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WEATHER BUREAU TOPICS AND PERSONNEL

JANUARY 1947

INFORMATION

NEW YEAR'S GREETINGS

"WE POINT WITH PRIDE"

When you come to any large city, invest a nickel in a phone call to the local branch of the U. S. Weather Bureau. Ask the man who answers what the weather is like in the direction of your trip. If a storm or continued rain is in the offing it might be best if you lay over in town for a day. I have yet to talk to an impolite meteorologist. They are all co-operative and helpful. Few tourists, however, take advantage of their services. If you pay taxes, you needn't feel guilty about using the Bureau.

[Excerpt from Lloyd Shearers' article, HOLIDAY magazine January 1947.]

COMMENDATION

The following editorial which originated in the Newark Evening News of October 7, 1946, and was copied in many daily newspapers, is reprinted in full for the information of Weather Bureau employees. The editorial was inspired by the article on "Hurricane Fatalities" published on the back of the weather map.

ON THE WEATHER JOB

The anonymous scientists of the Government Weather Bureau are largely unhonored, generally unsung. If we think of them at all, it is likely to be with irritation because a forecast hasn't turned out 100 percent correct. Occasionally we are grateful because of a timely warning of frost or snow, but we don't ordinarily think of the meteorologists as a dramatic, life-saving group.

Yet that is in effect exactly what the Weather Bureau men are—long-distance life-savers. An estimated 8,000 people who are alive today would have perished in the last 10 years had it not been for the Weather Bureau's hurricane warning service.

We have to look no farther than yesterday's front pages to see how Florida west coast residents, alerted by the Weather Bureau, boarded up homes, fled to cities, and in some cases evacuated en masse from areas in the latest storm's path.

This service dates back to 1873, but it is only in recent years, with modern communications, that it has reached its greatest effectiveness. As recently as 15 years ago hurricanes were taking a toll of 161 lives for each $10,000,000 worth of property destroyed. Today, using the same yardstick of property damage to estimate a hurricane's "killing power," the fatalities per $10,000,000 of damage number only four.

The reason for this saving in lives is that people, warned of a hurricane's approach, are largely able to keep out of harm's way. More than 80 percent of the storms' victims met death by drowning, which generally can be avoided if people are warned in time to seek high ground and safety.

To be sure the Weather Bureau does not claim all the credit for saving these lives. It points out that public and private organizations, pooling their resources and personnel when hurricanes threaten, are responsible for the actual evacuation of as many as 50,000 persons from a storm's path.

But, unless the weather observers, some of them in bleak and lonely outposts, faithfully compiled and passed along their data—unless the meteorologists consolidated the reports and drew from them conclusions—and unless their warnings were issued with consummate accuracy as to where and when a hurricane will strike—all the personnel and resources in the world would be powerless to act in time.

The Weather Bureau gives credit to the press, among others, for its assistance in hurricane warnings. We would like to toss the bouquet right back to the weather men, with the citation:—In the best traditions of the service.

National Oceanic and Atmospheric Administration
Weather Bureau Topics and Personnel

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QUALIFICATIONS OF AN EXECUTIVE

The following note by Mr. Harold V. Coes, appearing first in ACME *News Bulletin*, is quoted from the MANAGEMENT REVIEW, published by the American Management Association:

After many years' experience in studying organizations and their executive staffs and in hiring executives, I have compiled the following list of qualifications I found I was subconsciously seeking in a competent executive.

1. Character, i. e., honesty, integrity, loyalty, truthfulness, fairness, tolerance, firmness.
2. Orderliness in mind and in action.
3. Poise and control of temper, in contradistinction to deskpounding.
4. Respect for time, its value and its use.
5. Ability to assume responsibility.
6. Ability to cooperate.
7. Ability to take and to give constructive criticism.
8. Ability to compromise when necessary.
9. A sense of humor.
10. Broadmindedness.
11. Action without procrastination.
12. Wisdom to understand that it is no sign of weakness to seek help from competent sources.
13. Clarity of thought—the ability to reason from the facts, draw sound conclusions, and then act.
14. Good judgment, acting intuitively at times, with only the mere facts at hand at the time the decision must be made. Logical reasoning from the facts will frequently produce a conclusion at direct variance with what judgment dictates.

Of course, in addition to the foregoing one needs to know (depending upon the position to be filled) the technical background, experience, etc., of the individual under consideration. Furthermore, the following questions should be asked in appraising a potential executive.

1. Can he state policies clearly?
2. Can he issue orders and instructions clearly?
3. Does he know how to select and rate subordinates?
4. Does he know how to coordinate effort?
5. Does he know how to sell his ideas?
6. Does he know how to analyze?
7. Does he know how to plan?
8. Does he know how to follow through?

CLOSING OF FIRST-ORDER STATIONS

The first-order station at Waynoka, Okla., was closed at the termination of December 18, 1946.

The first-order station at Brinkley, Ark., was closed at the termination of December 18, 1946.

The first-order station at Burrwood, La., was closed at the termination of December 13, 1946. The rawinsonde program was transferred to the Weather Bureau Airport Station, New Orleans, La. Radiosonde observations began at New Orleans on December 16 and rawinsonde observations will begin shortly. The elevation of the floor of the instrument shelter, used as "surface" on adiabatic charts in units 0.98 gdm., is 2.

NOME, ALASKA RAWINSONDE STATION ESTABLISHED

The Weather Bureau took over the rawinsonde program from the Army at Nome, Alaska, and twice daily scheduled rasons began on November 1, 1946. The elevation of the floor of the instrument shelter, used as "surface" on adiabatic charts in units 0.98 gdm, is 7.

CLOSING OF SECOND-ORDER STATION

The second-order station at Springfield, Minn., was closed at the termination of December 13, 1946.

INSTRUCTIONS

TRANSMISSON OF ADMINISTRATIVE MESSAGES BY P. B. A. TELETYPE

The Weather Bureau has made arrangements with the Public Buildings Administration to send and receive messages of an administrative character from the following Weather Bureau Offices in the United States:

Albany, N. Y.*
Albuquerque, N. Mex.*
Atlanta, Ga.†
Baltimore, Md.†
Birmingham, Ala.†
Boise, Idaho*
Boston, Mass.†
Buffalo, N. Y.*
Charlotte, N. C.†
Chicago, Ill.†
Cincinnati, Ohio†
Cleveland, Ohio†
Columbia, S. C.*
Columbus, Ohio†
Dallas, Tex.†
Denver, Colo.†
Des Moines, Iowa*
Detroit Mich.†
Ft. Worth, Tex.†
Hartford, Conn.*
Helena, Mont.†
Houston, Tex.†
Indianapolis, Ind.*
Jacksonville, Fla.†
Kansas City, Mo.†
Little Rock, Ark.†
Los Angeles, Calif.†
Louisville, Ky.†
Memphis, Tenn.*
Milwaukee, Wis.*
Minneapolis, Minn.†
New Orleans, La.†
New York, N. Y.†
Oakland, Calif.†
(Sent to San Francisco)
Oklahoma City, Okla.†
Omaha, Nebr.†
Philadelphia, Pa.†
Phoenix, Ariz.†
Pittsburgh, Pa.†
Portland, Oreg.†
Raleigh, N. C.*
Richmond, Va.†
St. Louis, Mo.†
St. Paul, Minn.†
(Sent to Minneapolis)
Salt Lake City, Utah†
San Antonio, Tex.†
San Francisco, Calif.†
Seattle, Wash.†
Spokane, Wash.†
Tulsa, Okla.†
Washington, D. C.†

*Sent via TWX from nearest teletype drop. †On PBA teletye circuit.

It is requested that station officials at each of the above-mentioned cities make arrangements with the local P. B. A., office to send and receive messages via telephone. Where more than one office is located in a city, suitable identification of each office should be established. Also, if toll charges are involved in calling from P. B. A., to the Weather Bureau Office, arrangements should be made for the Weather Bureau to assume these costs.

At the discretion of the Official in Charge, messages may be sent by other means if of an urgent or personal nature.

STORM-WARNING DISPLAYS ON GREAT LAKES

The display of storm warnings on all the Great Lakes, except Lake Michigan, was discontinued for the season at the termination of December 15, 1946. Displays will continue on Lake Michigan from Menominee and Frankfort southward. Advisory warnings will not be regularly issued during the closed season. All special needs which develop will be handled by the Chicago Forecast Center and local offices concerned.

PURCHASE OF PRINTING MATERIAL IN THE FIELD

The attention of station personnel is called to the fact that under existing regulations, zinc etchings, line cuts, and electrotypes are not to be purchased in the field without prior approval of the Central Office. The Central Office has an annual contract and will procure this type of material for all field stations.

