend John Campanius Holm took daily observations near what is now Wilmington, Del., in 1644 and 1645.

The criteria for these two awards are:

1. Long individual or family record of com-

plete, legible, and accurate weather observations.

2. Taking or reporting observations under hazardous or extreme weather conditions over extended periods of time.

3. Unusual effort to maintain continuity of observations during illnesses, emergency absences, or equipment failure.

4. Consistent and/or unusual effort to insure early receipt of data at collection centers.

5. Independent preparation or publication of climatological data or summaries, based on quality, consistency, and length of time issued.

6. Consistent and/or unusual efforts to disseminate weather information.

7. Consistent and/or unusual care of instruments.

8. Unusual cooperation with Weather Bureau officials and representatives.

9. Outstanding enthusiasm for imparting observational knowledge to students and others, and the high respect with which the observer is regarded by members of the community.

The Jefferson and Holm awards were first issued in 1960. Following is a list of observers and their citations from 1960 through 1965:

THOMAS JEFFERSON AWARD

1960

Phil Brogan

For having voluntarily taken daily climatological observations at Bend, Oreg., since 1923, recorded them accurately and reported them promptly, without missing a single day, and for valuable assistance given the Weather Bureau in dissemination and publication of local weather data.

Albert M. Foss

For faithful continuation, since 1919, of a record of climatological observations at Pauls Valley, Okla., begun by his father, A. M. Foss in

1902; for exceptional service in obtaining river readings despite washouts en route; and for valuable assistance to the Weather Bureau in dissemination of warnings.

Louis Hardtla

For an exceptionally long record of continuous climatological observations at Philo, Ohio, begun by Mr. Hardtla because of his own scientific interest in 1892 and then continued as a cooperative observer for the U.S. Weather Bureau since 1901.

S. S. Judy

For exceptional performance as a cooperative observer at Forestburg, S. Dak., since 1909, con-

tinuing a fine service begun by his father, M. K. Judy, in 1891; and for research into the weather conditions in the days of the early settlers of Sanborn County and a compilation of the area's weather extremes.

Henry M. Reusser

For an exceptionally long and continuous record of climatological observations at Berne, Ind., begun in 1910; and for his helpful dissemination of local data and his own valuable compilations, of which the latest is "50 Years of Climatological Data of Berne, Indiana."

Dr. J. C. Standifer

For over 45 years of climatological observations at Blakely, Ga., consistently excellent for their completeness and accuracy since Dr. Standifer first began them in August 1914.

Miss Amy Ann Stern

For having helped achieve the phenomenal record of 100 years of volunteer weather observations by one family, begun at Logan, Iowa, by her great-grandfather Jacob Stern, on January 1, 1860, and for having observed the weather faithfully for 33 years beginning at the age of 12.

1961

Charles E. Barret

For nearly 60 years of outstanding service as voluntary weather observer at Anchorage, Ky., continuing a record started by his father in 1900.

Dr. William B. Fulton

For more than five decades of unusually complete, legible, and accurate weather observations at Dadeville, Ala., continuing until a few months before his death in February 1961.

J. Smith Lanier

For dedicated service in taking weather observations and disseminating weather information at West Point, Ga., since July 1906.

D. Paul Oswald

For nearly six decades of outstanding service as a voluntary weather observer at Chewsville and later Chewsville-Bridgeport, Md., continuing a family record started in 1898.

Ralph E. Weber

For weather observations of high quality at Oakland, Md., from September 1903, until his death in February 1961.

1962

Edward C. Childs

For over 30 years of outstanding public service

taking observations and disseminating weather information at Norfolk, Conn.

Charles C. Feagans

For over five decades of service as voluntary weather observer at Washington, Ind.; for accurate and neat recording and prompt forwarding of data; and for valuable assistance in dissemination of local weather information.

Eugene N. Hastie

For taking and promptly submitting accurate and complete weather observations to the Weather Bureau on a voluntary basis for Perry, Iowa, for almost four decades.

J. E. Parker

For outstanding service as cooperative weather observer at Parker, N.C., since 1917, and for unusual effort to maintain continuous records and to mail reports early.

Dr. Oliver Snapp

For more than 40 years of continuous weather observations of outstanding quality and legibility at Fort Valley, Ga.

1963

Reverend Ralph M. Barker

For dedicated service as a voluntary weather observer at Rockport, Mass., for more than 36 years; for the excellence, reliability, neatness and legibility of the reports and for their completeness without interruption or break; for long continued enthusiastic interest in the field of meteorology.

Don Dey Ermand

For outstanding public service in taking weather observations at Dalton, Nebr., for nearly four decades and in furnishing this information to citizens of the community.

Leo L. Euteneuer

For having voluntarily taken unusually complete and accurate daily weather observations for more than five decades at Havana, Ill., recorded them neatly, reported them promptly, and made outstanding effort to insure continuity of record during periods of illness and absence.

Father Adelhelm Hess

For nearly seven decades of outstanding service as cooperative weather observer at Conception, Mo.