PERSONAL

RETIREMENT

Mr. Charles A. Belt, meteorological aid at Pittsburgh, Pa., was retired at the termination of November 30, 1946, on account of disability. Mr. Belt was born at Macy, Ind., on November 3, 1889, and entered the Weather Bureau service on February 25, 1911, at New Orleans, La., as an assistant observer. Under date of August 1, 1912, he transferred to Pittsburgh, Pa., where he was employed until his retirement.

Mrs. Nellie A. Hurd, clerk in Climatological and Hydrologic Services Division of the Central Office, was retired at the termination of November 21, 1946, on account of disability. Mrs. Hurd was born in Toledo, Ohio, on September 24, 1892, and entered the Weather Bureau on May 16, 1940. Her entire Bureau service has been at the Central Office. She previously had about 6 years' service in the Treasury Department during World War I.

Mr. Joseph P. McAuliffe, meteorologist in charge at Corpus Christi, Tex., voluntarily retired at the termination of October 31, 1946, with over 36 years' service in the Weather Bureau. Mr. McAuliffe was born on March 30, 1884, at Louisville, Ky., and entered the Weather Bureau on May 16, 1910, at the Central Office as an observer. He subsequently served at Little Rock, Ark., Vicksburg, Miss., Raleigh, N. C., New York, N. Y., Jacksonville, Fla., Davenport, Iowa, and Taylor and Corpus Christi, Tex., respectively, serving as official in charge at Corpus Christi since January 1, 1922.

DEATHS

Mr. Hubert A. Elliott, meteorologist, died suddenly on November 25, 1946. Mr. Elliott was born on April 8, 1903, at Mason City, Iowa, and entered the Weather Bureau service on July 7, 1924, as an observer at Sioux City, Iowa. He subsequently served at Dubuque, Iowa, Chicago, Ill., Los Angeles, Calif., El Paso, Tex., Portland, Oreg., Seattle, Wash., and Oakland, Calif. Mr. Elliott was serving as official in charge at the Oakland, Calif., airport station at the time of his death.

Mr. Harry M. Hightman, who was retired at the termination of November 30, 1943, died on July 20, 1946. A notice of his retirement and an outline of his service in the Weather Bureau will be found in TOPICS AND PERSONNEL for May 1944.

CORRECTION

A subsequent report shows that Mr. Harry D. Lofland, whose death was reported in the December 1946 issue of TOPICS AND PERSONNEL, died in Oakland, Calif.

F. W. Reichelderfer

F. W. REICHELDERFER

Chief of Bureau.

(WB—1-20-46—675)

WEATHER BUREAU TOPICS AND PERSONNEL

FEBRUARY 1947

INFORMATION

OPPORTUNITIES ABROAD

Attractive vacancies for meteorologists are still available in a number of countries abroad. The positions include a wide variety of work ranging from administration, training and organization of meteorological services in areas undergoing rehabilitation, to regular forecasting assignments in the various National Weather Services. Salaries range from equivalent to P–3 up to P–6 and in a few cases higher, some including a 25 percent foreign differential. In some cases meteorologists are authorized to take their families abroad. Periods of assignment run from a few months to 2 or 3 years in different cases. Present vacancies include positions in South America, Europe, the Philippines, the Pacific Islands and elsewhere.

In addition to the immediate emoluments of these positions it should not be overlooked that the broadening of experience and general knowledge of meteorology and service organizations offers lifelong values. Requirements in general are professional qualifications (university courses) in meteorology, and experience demonstrating professional ability and knowledge. Those interested please write Placement Section, Weather Bureau, Washington, D. C.

EMPLOYEE LOYALTY

Administrative Order 202–21 issued by the Department of Commerce on December 31, 1946, discusses the subject of employee loyalty and explains the Department's responsibility for determining the continued suitability of employees after they have received unrestricted appointments. The order also provides for the protection of employee rights should it be alleged that an employee has violated any of the loyalty provisions of the law which employees of the Department of Commerce are charged to observe.

The following are provisions of law, the violation of which would require action by the Department of Commerce:

1. The Hatch Act (53 Stat. 1147, as amended; 18 U. S. C. 61) provides that it shall be unlawful for any person employed in the Department to have membership in any political party or organization which advocates the overthrow of our constitutional form of Government in the United States. The enforcement of Hatch Act restrictions rests with the head of the department (39 Op. Atty. Gen. 462), except in the case of employees serving under an appointment subject to investigation by the Civil Service Commission;

2. The several appropriation acts of the Department of Commerce contain provisions prohibiting the use of funds to pay the wages of any person who advocates, or who is a member of an organization that advocates, the overthrow of the Government of the United States by force or violence.

3. The Act of June 28, 1940 (54 Stat. 670,671), known as the Smith Act, provides that it shall be unlawful for any person, knowingly and willfully, to advocate, abet, advise, or teach the duty, necessity, desirability, or propriety of overthrowing any Government in the United States by force or violence, or by the assassination of any officer of any such Government; and

4. The Federal Personnel Manual (C2-17) provides that "Employees must not be disloyal to the Government of the United States. If there is reasonable doubt as to the employee's loyalty, he may be removed from the service."

Violation of these laws may result in the following penalties:

1. Any person who violates the provisions of the Hatch Act must be immediately removed from the position held by him. This penalty constitutes a statutory exception to Section 2 of Civil Service Rule XII, which prohibits removals for political reasons;

2. Any person who accepts employment in violation of the restrictive provisions contained in Department of Commerce appropriation acts, as referred to in Section 2 above, upon conviction in a District Court of the United States, is liable to a fine of not more than $1000 or imprisonment for not more than one (1) year, or both; and

3. Any person who is convicted in a District Court of the United States of violating the Smith Act may be fined not more than $10,000 or be imprisoned for not more than ten (10) years, or both, and shall not be eligible for employment by any agency of the United States for five (5) years following conviction.

Complaints of subversive activity on the part of the employees will first be investigated by the Federal Bureau of Investigation. The report of this investigation will be transmitted to the Department through the Interdepartmental Committee on Employee Investigations. If this report indicates that additional information is necessary before definite action can be taken, the Department Loyalty Review Board will conduct a further investigation. In such case, the employee is entitled to testify in his own behalf and may designate a representative of his own choosing who may be an employee of the Department or a member in good standing of the Bar of any court having jurisdiction within the United States or its territories to serve as an adviser and advocate.

A hearing will be held in each case and every effort will be made to develop all credible evidence available. Cases involving field employees will be handled in the same manner, except that no oral hearings need be held and the submission of evidence and replies thereto may be in writing if the board so decides.

The final decision in the case will be made by the Secretary of the Department based on the findings of facts and resultant recommendation of the Loyalty Review Board. The decision will be transmitted to the primary organization unit, where the necessary action to effectuate the decision will be taken.

INTERNATIONAL FALLS, MINN., RAWINSONDE STATION

The elevation of the floor of the instrument shelter, used as "surface" on adiabatic charts in the units 0.98 gdm., at International Falls, Minn., has been changed from 343 to 360.

PERSONAL

RETIREMENTS

Mr. Warren E. Brown, clerk in the Division of Administrative Services, Mail and Files, at the Central Office, retired at the termination of November 30, 1946, on account of disability. Mr. Brown was born at Goode, Va., on January 11, 1910. He originally entered the Government service on April 30, 1931, in the Census Bureau, serving subsequently, in the General Accounting Office, Bureau of Internal Revenue, and Office of Emergency Management, respectively; transferring to the Weather Bureau on February 2, 1942. From May 9, 1942, to April 3, 1946, inclusive, he was absent on military furlough (Navy). His entire Weather Bureau service was at the Central Office.

Mr. Lawrence C. Fisher, official in charge at Seattle, Wash., retired at the termination of November 30, 1946, at the age of 70 and with over 44 years of service in the Weather Bureau. Mr. Fisher was born November 9, 1876, at Wellington, Ohio, and entered the Weather Bureau on July 1, 1902, as an observer at New Orleans, La., subsequently serving at Seattle, Wash., and Denver, Colo. Under date of June 16, 1929, Mr. Fisher returned to Seattle, Wash., where he was employed until his retirement.

Mr. Phillips P. Hemphill, assistant regional director at Fort Worth, Tex., was retired at the termination of November 21, 1946, on account of disability. He was born at Lott, Tex., September 22, 1903, and entered the Weather Bureau as an observer at Broken Arrow, Okla., on October 1, 1927. Mr. Hemphill also served at the following Weather Bureau Offices: Atlanta, Ga., Fort Worth, Tex., Kylertown, Pa., and San Antonio, Tex. Mr. Hemphill was on military furlough from September 10, 1941 to January 14, 1946, during which period he served for a time as an Air Force Weather Control Officer.

DEATHS

Mr. Anthony C. Hemmersbaugh, official in charge at the St. Paul Airport, died on December 30, 1946, at St. Paul, Minn. Mr. Hemmersbaugh was born on July 9, 1896, at Logansport, Ind., and entered the Weather Bureau service on February 21, 1930, as an observer at Royal Center, Ind. He subsequently served at Columbus, Ohio, Pittsburgh, Pa., Harrisburg, Pa., and St. Paul, Minn.

Mr. David R. Morris, official in charge of the New York Meteorological Observatory, Central Park, New York City, N. Y., died on January 9, 1947. Mr. Morris was born on April 28, 1879, at Corpus Christi, Tex., and entered the Weather Bureau service on June 1, 1898, as map distributor at Corpus Christi, Tex. He also served at the following Weather Bureau offices; Galveston and Houston, Tex., Jacksonville, Fla., New York, N. Y., Montgomery, Ala., Mt. Weather, Va., Omaha, Nebr., Phoenix, Ariz., Richmond, Va., Vicksburg, Miss., and Washington, D. C.

F. W. Reichelderfer

F. W. REICHELDERFER

Chief of Bureau.

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WEATHER BUREAU TOPICS AND PERSONNEL

MARCH 1947

INFORMATION

DANGERS INHERENT IN OIL-BURNING HEATERS

On December 18, 1946, fire completely destroyed the shelter housing the SCR-658 radio-direction-finding set at Anchorage, Alaska. Apparently the fire was caused by the improper functioning of the oil-burning space heater.

As a result of this fire, the Anchorage Regional Office issued a Regional Memorandum, dated December 23, 1946, cautioning other stations having similar heating installations. A portion of that memorandum is quoted below for the information and guidance of all concerned:

There are several inherent sources of danger in the design of most fire pot type oil burners. The principal sources of danger are as follows, and apply whether the burner is used in a range, space heater, furnace, or water heater:

Metering Valve (Carburetor).—The function of the metering valve is to regulate the flow of oil into the fire pot. If the adjustment screws are turned beyond their correct setting in an attempt to "get more heat from the burner," oil will feed into the pot faster than it can be burned. As the level of the oil rises in the bottom of the pot, there is a tendency for the oil to boil and foam. When this occurs, there is a danger of the burning oil overflowing the pot into the base of the heater or onto the floor. This condition and setting of the adjustment screws should be carefully checked and under no circumstances should the adjustments of the valve be forced or otherwise altered in an attempt to secure more than the rated heat capacity from the unit.

Fire Pot.—Probably the most common trouble experienced with the fire pot is caused by an accumulation of ash and carbon in the bottom. When the accumulation builds up to the extent that the oil feed tube from the mixing valve becomes plugged, excess oil under slight pressure may be trapped in the valve. In this case, it may either overflow around the top of the valve or surge into the fire pot. In the latter case, if the pot is hot the oil may boil or vaporize, resulting either in boiling oil running out of the pot or in a mild explosion. The fire pot and combustion chamber should be thoroughly checked for any leaks caused by rusting or misfitting of the parts.

Draft Control and Flue.—Improper adjustment of the draft control damper or an accumulation of soot in the flue can cause a condition unfavorable to proper combustion. This may result in an accumulation of excess oil vapor in the fire pot and flue. Should conditions again become favorable for combustion this excess vapor might be ignited by the hot combustion rings of the fire pot or particles of glowing carbon in the combustion chamber. Under these circumstances an explosion could result. A similar effect may be caused by strong gusts of wind which momentarily extinguish the flame in the fire pot. The draft control should be checked for adjustment and proper operation. Several controls have been found improperly installed. The control should be installed so that an increase in draft will cause it to open, allowing air to enter the flue, thereby automatically regulating the draft to the burner. The proper direction is usually indicated by an arrow stamped into the body of the control. This arrow should point away from the burner and toward the flue. A careful check should be made to ascertain that all connecting pipes and the flue are in good condition and free of excess soot. The smoke stack should be so designed and installed that strong or gusty winds will not cause a back draft.

Oil Lines and Fittings.—Leaking lines or fittings that allow oil to seep out on the floor, wall, or other parts of the building should be repaired without delay. On burners fitted with individual tanks, extreme caution should be exercised to avoid spilling oil when filling.

WITH THE WEATHER BUREAU IN THE ARCTIC

Way up north on Wolstenholme Sound on the west Coast of Greenland, in a region where the Arctic Circle lies as far to the south as does Montgomery, Ala., from Chicago, stands the northernmost weather station in the world. Located a few miles from the Danish settlement and Eskimo village of Thule, the weather station has both an interesting history and a future rich in promise of achievement in the cause of international meteorology.

As a result of negotiations with the government of Denmark, it was agreed in 1946 to expand the small Danish weather station at Thule into a modern geophysical laboratory and meteorological observatory. Last summer, with the cooperation of the U. S. Army and Navy, six wooden buildings were erected, instruments and communications equipment installed, and a year's supplies and provisions provided. The work was supervised for the Bureau by the newly organized Arctic Section, under the leadership of Charles J. Hubbard, a veteran of Arctic exploration since 1917, and a wartime expert for the Army Air Forces on Arctic airports and weather stations.

As specified in the enabling agreement, one-half of the 22 weathermen at Thule are Danes and one-half Americans. Another clause in the agreement provides for the transfer of the station to entire Danish control at an appropriate later date. Both nationalities are working together with high morale and in complete harmony at this first international weather station. Danish activities are directed mainly toward taking magnetic observations; the Weather Bureau crew is busy with its schedule of complete surface and some upper-air observations. Every 6 hours Thule radios to Washington, and every 3 hours it transmits its reports to stations in the north Atlantic forecasting area.

The official in charge at Thule is E. E. Goodale of Boston. W. B. Chappell, formerly official in charge at Norfolk, Nebr., and Earl A. Johnson, known for his work with Ocean Weather during the war, are also there. The American personnel includes CAA radio operators, on loan to and paid by the Weather Bureau, and consists of men chosen for their all-round ability, Arctic experience, and skill along specialized lines. The cooks, for example, are experts, capable of turning out Southern-fried chicken in definitely non-Southern surroundings. Plans for the future envisage Thule as a center for Arctic upper air, ionospheric, and magnetic studies, as well as for research on the growth of sea ice, on snow surfaces, icing on aircraft, and special Arctic phenomena. It is hoped that Thule will be the first of a network of stations which, in conjunction with the Canadian observatories, will furnish adequate coverage of the vitally important Arctic zone. Expectations are that next summer will witness the establishment of at least one more station north of Thule. Weather Bureau employees interested in this adventurous assignment should write to the Arctic Section for further information. Positions are unclassified, and salaries range from about $5,000 to $6,000 a year.

As this issue of TOPICS AND PERSONNEL is being prepared for press, the sun is shining on Thule for the first time in 4 months. During the winter (November–February) darkness, however, life was far from dim. Mail was flown in and out once a month; special food packages arrived by the same route. Heavy winter clothing (in addition to food and shelter) was furnished free, but the men worked in pretty much the same clothes as they would in the States, except when their work called them outside. At Christmas, gifts and a tree were flown in, and New Year's Day was marked by a party given for the Eskimo children. About 125 Eskimo families live near Thule; dubbed "the Arctic Highlanders" by an early explorer, they are the northernmost of any Eskimo tribe, and have supplied sturdy assistance to more than one Polar expedition. Latest word is that a fire destroyed the Thule rawin equipment. This loss, however, has already been replaced by stand-by equipment and should prove no handicap to those able Weather Bureau men who are making the Arctic yield its weather secrets.

THUNDERSTORM PROJECT

A preliminary report on the thunderstorm project, conducted at a test area near Orlando, Fla., during the past summer, has recently been released. It was prepared by Dr. H. R. Byers, who directed the project for the Bureau. Dr. Byers also gave a talk on the preliminary results in Washington, D. C., on the evening of January 27.

The Florida test was the first phase of a study of thunderstorms, authorized by Congress, and supervised by the Weather Bureau in cooperation with the Army, Navy, and National Advisory Committee for Aeronautics. In a carefully chosen region near Orlando, where there occurs every summer a large number of thunderstorms of a simple, cellular type, a network of 54 stations was established. These stations, located roughly 1 mile from each other, were well equipped with automatic-recording instruments to register the surface variations in pressure, temperature, humidity, wind, and rainfall, as a thunderstorm moved over the test area. In addition, a number of radiosonde, rawin, and radar stations were established to observe and record conditions in the upper air, and a central operational control was established. The radar sets proved to be extremely valuable in tracking the thunderstorm, controlling the release of the sounding balloons, and checking the flight of the airplanes and gliders used to study the situation within the thunderstorm itself.