Lewis E. Worley

For 38 years of exceptionally faithful service as volunteer weather observer at Muskogee, Okla.; for superior effort in maintaining com-

plete and legible records of accurate observations; for prompt mailing of reports; for efficient rainfall reporting; and for the highest level of cooperation.

1964

Frank H. Brown

For outstanding service as cooperative weather observer at Cullowhee, N.C., since 1909, and for unusual effort to maintain continuous records.

Ralph N. Buckstaff

For nearly four decades of taking and recording daily climatological records at Oshkosh, Wis.; and for his enthusiasm in sharing his knowledge of meteorology and other natural sciences with his State and community, particularly with the youth.

Miss Mae McCabe

For more than five decades of unusually complete, legible, and accurate weather observations at New Burnside, Ill., continuing a family record started in 1911.

Henry Twete

For faithful, conscientious service as voluntary weather observer at Victor, S.D., since May 1, 1926.

Willis Family

For more than seven decades of unusually complete, accurate and legible weather records kept by the Willis family at Olga, Wash.

1965

Richard C. Brigham

For dedicated service as a voluntary weather observer at Fall River, Mass., for more than 44 years; for excellence and neatness of reports, without interruption or break; for long continued enthusiastic interest in the field of meteorology and for imparting this interest to others.

Carlos A. Call

For unusually complete and accurate weather records at Fort Ross, Calif., over a period of nearly 60 years, continuing observations made for 33 years by his father; and for untiring effort in the job of furnishing weather data.

Hugh A. Storer

For nearly six decades of dedicated service as a volunteer weather observer near Alton, Kans.; and for exceptionally neat, complete, reliable, and timely observations.

C. A. Suter

For outstanding service as a cooperative weather observer for five decades at Piedmont, W. Va., plus over 15 years at Frostburg, Md.; for his enthusiasm in sharing his knowledge of meteorology and other natural sciences with his State and community, especially with the youth.

Mrs. Gertrude M. Woods

For six decades of faithful dedicated public service as voluntary weather observer at Palmetto, Tenn., thus continuing a family record begun in 1883.

JOHN CAMPANIUS HOLM AWARD

1960

Richard C. Brigham

For excellence of his weather observations at Fall River, Mass., over a period of nearly 40 years; and for the enthusiasm with which he has imparted his learning and his zest for meteorology to several generations of Boy Scouts and school children.

Mrs. Ernest Burrus

For superior accomplishment in maintaining a complete record of cooperative climatological observations at Burrus Ranch, Ariz., since 1943 despite the hazards of the work during the severe winter storms of this region and despite required absences when she arranged for a substitute observer at a personal sacrifice.

Carlos A. Call

For over 50 years of exceptionally conscientious efforts in maintaining a complete record of climatological observations at Fort Ross, Calif., begun by his father, George W. Call, in 1874, thus achieving a continuous record of over 85 years at one station.

Mrs. Tirzah Miley Coates

For having helped achieve some 70 years of volunteer weather observations by one family at Woodstock, Va.; for exceptional and unselfish devotion to public service in continuing since the age of 12 the Woodstock weather record started by the Miley family more than 70 years ago.

Lindsay W. Crook

For faithfully carrying on since 1939 a volun-

teer weather observational program at the same site at Heber, Utah, where his grandfather, John Crook, began it, unofficially in 1859 and officially in 1893, and where his father, H. G. Crook, continued it from 1921 to 1939—making in all, a 100 year span of one family's devotion to public service.

Irwin A. Draper

For almost six decades of dependable climatological observations at Red Lodge, Mont., many taken under severe weather conditions since Mr. Draper began this important service in December 1902.

Dr. Hallie Earle

For over 40 years of weather observations at Hewitt, Tex., since 1916, continuing without a break at the oldest continuously operated volunteer weather station in Texas, a public service begun by her father, Maj. I. H. Earle in May 1879, before the village of Hewitt was established.

Walter O. Eckert

For over 50 years of complete and accurate weather observations at Grapeview, Wash., first begun in September 1908.

Andrew R. Erikson

For continuing, at the same high level as his predecessors in his family, the recording of daily weather observations at Water Valley, Miss., started by the father, Andrew Erikson, in 1885 and carried on since his death in 1902 by his wife Ulrika, his daughter Loula, and now by his son Andrew.

Thomas Fleming

For over three decades of weather observations of consistently high quality at Ashwood, Tenn., continuing a family record that started officially in 1883, and unofficially in 1856.

L. E. Gorsuch

For an exceptionally faithful record of weather observations at Leoti, Kans., since 1912—with but 1 month's record incomplete and that because the records for 3 days were destroyed by a tornado. One hour after the tornado Mr. Gorsuch resumed his regular observations.

J. Ludo Grieve

For 33 years of excellence in voluntarily recording weather data at Prospect, Oreg., without interruption; for invaluable public service in providing additional reports, both day and night, when high water was a threat to life and property.

Mrs. Elizabeth Heatwole Grove

For faithfully maintaining, with assistance from her brother, the late Justis B. Heatwole, the cooperative weather station at Dale Enterprise, Va.; founded by their father, Lewis J. Heatwole, in 1880; for excellence in helping to achieve the record of weather observations at this station complete for every day since 1885.

Michael Kangerga

For superior accomplishment in maintaining dependable and accurate weather observations for over five decades at Henderson, Tex., beginning in 1908.

John Mushrush

For unusual initiative and diligence in discharging his duties as Cooperative Weather Bureau Observer; for excellence in preparing weather summaries for Hoopston, Ill.; and for helping to organize a tornado warning service; and for cooperating generously in reporting severe weather.

Coen C. Neff

For exceptional devotion to public service in making and reporting Verdigris River gage readings at Lenapah, Okla., during critical flood conditions, requiring frequent travel under extremely adverse conditions; for valuable assistance in providing vital information for forecasting flood stages downstream for purpose of protecting life and property.

Mrs. Etta M. Neill

For taking dependable, accurate weather observations at Darby, Mont., since August 1932 without a single day's record missing; for taking excellent care of the weather instruments in her charge.

Milford L. Noon

For taking dependable accurate weather observations at Nogales, Ariz., since 1925 thus continuing a record made by other members of this family from 1899 to 1904 and from 1913 to 1924.

Torfinn Opjorden

For maintaining dependable weather records at Milan, Minn., for over three decades, thus continuing a record started by members of the Opjorden family in 1893.

Mrs. Willie S. Ratta

For over two decades of dependable weather records at Shelbyville, Ky., thus continuing a record started by her husband in 1926; and for using improvised crutches to enable her, after a severely disabling accident and shortly before

her death in December 1959, to reach the weather instruments and take observations.

Miss Elberta Sease

For over 36 years of dependable conscientious efforts in taking weather observations at Little Mountain, S.C., thus continuing a record started by her father in 1893.

Edward H. Stoll

For 55 years of voluntary climatological observations at Elwood, Nebr., consistently excellent for completeness and accuracy.

Hugh A. Storer

For having voluntarily taken daily climatological observations at Alton, Kans., for over 50 years, recording them accurately and reporting them promptly.

Miss Kate Strong

For nearly three decades of exceptionally conscientious efforts in maintaining a weather record at Setauket, N.Y., thus continuing the record started by her father, Selah B. Strong, in 1885; and for unusually good care of the instruments in her charge.

Mrs. Sarah M. Taylor

For over four decades of reliable weather observations at Merrill, Miss., continuing a family record started in 1914; and for outstanding service in taking and reporting observations during heavy rains and flood waters.

Charles E. Thew

For maintaining a cooperative weather record of high quality at Willapa Harbor, Wash., since 1923; for arranging for the display of storm and high water warnings in his locality and for the enthusiasm with which he has imparted his learning to countless students and visitors.

Towers and Norton Family

For an unusual and noteworthy contribution to the climatology of Floyd County, Ga., by maintaining at one location weather records for over 100 years with five generations of the family participating.

Mrs. Jessie T. White

For over five decades of dependable cooperative weather observations at San Jon, N. Mex.

Mrs. Gertrude Woods

For over five decades of excellent weather observations at Palmetto, Tenn., thus continuing a record started by her father, R. S. Montgomery, in 1883.

Roy L. Zum Brunnen

For taking reliable weather observations at Kirtley, Wyo., or for arranging that they be taken by others, since 1904.

1961

Mrs. Lucy C. Allen

For competent dedicated service as voluntary weather observer at Neuse, N.C., since January 1916.

Robert E. Bradbury

For having voluntarily taken daily climatological observations at Roberts, Ill., since 1911, recorded them accurately and neatly, reported them promptly, and for valuable assistance given the Weather Bureau in dissemination and publication of local weather data.

L. Monroe Cason

For unusually competent service as voluntary weather observer at Warrenton, Ga., since January 1916.

A. R. Cox

For over four decades of complete and accurate weather observations, reported promptly from near Redig, S. Dak.

Wayne W. Creasman

For over three decades of accurate weather observations and for disseminating weather information at Tryon, N.C.

William C. Cromley

For faithful, conscientious service as voluntary weather observer at Brooklet, Ga., since September 1910, thus continuing a record started by his father in 1907.

Paul O. Feldrappe

For over five decades of faithful service as voluntary weather observer at Plymouth, Wis.

Ralph H. Guy

For high quality weather observations at Kenton, Okla., since June 1912, continuing a family record started in 1910, and for consistent efforts to insure early receipt of data at the collection center.

The Reverend Plummer F. Jones

For five and one-half decades of complete and accurate weather records at Arvonnia and New Canton, Va.

Harry W. Knipp

For complete and accurate weather observations at Napoleon, Ohio, and for valuable as-

sistance in disseminating flood warnings for five decades.

Allin W. Ladd

For outstanding service as a weather observer at Holyoke, Mass., since October 1925 and for providing an excellent weather service to his community.