On a contract agreement with the Weather Bureau, the Soaring Society of America supplied three sailplanes, which were elaborately instrumented and sent on a total of 38 flights during the project. A large percentage of these flights was made into heavy convective activity in which on eight occasions the gliders soared to altitudes over 15,000 feet. The power aircraft used were ten P-61C or Black Widow night fighters made by Northrup Aircraft Company for the Army Air Forces. The NACA,

the Weather Bureau, and the Army joined in supplying these aircraft with very complete instrumental equipment, which included radar, accelerometer, airspeed-altitude recorder, control-position recorder, radio altimeter, free air temperature recorder, as well as standard blind-flying instruments. Measures were taken to insure synchronization of the meteorological data taken by the aircraft, and photographing the return signal of the aircraft on a separate scope at the ground radar site allowed the analyst to determine the various flight patterns. A total of over 550 "traverses" of thunderstorms were made by the Black Widows.

It can be seen from the number of flights and the care with which the aircraft were instrumented that a large amount of data is available. In addition, the surface data, the radiosonde, rawin, and other instrumental records provide an abundance of material with which to analyze the thunderstorms studied with a completeness heretofore impossible. It is hoped that this analysis, currently under way, and a similar investigation of midwestern thunderstorms, planned for Ohio during the summer of 1947, will furnish some of the answers to the serious hazards posed to safe flying by the thunderstorm.

"STANDARD ATMOSPHERE" EXTENDED

In April 1946, the Weather Bureau was requested by the National Advisory Committee for Aeronautics (NACA) to provide leadership in a program intended to extend the NACA "Standard Atmosphere" above its original ceiling of 65,000 feet. A subcommittee of experts was accordingly assembled, under the chairmanship of Dr. Harry Wexler, Chief of the Special Scientific Services Division, and a tentative standard atmosphere up to a height of 75 miles was determined by piecing together all sorts of evidence. The data examined came from such diverse sources as observations of meteors, of the anomalous propagation of sound from explosions, of radio reflections from the ionosphere, of the aurora borealis, etc.

A recent announcement by the NACA on these upper atmosphere studies discloses the existence of a layer having a temperature of about 170° F., located between 30- and 40-mile levels. This first temperature increase, which begins about 104,000 feet, is due to a concentration of ozone in the 30–40-mile level. Ozone has the property of absorbing more heat from the sun than the air just above or below it. From the 40-mile mark to the 50, the temperature decreases sharply, probably to as low as −150° F. Thermometers actually registered −80° F. Above 50 miles, observations indicate another torrid zone, extending at least as high as the 75-mile level, with an observed temperature of 212° F. and a calculated maximum in excess of 600° F. This hot layer, varying in height from 250,000 to 275,000 feet, is due partly to cosmic dust particles, which strongly absorb solar radiation. Known as the Kennelly-Heaviside layer, it is also a region of ionization, the exchange of free electrons, which process also generates heat. Investigations are yet to be made of conditions above the dizzy height of 396,000 feet.

Many of these temperature data were obtained from thermometers carried in V-2 rockets launched at White Sands, N. M. Recent direct pressure observations up to 53 miles, also taken by means of V-2 rockets, have agreed very closely with the pressure values assigned to the extended standard atmosphere. These new findings are invaluable in designing and constructing aircraft and guided missiles for operation at high altitudes. To further these high atmosphere studies, a photoelectric spectrophotometer has just been installed on the roof of the new administration building at Central Office. This instrument, which measures the atmospheric ozone content, is one of the few of its kind in the world.

CORRESPONDENCE CHANNELS

Cases have been noted in which field personnel have addressed letters to the Official in Charge of their station when the matter is of such a nature that it must be forwarded to either the Regional Office or the Central Office for ultimate action. In similar cases Officials in Charge have addressed letters to the Regional Office instead of to the Central Office when the latter office is the ultimate recipient of the correspondence.

Since the letter must go further than the Official in Charge or Regional Office for action, the Official in Charge or Regional Office must write a separate letter or indorsement and possibly copy the original letter before forwarding it for action. This practice causes unnecessary administrative work. Instead, the person initiating the correspondence should address it to the office that would ultimately take action on it, and forward it through his Official in Charge and/or the Regional Office in turn for initialing or endorsements (with copies for the files of these offices) thus eliminating a large amount of copying. The following is an example of the proper way of addressing correspondence of the type in question:

Chief, U. S. Weather Bureau,
Washington 25, D. C.
(Through: Official in Charge, WBAS, Miami, Fla.)
(Through: Regional Director, Box 4718, Atlanta 2, Ga.)

or

Regional Director,
Box 4718,
Atlanta, Ga.
(Through: Official in Charge, WBAS, Miami, Fla.)

It is realized that it is often hard for the person who is initiating correspondence to know who will be the final recipient of the letter and will take ultimate action on it; however, by giving a little thought to the problem he can decide in most cases whether the Regional Office or the Central Office will be the final recipient and address the letter accordingly. Letters dealing with personnel matters relating to professional grades and letters discussing technical and professional services should, in almost every instance, be addressed to Chief, U. S. Weather Bureau.

INSTRUCTIONS

REPORTING MAXIMUM WIND VELOCITIES ON THE GREAT LAKES

Beginning with the 1947 navigation season, first-order stations on the Great Lakes will report, by a special phenomena group in their coded 6-hourly observation, the direction and velocity of the maximum wind during the preceding 6 hours when it exceeds 25 miles per hour. These instructions will apply only during the navigation season.

PERSONAL

APPOINTMENT OF DR. GUNN

Dr. Ross Gunn, well known physicist formerly with the Naval Research Laboratory, has joined the Weather Bureau to direct important research work on the borderline between physics and meteorology. He will attack such problems as icing, the physics of fog and precipitation, ionospheric studies, etc.

Dr. Gunn was educated at the University of Michigan and at Yale, and since 1927 has been associated with the Naval Research Laboratory. Prior to leaving, he was superintendent of the aircraft electrical division. He is the inventor of various specialized electrical devices for military and naval use, and has made a number of basic contributions to the interpretation of solar and terrestrial electric and magnetic phenomena. In 1945 he was awarded the Distinguished Civilian Service Award for his work in the development of the atomic bomb.

RETIREMENTS

Mr. Fred M. Graf, administrative assistant in charge of the Telegraph Section at the Central Office, retired at the termination of January 31, 1947, after 41 years in the Weather Bureau. Mr. Graf entered the Weather Bureau as a clerk on February 1, 1906, and his entire service has been at the Central Office. Mr. Graf was born on November 26, 1878, at Bedford, Ind.

Mr. Clemme C. Hamme, senior observer at Baltimore, Md., retired voluntarily at the termination of December 31, 1946. Mr. Hamme was born in York County, Pa., on November 2, 1878. He entered the Weather Bureau as an observer on October 1, 1909, at the Central Office. During the ensuing years, he served at Montgomery, Ala., St. Louis, Mo., and the Central Office. On December 5, 1910, he transferred to the Baltimore station where he has served continuously for 36 years.

Mr. Owen T. Lay, official in charge of the City Office at Chicago, Ill., retired at the termination of January 31, 1947, after 38 years of service in the Weather Bureau. Mr. Lay was born on December 10, 1882, at Carrsville, Ky., and entered the Weather Bureau on February 1, 1909, as an observer at Helena, Mont. He subsequently served at Boise, Idaho, and Louisville, Ky. Under date of January 1, 1917, he transferred to Chicago, Ill., where he served until his retirement.

DEATH

Miss Laura Grobstein, clerk stenographer at New York, N. Y., died on December 30, 1946. Miss Grobstein was born on December 26, 1912, in New York City, and entered the Weather Bureau on February 2, 1943. Her entire service was at the New York, N. Y., Regional Office.

F. W. Reichelderfer

F. W. REICHELDERFER

Chief of Bureau.

(WB—3-6-47—675)

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WEATHER BUREAU TOPICS AND PERSONNEL

APRIL 1947

INFORMATION

MELBOURNE CONFERENCE

Back in Washington after a three weeks' stay "Down Under," Delbert M. Little recently completed a long-distance assignment in connection with the development of PICAO (Provisional International Civil Aviation Organization). From February 4–21, the South Pacific Regional Conference of PICAO was held at Melbourne, Australia, and Mr. Little attended as this country's delegate on the Meteorological Committee of the Conference.

The United States party, composed of about thirty experts from the Army, Navy, and State Departments, the Coast Guard, Federal Communications Commission, Civil Aeronautics Administration, Civil Aeronautics Board, and Weather Bureau, assembled in Honolulu at the end of January. Four days were spent in preparing the final United States position for presentation at the Conference. The party then traveled by commercial aircraft to Canton Island, where Mr. Little had an opportunity to observe the fine work accomplished by our personnel at the newly-established Weather Bureau station there. The following day, the party flew to the Fijis, and was entertained at lunch in Suva and spent the night at Nandi. The next stop was Noumea, in New Caledonia, and then came the final hops to Sydney and Melbourne, Australia.

Besides the United States, the following countries were represented on the Meteorological Committee: Australia, Canada, China, France, the Netherlands, New Zealand, the Philippines, Portugal, and the United Kingdom. The committee considered the meteorological requirements for civil air routes in the South Pacific area, including such factors as communications, traffic control, airdrome and ground aids to flight, air-sea rescue operations, etc. Supplementary procedures were worked out on the basis of the International Standards and Recommended Practices adopted by the PICAO Divisional Conference held at Montreal last October-November. The committee's final report followed closely the previously prepared United States position, which supported substantially the same policies and procedures as were developed at the four earlier Regional Conferences of PICAO.

Some recommendations by the committee reflect the international scope of meteorology and the extent of the Weather Bureau's contribution to PICAO. They call for the establishment of forecast offices at Guam and Wake, with dependent offices at Midway and Canton, and of rawinsonde stations at several islands in the South Pacific. In addition, an automatic weather station has been suggested for Jarvis Island, and three ocean weather stations proposed, two for the San Francisco-Honolulu, and one for the Guam-Manila air routes. These recommendations are only one phase of a concerted international program to improve the civil air routes of the world.

AUSTRALIAN RAIN-MAKING

During his Australian trip, Mr. Little talked with the meteorologists at the University of Sydney who have been conducting some interesting experiments on the artificial production of precipitation. To the drought-conscious inhabitants of a largely arid continent, the slightest hint of a rain-making device is a clue which they cannot afford to ignore. So when news of Vincent Schaefer's dry ice experiments reached them, Australian meteorologists at once verified by "cold box" tests the laboratory success of carbon dioxide pellets in causing snow.

The next step was to continue the experiments outdoors, on a large scale. About 150 miles from Sydney, a 4,000-foot mountain range lies parallel to and about 50 miles in from the coast. Over this range moisture-laden air from the northern semitropic oceans ascends in summer, causing considerable cloudiness, but no rain. Since the cloud tops average 22,000 feet and the height of the freezing isotherms at this season over the mountains is about 18,000 feet, the University of Sydney scientists inferred that a high concentration of supercooled water droplets must exist in the upper 4,000 feet of the cloud mass. Consequently, an Australian Government plane was loaded with 300 pounds of carbon dioxide (dry ice) pellets and flown at an altitude of about 24,000 feet over the region in question. When an area of about 10-mile radius showing good cumulus activity had been selected, the plane circled over it in inward spirals and the dry ice pellets were dropped. In six of the eight instances in which this experiment was attempted, rain fell on the area beneath the test cloud within 15 minutes after the dropping of the dry ice pellets. On one occasion, the cloud top boiled up to an estimated altitude of 36,000 feet, with a typical "anvil" formation, and 1 inch of rainfall was reported.

Such encouraging results have led to the continuation of the tests and a vast amount of publicity. A humorous sidelight concerns some Australian farmers who, happening to hear a plane fly overhead a short time before the occurrence of a welcome rainfall, wrote in to the government, expressing their gratitude for a striking bit of public service.

A report on the tests, with photographs of the clouds before and after the dry ice seeding, has been forwarded to "Nature" magazine and will be published in the near future.

CONFERENCE OF INTERNATIONAL METEOROLOGICAL ORGANIZATION

Arrangements have been completed for the next meeting of the Conference of Directors of the International Meteorological Organization to be held in Washington, D. C., September 22 to October 7, 1947.

Meetings of the Conference of Directors are held at intervals of 6 years, the last regular meeting having been held at Warsaw in 1935. The Conference scheduled for 1941 was postponed on account of the war, and an extraordinary meeting was held at London in February and March 1946.

The primary aim of these conferences is to reach international agreement on the methods of observing, reporting, recording, and forecasting the weather for all purposes. Prior to the conference at Washington, the Technical Commissions of the International Meteorological Organization will meet at Toronto, Canada, from August 4 to September 13. Regional Commissions III (South America), and IV (North and Central America) will meet concurrently with the Technical Commissions beginning September 8.

The Washington Conference of Directors will make final decisions on recommendations resulting from the Technical Commission meeting at Toronto, and will consider various other questions of practical international application in meteorology.

Invitations have been extended by the United States to 53 nations and their dependencies, colonies, and territories having official state weather services to designate an official delegation or observers to the conference, and the Secretariat of the International Meteorological Organization has notified all member countries of the dates of the conferences.

FOREIGN SERVICE OPPORTUNITIES

As has been demonstrated elsewhere in this issue of TOPICS AND PERSONNEL, the Bureau is being asked more and more to assume meteorological responsibilities along the international airways. At a time within the near future, regular Weather Bureau stations will be operative throughout the Pacific, the North Atlantic, and Caribbean areas, and in northwestern Africa. Competent forecasters, rawinsonde observers, and station supporting personnel will be needed to maintain the present high standards of Weather Bureau service overseas. Accommodations for families are available at some of the stations. Qualified personnel interested in these opportunities should write directly to Central Office for further information.

PROFESSIONAL INTERN PROGRAM

During the past few months, Central Office has been seeing a lot of army raincoats and discharge buttons. The first two groups of professional interns, all of them veteran weather officers of World War II, have recently been undergoing an orientation and training program while stationed at Washington National Airport. The initial group has since been assigned to various stations in the field.

The program under which the interns have been working has two main purposes: to refresh their knowledge of practical meteorology and to acquaint them with the operations of the Bureau. Under the direction of A. V. Carlin of the Training Section and R. H. Simpson, who is acting as instructor in immediate charge of the groups, the trainees have been kept busy making practice forecasts, attending lectures, taking examinations, and learning the routine of the Analysis Center, the Extended Forecasts Section, and other activities of the Central Office.

The first class of 16 students completed their 8-week course on February 7. The first 3 weeks were devoted to classroom lectures and laboratory work. This part of the program consisted of talks by various Central Office officials and a daily schedule of analysis and forecasting from 6-hour sequences of current weather maps. In the fourth week, the interns traveled back across the Potomac to the Washington National Airport where they spent 2 days with the FAWS unit, 2 days with the airways forecasting unit, and a final day with the district forecasters. The following week was spent at the New York City Office. Here they made practice forecasts, answered phone calls for weather information, and, in general, learned the routine of a large City Office. Benjamin Parry, official in charge, conducted some very informative discussions on the nature and extent of the public services rendered by the New York Office. The sixth and seventh weeks saw the students back in Washington, participating in the work of the Analysis Center and the Extended Forecasts Section, respectively. The eighth and final week was a time of reckoning; it was spent in the classroom, summarizing experiences in the various special assignments and testing the interns on all materials presented during the course.

Partly as the result of suggestions by the first class, the schedule for the second group has been cut to 5½ weeks, with 3 weeks given over to the special assignments mentioned above. It is hoped that this training course for the veterans will prove a pilot project for a similar in-service program within the near future.

PERSONNEL

Administrative Order No. 202-22, issued by the Department on January 2, 1947 contains the following items that should be of interest to all employees of the Bureau:

1. *General statement of Departmental promotion policy.*—It is the policy of the Department to promote employees in the Department, insofar as practicable and consistent with efficient administration, to fill vacant positions. Thus, first consideration among equally qualified candidates for vacancies will be given to employees of the Department, with selections based entirely on merit and qualifications without discrimination because of sex, race, color, creed, marital status, or national origin. Furthermore, no employee shall be denied promotion because of indispensability in a lower position, nor shall his promotion be denied for lack of replacement in his old job * * *

2. *Civil Service status requirements.*—In case of a vacancy in a position for which the Civil Service Commission has announced that a Civil Service register of eligibles has been established, no employee may be promoted, transferred, or reassigned to the position unless he has a competitive Civil Service status in addition to the necessary knowledge and abilities to perform the duties of the position. Furthermore, no employee is eligible for promotion during the first 6 months after probationary appointment or acquisition of a competitive Civil Service status without prior approval of the Civil Service Commission, except when such status is acquired by Executive Order, legislative, or similar coverage.

In case it is necessary to fill a position for which no appropriate Civil Service register of eligibles has been established, any employee serving under a war-service indefinite, probational Civil Service, permanent Civil Service, or temporary indefinite (Sec. 2, Temp. Reg. VIII) appointment, may be promoted or reassigned within the Department without prior approval of the Commission, subject to the 6-months length of service requirement and other applicable standards. Persons without competitive Civil Service status who are so promoted or reassigned do not thereby acquire competitive Civil Service status.