Clyde O. Laughner

For complete, very accurate and neatly recorded weather observations from one location at Whitestown, Ind., since October 1910.

C. R. Lovell

For nearly four and one-half decades of accurate, dependable weather observations at Greenville, Ky.

Ernest E. Martin

For four decades of outstanding service as voluntary weather observer at Salem, Mo.

Mrs. H. F. McCall

For detailed, complete, and highly accurate weather observations at Ulysses, Kans., since March 1917, and for taking observations under hazardous and extreme weather conditions.

J. C. Overpeck

For faithful, dedicated service as a volunteer weather observer at State University, New Mexico, since May 1929.

Mrs. Bessie Powe Page

For over two decades of faithful service as weather observer at Cheraw, S.C., thus continuing a family record started in 1887 and dedicated to taking weather observations and disseminating flood warnings.

Edwin L. Paulson

For outstanding service as cooperative weather observer at St. Helena, Calif., since July 1921; for wide dissemination of weather information and for unusual effort to maintain continuity of observations and to insure early receipt of data at the collection center.

Charles M. Richardson

For five decades of dedicated service as voluntary weather observer at Wickliffe and Wilmoughby, Ohio, thus continuing a record started by his uncle in 1894.

Joseph C. Robinson

For over four decades of outstanding weather observations at Laketown, Utah, without missing a single observation.

C. O. Romig

For more than 50 years of excellent voluntary weather observations at Dennison, Ohio.

Frank J. Southmayd

For faithful, enthusiastic service as weather observer at Franklin, N.H., since February 1919.

R. L. Staats

For over three decades of dedicated service as voluntary weather observer at Chugwater, Wyo.

W. C. Wiggins

For more than four decades of dedicated service as voluntary weather observer at Flatwillow, Mont., ending with his death in January 1961.

1962

W. C. Barnard

For more than 25 years of high quality weather observations at Glennville, Ga., thus continuing a record started by members of his family in 1904.

Charles N. Brown

For outstanding public service as a voluntary weather observer at Ames, Iowa, for taking and promptly reporting unusually accurate weather observations for nearly 29 years; for invaluable assistance to the Weather Bureau in local dissemination of weather data; and for outstanding enthusiasm for imparting his observational knowledge to students and others.

Robert N. Clark

For over 50 years of exceptionally conscientious efforts in maintaining a complete, accurate weather record in the Lockport, N.Y. area and forwarding reports promptly; for his outstanding record of providing observational data to others and for the high esteem with which he is regarded in the community.

Ned W. Colby

For maintaining a neat, accurate, and dependable weather record at Ovando 1SW, Mont., for over 37 years. For unusual care of equipment, and a high degree of cooperativeness in furnishing records of observations in the desired form, resulting in one of the finest climate records in the State.

J. A. Dennis

For over 40 years service as substation observer and river and rainfall reporter on the French Broad River at Marshall, N.C. His records have been complete, legible, accurate, and forwarded promptly.

Alzono M. Depue

For nearly five decades of faithful, dedicated service as voluntary weather observer at Layton 3NW, N.J.

Harry E. Ferguson

For having voluntarily taken daily weather observations at Hecla, Wyo., since November 1929, recording them accurately, neatly and promptly. Winter observations were often taken under high wind, low temperature, and blowing snow conditions.

W. S. Frame

For over three decades of service as voluntary cooperative observer at Lakeside, Mo., and for efficient efforts to provide information to the Weather Bureau.

A. C. Hanson

For more than 35 years of dedicated service as voluntary weather observer at Inwood, Iowa, a continuation of over half a century of family weather observing.

Miss Gertrude Harbison

For dedicated service as voluntary weather observer at Highlands, N.C., since 1928, continuing a family record started in 1909.

D'Arcy Harding

For furnishing weather records at Cambridge, Md., of consistently excellent quality and timeliness and for continuing the family enthusiasm for weather reporting started by his father in 1926. His devotion to weather includes personal ownership of numerous quality weather instruments and the furnishing of extensive informational services to the public through radio; and to schools, commerce, and individual callers.

Walter B. Harris

For over four and a half decades of faithful weather observations at Coleman, Md., and for continuing the weather program started by his father in February 1898.

Edwin E. James

For quiet and unassuming dependability in caring for station, equipment, and observations at Cascade 5S, Mont., including considerable effort to arrange for substitute observers in his absence, for an unusual degree of cooperativeness, as displayed by his willingness to handle special wind observations for the Great Falls Forecast Center, but mainly for being a fine cooperative observer for nearly 43 years.

Robert H. Jennison

For a family record of more than six decades of unusually complete, legible, and accurate weather observations at Healy, Kans., continuing a record started in April 1901.

A. E. Johns

For over five decades of faithful service as voluntary weather observer at Elgin, Nebr.

R. M. Jones

For over 50 years of service as voluntary weather observer at Clifton, Tex., during which time excellent and prompt reports have been submitted to the Weather Bureau.