3. *Effect of reallocation of position on incumbent's eligibility for promotion.*—The reallocation of a position pursuant to the Classification Act of 1923, as amended, does not carry with it an automatic change for the incumbent of the position. On the contrary, the reallocation relates only to the position, establishing its proper compensation. The person selected for the reallocated position must be fully qualified to perform the duties involved.

4. *Length of service requirements.*—Civil Service Departmental Circular No. 257, Revision 3, as modified by Departmental Circular No. 549, Supplement 3, provides that an employee must serve at least 6 months after *(a)* a war-service indefinite appointment, *(b)* a Section 2, Regulation VIII temporary indefinite appointment, and *(c)* being accorded a competitive Civil Service status before promotion after such action. (The phrase "after being accorded a competitive Civil Service status" includes all actions through which a person acquired Civil Service probational appointment, except under Temporary Civil Service Regulation II). This requirement applies to the first promotion after appointment *and* after subsequent acquisition of a competitive Civil Service status. For example, if an employee received a war-service indefinite appointment on June 15, 1946, he would not be eligible for promotion until December 15, 1946. Subsequently, if he acquires a competitive Civil Service status on January 15, 1947, he would not be eligible for promotion until July 15, 1947.

CLOUD ALBEDO RESEARCH

As part of a program of scientific research organized by the Navy and carried out with the cooperation of the Army Air Forces, the Solar Radiation Section of the Special Scientific Services Division has begun work on a project to determine the albedo of clouds. An Eppley pyrheliometer was installed in the top of the forward section of an Army B–29, with the receiving surface of the instrument mounted horizontally and projecting slightly above the roof of the fuselage. The leads from the pyrheliometer were connected to a Brown Electronik recording potentiometer, located just behind the cockpit. It was thus possible to obtain a trace of the fluctuations in the solar radiation incident on the pyrheliometer.

After taking off from Andrews Field near Washington, the B–29 flew under some broken cumulus clouds for 10 minutes and in them for about the same period. The plane was then taken up to 25,000 feet, and held as steady as the pilot could manage. The horizontal position of the pyrheliometer was checked, and for about an hour readings were taken of the solar radiation received, while the B–29 flew on various headings. Another set of observations was later taken, this time at 10,000 feet, and after about 3 hours in the air the plane returned to base.

General satisfaction was expressed with the performance of the pyrheliometer, which had never before been subjected to the forces and conditions of this experiment. Despite the 230 m. p. h., speed of the plane, the instrument secured excellent readings. On subsequent flights, a second pyrheliometer will be installed in the bottom of the plane, and also connected with the potentiometer. At 15-second intervals, the potentiometer will switch from one pyrheliometer to the other, giving two sets of readings. As the B–29 flies first underneath and then above a continuous cloud mass, the average difference between the readings of the pyrheliometers will indicate, after computation, the amount of solar radiation reflected by the upper surface of the cloud, the total absorption of the cloud, and the percentage of sunlight transmitted through it.

Future flights should also lead to accurate evaluations of the albedos of various ground surfaces and to better understanding of the phenomenon of the scattering of solar radiation in the atmosphere. Such research has not only obvious relationships to theoretical meteorology, but also practical applications to the factor of natural illumination, which plays an important, but little-realized role in our daily lives.

PHILIPPINES REHABILITATION

By the Public Law No. 370 of the 79th Congress, a number of Federal agencies were directed to participate in the rebuilding of the war-ravaged Philippines. This was an act of friendship and encouragement to a young nation, whose people had suffered terribly at the hands of the Japanese and had remained America's staunchest friends in the Far East. It was also an act of statesmanship, for the Islands, long American possessions, became the Philippine Republic only last year, and their prosperity is of direct concern to our interests in the Far East. A special need was obvious, in aiding the Pacific air routes, for the rehabilitation of the Philippine weather service. Records, equipment, and personnel had been lost in war, and Congress has assigned to the Weather Bureau the responsibility of repairing these deficiencies.

Budgetary appropriations for 1947 allotted over $1,000,000 to the State Department for transfer to the Weather Bureau to carry out these tasks. Early in January of this year, a small American mission with Foster D. Jones in charge arrived in Manila to lay the groundwork. The eventual total American staff to be attached to the American embassy in Manila and assigned to cooperate with the officials of the Philippine national service is estimated at about 20. They will act in an advisory and instructional capacity. They will also inspect the installations and services, and assist in the coordination and execution of the whole undertaking.

In general, the Weather Bureau's assistance will be accomplished by means of contracts with the Philippine Weather Bureau to perform the actual work. Under these contracts, the Philippine Bureau will employ the necessary personnel, make arrangements for communication facilities, set up the stations and actually operate them. It is planned to construct a synoptic network of 50 stations, including three rawinsonde and five pibal observation points. The Marine Weather Service and Climatological Service will also be reestablished. A major goal, of course, is the institution of an adequate weather reporting and forecasting service for local and international aviation.

At present, the Philippine Government cannot obtain enough trained personnel to man the present and projected stations. The Weather Bureau mission is accordingly planning to establish an observers' school in Manila, modeled on similar schools in the United States. The Philippine weather service will select the students to attend this school. The shortage of trained forecasters should eventually be met by another training program, since the enabling law provides funds for 50 Philippine nationals to be chosen the first year, and 25 in each of the 3 successive years, to receive advanced meteorological training at American universities. Prior to selection, the trainees must express their willingness to serve for at least 2 years in the Philippine weather service upon completion of their course.

Despite these measures, it will be some time before the Philippine meteorological department will be able to operate independently. Congress has provided that by June 30, 1950, American participation will cease. Until that time, however, there will exist a continuing need for Weather Bureau personnel—instructors, professional liaison men, technicians, etc. Present Bureau employees able to discharge these duties should contact the Central Office. One of the first needs will be for men with advanced meteorological training to operate the Manila Forecast Center. The Bureau is making housing, medical, commissary, and other necessary arrangements for the American personnel, but it may be as long as 6 months before American employees will be able to have their families in the Islands with assurance of adequate quarters and facilities. The Weather Bureau administrative staff and the Philippine weather service will have their headquarters in new buildings on the grounds of the University of Manila. Moves to purchase in the United States the instrumental equipment and supplies required for establishing and operating the station network have already been made, and the future looks bright for the rebirth of Philippine meteorology.

SNOW LABORATORIES

The vast winter fields of snow that accumulate in the mountainous areas of the West have long been recognized as factors of incalculable importance in our national economy. Just as truly as man-made dams, the snow fields act as enormous reservoirs. It has been estimated, for example, that the storage of water in the snow of the Columbia River Basin is no less than 50 times the capacity of Grand Coulee Reservoir; and Grand Coulee holds over 3 million million gallons. The snow fields thus store up, free of charge, the water that makes irrigation, hydroelectric power, municipal water supply, and numberless other projects possible.

Hydrologists, flood control engineers, power plant executives, farmers, businessmen—all look to the weather man for information on snow. The forecaster is asked to predict the occurrence and duration of snow, how soon it will melt, what sort of flood conditions it will cause. Due to the difficulty of studying snow under actual field conditions, the research hydrologist has not been able to give the forecaster many definite answers to the problems that beset him, until quite recently. It was in 1942 that the Bureau entered into agreement with Dr. J. E. Church of the University of Nevada to cooperate in an intensive program of snow studies. During 1943–44, the Weather Bureau joined with the Nevada Agricultural Experiment Station, under Dr. Church, in maintaining a small snow research laboratory at Soda Springs, Calif., near Donner Summit in the Central Sierras. Here some of the heaviest snowfalls in the continental United States have been recorded.

In 1945, the Weather Bureau joined forces with another agency deeply interested in snow. This was the U. S. Army Corps of Engineers which, charged with the responsibility of designing multi-million-dollar flood control projects, found an increased knowledge of snow melt indispensable to the success of its operation. As part of the Cooperative Snow Investigations, a large laboratory was established at Soda Springs, and a second one at Marias Pass in Glacier National Park, Mont. Two Weather Bureau men are stationed at each laboratory. Dr. R. W. Gerdel is technical supervisor of the entire snow research program and acting director of the Central Sierra Snow laboratory as well. At San Francisco, W. T. Wilson heads the processing and analysis unit, which studies the field data to determine the relationships which may be put to use by the Army Engineers and the Weather Bureau.

Each of the two main laboratories is amply instrumented. They have to be, for the work involves such operations as measuring the amounts of incoming solar radiation and radiation reflected from the snow surface by day, the amount of outgoing radiation at night, the temperature of the snow pack at various depths, and values of the wind velocity and atmospheric humidity at three levels up to 50 feet above the snow. As for the hydrologic aspects, the Soda Springs station measures the stream flow associated with the snow field in Castle Creek Basin, where it is located, while the Marias Pass Laboratory keeps a similar check over the Bear Creek Basin. Other activities at the two headquarters include studies of the waterholding capacity of snow, how fast and in what manner water percolates through the snow, what temperature conditions prevail in the soil covered by the snow mantle, etc.