Warren D. Judd

For 25 years of superior quality weather observations and for valuable assistance given the Weather Bureau in dissemination of local data at Fredonia, Ariz.

Arthur D. Lewis

For 33 years of dedicated service as voluntary weather observer at Pacific, Mo.

Mr. and Mrs. John B. Mirmak

For sustained excellence in devoted community service as river and rainfall observers at Wilkes-Barre, Pa.

Hubert A. Nieman

For over three decades of service as voluntary weather observer for Lockwood, Mo.

Walter B. Ormsby

For over two decades of exceptionally accurate and complete observations at Sabino Canyon, Ariz.

Perry C. Quattlebaum

For over three decades of outstanding performance at Conway, S.C., as river and climatological observer, for valuable assistance in disseminating flood warnings and evaluating flood damage, thus continuing a family record begun in 1899.

Gilbert H. Reier

For unusual excellence as a river and rainfall reporting observer at Warren, Pa.; for effectiveness as a representative of the flood forecasting program in his community; and for his contribution of far more energy, time and devotion than is normally expected.

Roger C. Rice

For exceptional accuracy, completeness, and legibility of his weather reports for Los Banos, Calif., and for unusual effort in the summarization and dissemination of climatological information within his community over a period of 32 years.

William E. Spearman

For unusual diligence in taking and reporting river and rainfall observations for an extended

period of time at Chappells, S.C., sometimes under hazardous or extreme weather conditions; and for his consistent efforts in disseminating warnings, which have resulted in substantial saving of property from flooding along the Saluda River.

Wells P. Starley

For faithful and conscientious service as voluntary weather observer at Fillmore, Utah, for 25 years, thus continuing a family record started in January 1892; and for widespread dissemination of local climatological information.

1963

John F. Allemant

For more than a quarter of a century of faithful volunteer service taking, recording and disseminating accurate weather data at Napa, Calif., and for inspiring and training relief observers.

Olus L. Barnes

For over three decades of faithful and dedicated service as voluntary weather observer at Tempe, Ariz.

Ruby W. Benecke

For weather observations of high quality since 1954, at Brunswick, Mo., continuing a family record of observations in the same community for 89 years.

Philip H. Boothroyd

For maintaining complete and dependable weather records at Waterdale, Colo., for three decades, thus continuing a record started by his father in 1895.

Earl J. Frick

For over three decades of high quality weather and river observations at Pelzer, S.C.; and for his assistance in disseminating river information, thus contributing to the effectiveness and prestige of the weather service and the welfare of the community.

Robert R. Golden

For 16 years of developing climatological services to his community of Cumberland, Md. His services include the furnishing of extensive information to the public through radio and newspapers and to schools, commerce, and individual callers.

Earle E. Graham

For over four decades of faithful, dependable service as volunteer weather observer at Magnolia, Ark.

Herbert B. Howell

For outstanding service to the Weather Bureau and to the people of Astoria and Grants Pass, Oreg., for the more than 37 years that he has been a cooperative weather observer. He has given unstintingly of his time to advance the knowledge and use of the records he has kept, and to cheerfully and effectively aid the Weather Bureau in public services outside his regular line of duty.

Ray L. Kenworthy

For over three decades of faithful service as weather observer at Apache Powder Company near Benson, Ariz.

Mrs. Emma B. Leach

For the preparation of neat and accurately detailed weather records at Circle Hot Springs, Alaska, with reliable regularity for the past 24 years.

Smith K. Patterson

For a complete, accurate, and neat record of climatological observations since 1933 at Concord, N.C., and for prompt reporting of rainfall at a critical reporting station thereby making possible successful flood forecasting, and for his great pride and assistance to his fellowmen in his voluntary weather work.

John N. Payne, Jr.

For a perfect record of weather observations at Evansville, Ind., since his appointment in 1949.

C. V. N. Perry

For faithful service as observer at one location on his father's homestead north of Andover, S. Dak., using his own instruments beginning in 1910 and as official weather observer using Weather Bureau equipment since 1937.

William E. Pitt

For excellence as volunteer weather observer and in providing rainfall reporting services at Ada, Okla., during the past 26 years, for additional instruments privately purchased in expanding service, for faithful dissemination of weather data through twice-daily radio broadcasts, and for the high esteem with which he is regarded in the community.

Carl E. Pollock

For maintaining continuous observations at Cumberland, Iowa, under all types of weather conditions at the same location for 41 years.

Mrs. Sarah P. Porter

For 30 years of dedicated service at Thomas-

ville, Ga., first as airway observer and then as voluntary observer; for unusual efforts in disseminating weather information and in securing substitute observers during periods of necessary absence.

Miss Elizabeth Russell

For serving as a voluntary weather observer at Anderson, S.C., for nearly three decades; for high quality of weather observations promptly taken; and for efficiently continuing a service to the public which was begun by her father, H. H. Russell, in February 1905.

Leslie W. Sargent

For complete and accurate weather reports for Junction City, Kans., neatly prepared and promptly rendered since May 1925; for the regular publication and dissemination of the local data through newspapers and telephone; and for extra effort in furnishing valuable assistance locally and to the Weather Bureau in critical flood periods.

Professor Edward S. Sell

For more than 30 years of efficient service as voluntary weather observer at Athens, Ga.; for making daily weather information available to the public through publication in the local press.

Cale A. Sleffel

For 60 years of voluntary weather observations near Norton, Kans., by 3 generations of the Sleffel family, recorded accurately and furnished promptly to the Weather Bureau and courteously provided to various community interests.

Jose Carlo Soler

For having voluntarily taken daily weather observations at Cabo Rojo, P.R., since 1941 and at Sabana Grande, P.R., for a portion of this period; recorded them accurately and neatly, reported them promptly; and for valuable assistance in the dissemination of local weather data.

Robert Allen Ward

For complete, detailed and unusually accurate weather observations at Ogden Dunes, Ind., and for regular publication of a complete monthly local climatological record.

Lynn K. Woods

For exceptional service as voluntary weather observer for over two decades at Del Norte, Colo.

1964

Ernest J. Anderson

For over three decades of exceptionally accu-

rate, complete, and timely observations at Orleans, Calif.

Oscar Angle

For outstanding service as a cooperative observer at Ennis, Mont., particularly for high quality weather records which have been consistently furnished with a minimum of delay and a maximum of dependability for nearly 40 years.

Thomas J. Bourne

For 42 years of exceptionally faithful service as volunteer weather observer at Owings Ferry Landing, Md., and for excellence in maintaining complete and legible records of accurate observations; for prompt mailing of reports and for the highest level of cooperation.

Norris Bruce

For faithful and dedicated service in maintaining since August 1920 the cooperative weather station at Westernport, Md., established by his father, Prof. Oliver H. Bruce in November 1894; and for excellence in achieving a record of weather observations at this station complete since the date of establishment.

Robert E. Burton

For consistent, complete, and accurate weather observations at Santa Cruz, Calif., since 1931; for exceptional weather service to his community; for an unusual interest in weather developments; and for an outstanding ability to share his enthusiasm with others in the community.

William H. Cumming

For superior accomplishment in maintaining excellent records of weather observations for nearly 30 years at Houlton, Maine, despite storms and other obstacles.

Joseph B. Dodge

For sustained excellence in more than 34 years of weather observing at Conway and Pinkham Notch, N.H.; for interest in and knowledge of the weather of the White Mountains; and for his unceasing efforts to use and share with others meteorological data and understanding for the promotion of safety and well-being of visitors and vacationers in this mountain recreational area.

Ross E. Forward

For nearly 40 years of continuous weather observations of outstanding quality and exceptional neatness and legibility at Sheldon, Iowa, beginning in July 1925.

Fred Hahn

For having voluntarily taken daily weather observations at Fremont, Nebr., since 1929, recorded them accurately, reported them promptly, given valuable assistance to the Weather Bureau in the dissemination and publication of local weather data and for continuing the weather record started at this same location in 1902 by his brother.

Frank S. Hatch

For 40 years of faithful rendition of accurate weather reports thus continuing the pioneer climatological record for the town of Scipio, Utah, dating from June 1895.

Andrew M. Johannsen

For consistent performance as a cooperative observer at Dunkirk 14NNE, Mont., well beyond the call of duty involving regular early mailings of records, beautifully legible records prepared in accordance with applicable instructions; all done with quiet, self-effacing dependability and efficiency.

Prof. Stanley Johnston

For outstanding service in the operation and management of the cooperative weather station at South Haven, Mich.

Mrs. Etta L. King

For dedicated and conscientious river and rainfall observing and reporting at Holley, Oreg., during the past 25 years. Her accurate observations have served the public through the Weather Bureau's river forecasting and climatological programs and through the U.S. Geological Survey's streamflow measurement program.

Martin G. Kizer

For 29 years as an excellent volunteer weather observer at Apache, Okla.; for exceptional efforts given to maintain a high level of efficiency in keeping complete and accurate records; for promptness, reliability, and the highest level of cooperation.

Charlie McCornack, Jr.

For excellent service as volunteer weather observer at Cloud Chief, Okla., for 28 years; for special efforts to maintain continuity of observations; for promptness, reliability and outstanding cooperation.

James F. McCray

For having voluntarily taken daily weather observations at Mount Carroll, Ill., during the past

42 years; for recording them accurately and neatly, and reporting them promptly; and for valuable assistance to the Weather Bureau in the dissemination and publication of local weather data.

Thomas C. Merchant

For voluntarily taking, recording and promptly reporting daily climatological weather observations of consistently high quality at Madison, Fla., for over 45 years beginning in April 1918; and for the enthusiasm with which he continues to engage daily in this valuable public service.

Orlan C. Moore

For over 37 years of continuous weather observations of excellent quality and exceptional neatness and legibility at Akron, Iowa, beginning in February 1927.