The Weather Bureau men on these cooperative snow investigations, however, don't spend all their time manipulating thermocouples and micromax recorders in the vicinity of their comfortable laboratories. Once a week they go out equipped with skis or snowshoes and make a circuit of the 6 to 10 substations which dot each of the basins. These weekly trips, made in the very heights of the Rockies and Sierras, call for a high degree of all-round skill. The weekly wind total, accumulated precipitation, and max-min temperatures are taken. A snow survey is also made, to determine the depth and water content. Army M–7 "snow cats" are used in this field work, and have proved very helpful in shortening the time required and taking some of the strain off tramping feet.

As a result of the cooperative snow investigations, the Bureau hopes to develop more objective methods of forecasting floods due to snow, as well as to improve the forecasting of snow as a weather element. In furtherance of the second objective, a meteorologist has been assigned to the Seattle Forecast Office to study the problems associated with the predicting of snow occurrence and melting conditions. The results of the work of the Snow Laboratories, particularly in connection with the varying density of snow and the factors affecting snow melt, should help in forecasting the borderline cases between rain and snow and the duration of the snow cover. So far as is known, this work by the Army Engineers and the Weather Bureau is the first comprehensive study of snow ever attempted. Further reports from the Snow Laboratories should be of considerable interest.

THE ANALYSIS CENTER

A visitor to the Central Office will find in back of the new administration building a curious structure resembling a medieval fortress or, according to some architectural purists, an over-ornamented barn. This battlemented, red-brick structure, the visitor learns, is the Old Main Building, the original home of the Weather Bureau. Erected about 1884 as a fashionable mansion, it was taken over in March 1889 by the Army Signal Corps, which operated the national weather service until the Weather Bureau was established in 1891.

Entering this old building, the visitor discovers that its high-ceilinged interior houses on the first story an office well known to field personnel, the Analysis Center. This occupies part of the old Forecast Room on the east side of the building, as well as a considerable section of the center and rear. The actual work of plotting and drawing the analyses and prognostic charts issued by the Analysis Center is performed in what, according to tradition, was a patio-like affair in the very center of the building. Probably a delightful spot in the old days, it can now hardly be described as an ideal working place; windowless and walled off from natural light and ventilation, it is better imagined than experienced on a hot summer day.

The Analysis Center was organized early in 1942, a few months after the United States entered the war. Plans had originally been made to locate it in Denver, Colo., because of that city's central position both geographically and from a communications standpoint. It was set up in the Central Office, however, to have it near the Army and the Navy Weather Centrals and the Weather Bureau Extended and Special Forecast Sections, with which it formed a joint weather central throughout the war. Actual operations commenced in March 1942. At that time, the possibility was seriously considered that the war situation might develop to such a critical point that no weather reports and only a central analysis could be made available to stations. Fortunately, no such crisis materialized, but the work of the Analysis Center enabled the Bureau to continue and in some cases increase service in spite of the critical shortage of trained personnel.

J. R. Fulks, who has been with the Center since its inception, supervises the 23 professional and 42 non-professional employees who make up the staff. The six senior analysts work on four daily tricks, one for each 6-hourly map. Each senior analyst is in charge of operations during his tour of duty; an assistant shoulders part of the work on tricks where final analyses and prognostic charts must be prepared simultaneously. Two junior analysts usually work on each of three 8-hour tricks; they analyze most of the upper-air and other auxiliary charts. Four plotting crews, each with 9 or 10 people, including a crew supervisor, cover three tricks daily and take care of plotting all charts, sorting and filing teletype material, and assisting in the coding of transmitted data. In addition, there is a small office staff.

From almost every part of the first floor of the building, it is possible to hear the teletype machines clicking away. The total number of weather reports received daily is approximately 25,000; it has been estimated that during the 5-year history of the center no less than 40,000,000 individual weather reports have been received. These reports pour in over the following teletype circuits: 30 and 31 of Service C; 8002 and 8003 of Service A; special circuit 7438, which connects at Denver with circuits 8007, 8009, and 8010 of Service A; 8276, 8278, and 8279 of Service O; and 7460, a special circuit to Dorval Airport, Montreal. Either directly or by means of relays, every hourly sequence in the country is received. Coverage includes practically every weather report in North America, the North Atlantic, North Pacific, and Caribbean, and many reports from beyond these areas.

Along with the 6-hourly map which is transmitted four times daily, a 3-hourly map is plotted and analyzed, but not sent out. The purpose of preparing this extra group of maps reflects the fast tempo at which the Center's operations are performed. When a senior analyst comes on duty, he has time to draw the 3-hourly map, check his analysis with those received from the various Forecast Centers, and study the weather situation thoroughly. Since all the maps are drawn on tracing paper and clipped to the analysis table, he has this 3-hourly right before his eyes when he starts on the regularly transmitted 6-hourly. Working at top speed and guided by the previous map, he is able to complete the analysis in a scheduled 20 minutes.

The prognostic charts are necessarily drawn under less exacting limitations. Every 12-hour prognostic is preceded by the preparation of an 18-hour chart, for which ample time is allowed. This is quickly revised in the light of the latest synoptic map and is then transmitted soon after the accompanying 6-hourly map. The schedule for the 30-hour prognostic chart, which is prepared over a period of 6 to 8 hours, permits more time for consultation, but no preliminary chart is constructed.

Should the visitor be interested in watching the Analysis Center at work on, say, the 9:00 a. m., E. S. T., transmitted map, this is what he would observe. The base map, cut up into eight sections, is distributed among four plotters by 7:30. Each plotter takes two sections, one for which the reports are available immediately, and one for which reports are received a few minutes later. He then plots rapidly; there is no delay in waiting for reports. By 8:30 plotting is completed, the sections taped together, and the analysis begun. In the meantime, the analyst may have drawn isobars and fronts on some of the sections.

While the senior analyst bends over the map, two coders work alongside him. Seated opposite are two recorders and two checkers. When the analyst has drawn in the first few isobars, generally within 5 minutes, the work of coding begins and continues simultaneously with the analysis. The recorders write down the isobaric and frontal positions called out by the coders at the same time that the checkers decode them on small base maps from the figures that have been written down. This system greatly reduces the number of coding errors inherent in the rapid-fire nature of the work.

Beginning at 8:50, the completed portions of the coded analysis are forwarded to the Coding and Communications Section for transmission to the CAA office at Washington National Airport. If all goes well, 9:00–9:10 finds the analysis being transmitted to all circuits of Service C. The Analysis Center quiets down somewhat, but the numerous teletype machines go on clattering endlessly down the antique corridors of the Old Main Building.

THUNDERSTORM PROJECT

The Weather Bureau-Army-Navy-NACA Thunderstorm Project resumed field operations for the 1947 season on April 1, at Clinton County Army Air Field near Wilmington, Ohio. The operating area covers approximately 480 square miles and observations are made by means of surface instruments, upper-air soundings, electric field recorders, P-61 "Black Widow" airplanes and radar.

The Project will be pleased to have visitors at all times, especially Weather Bureau people and others in the general vicinity of the operating area after May 1, 1947. The month of April will be devoted largely to equipment installation. The Project is under the direction of Dr. Horace R. Byers with C. O. Schick, Executive Officer, F. P. White, Jr., Research Coordinator, and L. M. Dye, Official in Charge of the Field Operating Center, any of whom may be contacted in order to make arrangements for a conducted tour of the Project.

PRESSURE CENTER TRACK MAPS

Some additional results of the wartime analysis program are now available for research or study purposes. These are the photographic prints of maps portraying the paths of pressure centers over the Northern Hemisphere, which prints have been prepared for Weather Bureau use.

In their present form, the prints consist of a complete set of maps showing the tracks of low-pressure centers and another complete set giving the paths of high-pressure centers. Each set has been derived from the 40½ year series of Northern Hemisphere historical maps, recently published by the Weather Bureau, and each set covers the period from January 1, 1899, to July 1, 1939. Each map contained in the series represents the tracks of pressure centers over a 12-day period, for which the centers were plotted in their successive 24-hour positions and the points connected by a smooth curve. Adjacent charts have 2 days in common, so that the continuity may be easily followed.

Two complete files of each set of these maps have been placed in the Weather Bureau Library and will be loaned upon request.

SURPLUS ENVELOPES

The Central Office Stock Room has on hand a large supply of kraft, plain penalty envelopes, size 11 by 13 inches. Since this special size envelope is not under contract, it will be discontinued when the present supply is exhausted.

In order to utilize stock as soon as possible, requests for envelopes 8½ by 11½ or 9½ by 12 will be filled by substituting the 11 by 13 envelope until the supply is exhausted.