Oliver M. Orendorff

For dedicated service as a volunteer weather observer at Sallisaw, Okla., for 34 years; for accurate, continuous, and legible reports; for consistent efforts to maintain continuity of observations and also to insure early receipt of data at collection centers; and for outstanding cooperation with the public and Weather Bureau representatives.

Homer L. Parnell

For dedicated service as voluntary weather observer at Graton, Calif., since 1938, continuing a family record started in 1896 by E. H. Parnell, his father.

George Raveling

For over 32 years of excellent weather records kept at Rock Rapids, Iowa, and for unusual cooperation in supplying weather information to and for the U.S. Weather Bureau.

Wesley C. Roscoe

For furnishing weather records at Upper Mattole, Calif., consistently of excellent quality and for continuing the family enthusiasm for weather reporting as established by his father in 1886.

Earl Slife

For 38 years of excellent, complete, neat, and legible weather records at Hawarden, Iowa, since August 1925.

Arthur Suess

For faithful, conscientious service as voluntary weather observer at Menno, S. Dak., since March 1928; and for exceptionally neat and legible records of outstanding quality.

Mrs. Elizabeth H. Williams

For dedicated service as river-rainfall observer at Rougemont, N.C., since May 1915, and for exceptionally neat and legible records of outstanding quality.

Stuart T. Witherell

For continuing the Lane family tradition of cooperative weather observing at Cornwall, Vt., begun by his great-grandfather, Mr. Henry Lane, more than three-fourths of a century ago, in 1886. Mr. Witherell assumed the family duties in 1950, after many years of service by his grandparents, Charles and Sarah Lane, to continue this unusual and noteworthy contribution to the climatology of Vermont.

1965

Lee L. Albert

For having faithfully served as cooperative weather observer at Cape Girardeau, Mo., for over 32 years without a break in record, thus continuing a family record started in November 1904.

Howard R. Allard

For outstanding service to the Weather Bureau and to the community as the official weather observer at Willows, Calif., for nearly four decades.

Richard M. Allen

For dependable, accurate weather observations at Bonita, Calif., over a period of more than 50 years until his death in February 1965; for maintaining the observational equipment at a high standard of excellence throughout this period.

Nesbitt H. Bangs

For dedication as a voluntary weather observer at Stockbridge, Mass., for well over three decades; for the continuous record of accurate and complete observations.

William O. Beckner

For having voluntarily taken daily weather observations at Elgin, Ill., since 1927, recorded them accurately and neatly, reported them promptly, and for valuable assistance to the Weather Bureau in the dissemination and publication of weather data.

Floyd C. Butel

For a weather record with no missing observations; and for unusually detailed, legible, and accurate reports for 37 years near Overbrook, Kans.

Paul Carlisle

For 32 years of individual rendition of weather

reports for the town of Alpine, Utah, continuing the splendid family cooperation with the Weather Bureau which was started by his family in May 1911.

Clyde C. Clark

For having faithfully and voluntarily rendered consistent weather observations at Caesars Head, S.C., for more than 30 years; for special efforts to keep accurate records; and for promptness and reliability.

Felix A. Delatte

For more than four decades of voluntary daily weather observations of consistently high quality at Houma, La.

James C. Faris

Unusual diligence in taking and reporting observations over an extended period of time, continuing a 59 year family record of observations at Catawba, S.C.; and for assistance in disseminating flood warnings in the area.

Gilman W. Ford

For dedicated service as a voluntary weather observer at West Burke, Vt., for more than 34 years.

C. L. Fox

For 27 years of faithful service as volunteer weather observer near Tipton, Okla.; for outstanding effort in maintaining complete and accurate observations; for prompt mailing of records; and for the highest level of cooperation.

Ernest E. Gelhaus

For faithful and conscientious service to his community and country as voluntary weather observer at or near Webster, S. Dak., since April 1932.

Mrs. Thomas Gillaspie

For faithful and conscientious service to her communities and country as voluntary weather observer near Ottumwa and at Midland, S. Dak., since December 1933.

Charles D. Greenfield

For an unassuming dedication to the task of keeping a precipitation record near Helena, Mont., for well over 40 years.

R. J. Hoge

For 29 years of superior service as volunteer weather observer at Watertown, Wis.; for continuity of observations; and for accuracy, reliability, and cooperation.

William Lammle

For faithful and conscientious service to his

community and country as volunteer weather observer at Roscoe, S. Dak., since December 1934.

Blaine Malone

For having voluntarily taken daily weather observations at Lovelaceville, Ky., since 1930, recorded them accurately and neatly, reported them promptly; and for valuable assistance to the Weather Bureau in the dissemination of local weather data.

Douglas F. Manning

For outstanding and dedicated service as a volunteer daily weather observer for more than 33 years at Alexandria Bay, N.Y.

Howe V. Morgan

For having voluntarily taken daily weather observations at Sparta, Ill., since March 1923, recorded them accurately and neatly, reported them promptly, and for valuable assistance to the Weather Bureau in the dissemination and publication of local weather data.

Walter C. Rowland

For dedicated service as a voluntary weather observer at Waupaca, Wisc., since 1927 and for excellent accomplishment in maintaining superior weather records.

Dr. William R. Sherman

For unusually accurate, complete, and legible weather observations for Hillsdale, Mich., for

more than two decades; and for the commendable manner in which he has represented the Weather Bureau as cooperative weather observer in his community.

C. E. Shubert

For complete and accurate weather observations in the Parshall, N. Dak., area beginning in 1930.

Carl Hugh Spruill

For 35 years of unusually accurate, complete and legible weather observations at Williamston, N.C., and for outstanding service to the Weather Bureau and his community in the dissemination of weather data and river and flood information.

Luis G. Veray

For dedicated service to the public of Puerto Rico as a voluntary weather observer at Toa Baja, P.R. for more than two decades; for excellence in providing complete and accurate local climatological data and for dissemination of local weather and river information.

H. A. Willis

For outstanding service as cooperative weather observer at McColl, S.C. for more than 29 years; for unusually complete and accurate observations and for his enthusiasm in sharing his knowledge with his community.

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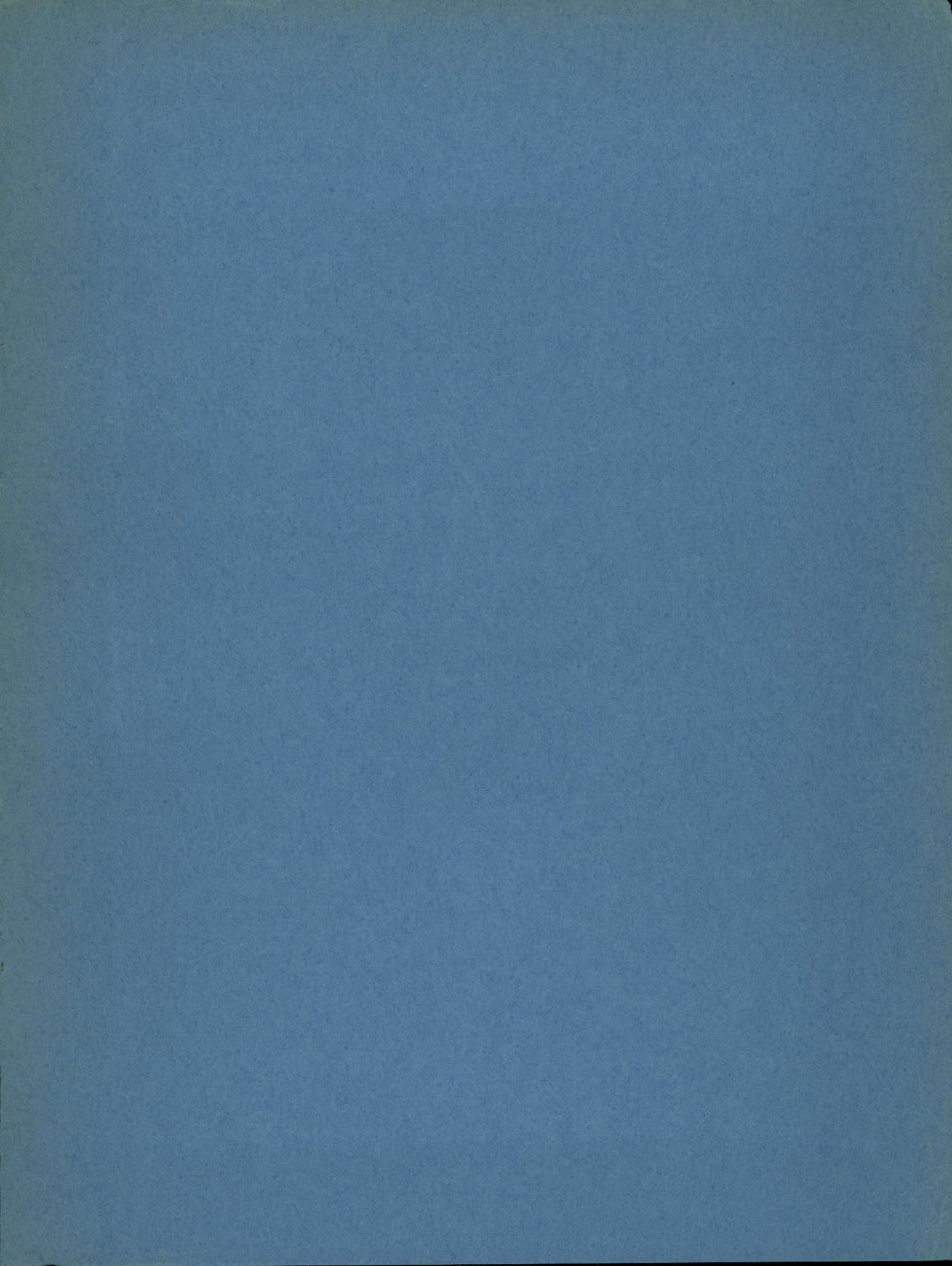
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