INSTRUCTIONS

LEASE ACTION FOR THE FISCAL YEAR 1948

Where leases will be renewed in the field for the Fiscal Year 1948, by exercise of the Government's option to renew, PBA Form REM-6 should be forwarded immediately to the Central Office for clearance by the Public Buildings Administration. See instructions enclosed with MAL dated November 22, 1946 (MAT:MSA:Wa).

In all other cases, WB Form 4058 and all supporting papers should be forwarded as soon as possible for appropriate action by the Central Office, in accordance with instructions contained in the Quarters Manual.

ARE YOUR LETTERS NEEDLESSLY LONG

There is a growing tendency in the Weather Bureau to needlessly extend letters to a second page. For example, many two-page letters have top margins of 2 or 2½ inches with less than five lines on the second page.

Some advantages of one-page letters are:

1. The attention of busy addressees is usually given sooner to a one-page communication than to two-page letters which are often laid aside for lack of time for immediate consideration.
2. In nearly all cases the essential subject matter can be expressed on one page. Long letters tend to be confused letters.
3. The letter is easier to read.
4. Time is saved because the typist does not need to insert another set of papers into the typewriter.
5. Fifty percent, or more, filing space is saved.
6. Assembling for routing is easier.
7. There is less chance of fouling with other papers.

Scrutinize your letters to make sure you give no unnecessary details and that your message is conveyed in the fewest words consistent with clearness, completeness, and courtesy. Be thrifty, not stingy with words. Write one-page letters unless the essential subject matter cannot be expressed otherwise.

USE OF PRINTED ENVELOPES

The Central Office Mail Room reports the daily receipt of a large number of Kraft envelopes size 4⅛ by 9½ and 4⅛ by 10⅜ inches, on which the address "Chief, U. S. Weather Bureau, Washington, D. C." has been typewritten. Attention of all stations is called to the existence of envelopes of similar size and style on which this address has been printed. These envelopes were purchased as timesavers because of the vast quantity of letters and forms regularly forwarded to the Central Office by all stations.

The item numbers of the envelopes in question are 53-E-2995-75 for size 4⅛ by 9½ and 53-E-2995-105 for size 4⅛ by 10⅜.

All stations are urged to make use whenever possible of the special envelopes on which the Washington address is printed, and if not already supplied with this type envelope should forward requisitions to Central Office for a 6-months supply.

PERSONAL

RETIREMENT

Mr. Alphonso W. Shilling, Official in Charge of the Weather Bureau City Office, at North Platte, Nebr., retired at the termination of December 31, 1946, at the age of 70 and with over 48 years of service in the Weather Bureau. He was born on December 15, 1876, in Washington, D. C., and entered the Weather Bureau service as a laborer at the Central Office on February 24, 1898, subsequently serving at Elkins, W. Va., Des Moines, Iowa, Marquette, Mich., and Baltimore, Md. Mr. Shilling transferred to North Platte, Nebr., on February 15, 1913, where he was employed until his retirement.

DEATHS

Mr. William A. Mattice, meteorologist at Topeka, Kans., died at Sibley Hospital, Washington, D. C., on October 29, 1946. Mr. Mattice was born on January 23, 1901, at Catskill, N. Y., and entered the Weather Bureau on February 3, 1921, as an observer. Mr. Mattice served at Ithaca, N. Y., Central Office, Washington, D. C., and Topeka, Kans.

Mr. John W. Weinschenk, clerk in the Hydroclimatic Unit at Atlanta, Ga., died on February 25, 1947. Mr. Weinschenk was born on October 14, 1881, in Potterville, Mich., and entered the Weather Bureau on May 17, 1937. His entire service was at Atlanta, Ga.

F. W. Reichelderfer

F. W. REICHELDERFER
Chief of Bureau.

(WB—4-9-47—675)

WEATHER BUREAU TOPICS AND PERSONNEL

MAY 1947

INFORMATION

FROST PROTECTION BY ARTIFICIAL OIL FOG

During the war the military services developed equipment for producing an artificial oil fog or "smoke screen." There has been much interest in this equipment as a possible means of frost protection. The Central Office has received numerous inquiries concerning the effectiveness of such an oil fog in preventing frost damage and it may be that similar inquiries will be received at field stations. The following conclusions concerning use of this equipment are quoted from a report of the Esso Laboratories of the Standard Oil Development Company concerning laboratory and field tests which they made. The company has been kind enough to let us quote these conclusions for the information of Weather Bureau personnel in answering inquiries.

Oil fogs produced by generators operating on the principle of the U. S. Army Generator, Smoke, Mechanical M1 and characterized by uniform particle size of 0.5–0.6 microns diameter, are substantially transparent to the passage of infra-red radiation having 10 microns average wave length such as emitted by bodies at temperatures of 30°–70°F. This is true even with fog concentrations up to about 2000 gallons of oil per sq. mile, 20 times that required for effective visual obscuration. Because of its almost complete transmissivity to the low-temperature radiation encountered between the ground and sky, the use of oil fog of this type is considered to be commercially valueless as a means for protecting vegetation from frost.

In contrast to oil fog, natural moisture clouds have low transmissivity or in other words, high opacity to radiation of 10 micron wave length by virtue of their larger average particle size (of the order of 10 microns diameter). This confirms the known protective effect that these clouds have exerted under conditions otherwise conducive to frost. It is recommended that no further consideration be given to the commercial application of this type of oil fog to the problem of large area protection of vegetation from frost.

HURRICANE TRAINING CONFERENCE

From March 31 to April 11, a hurricane training conference was held at the Central Office. Organized by A. V. Carlin of the Training Section and R. H. Simpson, the conference brought together the Bureau's leading hurricane forecasters to discuss common problems and pool information for a hurricane training manual. The chairman and coordinator of the meetings was C. F. Van Thullenar; the senior councilors were Grady Norton from Miami, Gordon E. Dunn from Chicago, and W. R. Stevens from New Orleans. R. C. Schmidt and K. S. Norquest were on hand from the the Washington National Airport to serve as councilors along with Mr. Simpson. De Ver Colson, Charles Gilman, Myles Harris, R. C. Gentry, and Robert Sanders acted as analysts for the demonstration laboratory, and a number of Central Office personnel appeared during the conference as technical consultants.

The agenda followed the same general daily plan. In the morning, the schedule called for the presentation of the topic of the day and the analysis of selected hurricane weather maps in the laboratory. The program further provided for the preparation of a marine forecast or advisory from the morning's map and a map and forecast discussion led by one of the senior councilors. A round table discussion of the topic of the day was conducted in the afternoon.

On March 31, after the opening remarks by Dr. Reichelderfer, Mr. Van Thullenar, and Mr. Carlin, special committees were appointed to deal with selected problems, as follows:

Tropical Analysis and Nomenclature.....G. E. Dunn and Charles Gilman
Form and Wording of Advisories.....Grady Norton and Robert Sanders
Base Maps and Charts.....R. H. Simpson and R. C. Gentry
Bibliography.....W. R. Stevens and De Ver Colson
Training Methods and Testing.....C. F. Van Thullenar and Myles Harris

The topic of discussion on the first day was "Tropical Analysis, Synoptic Models, and Nomenclature," presented by Messrs. Dunn and Simpson. On April 1, "The Structure of Tropical Cyclones" was discussed in three parts; R. H. Simpson talked on the factors evident in surface and aerological data, Dr. Harry Wexler on the radar analysis of hurricane structure, and Paul Humphrey on airplane reconnaissance data. Under the heading, "Movement of Tropical Cyclones," W. R. Stevens discussed the climatological factors involved, and Jerome Namias spoke on the use of mean charts in forecasting hurricane movement. On April 3, this subject was resumed, with Grady Norton talking on the general upper air factors affecting hurricane movement and R. H. Simpson on "warm-tongue steering."

The daily topics for the rest of the conference were concerned less with the meteorological aspects of hurricane forecast work than with the very real problems connected with the dissemination of public warnings. The topics were: "Issuance of Storm Warnings—General Weather Bureau Policies and Practices" by W. R. Stevens, "The Form and Wording of Hurricane Advisories" by Grady Norton, "The Evaluation of Regular and Special Ship and Airplane Reports" by Stevens and Humphrey, "Forecasting Inundations and Special Phenomena" by Dunn, and "Public Relations During Hurricane Emergencies" by Norton.

On the final day, April 11, C. F. Van Thullenar, who had conducted the daily round-table discussions, was moderator for the concluding discussion and recapitulation of conference topics. Resolutions and recommendations were reported on by several committees, and A. V. Carlin outlined the training plans and objectives growing out of the conference.

The work-product of the conference and its committees will be prepared by Messrs. Carlin, Simpson, and Humphrey in the form of "Notes for Hurricane Forecaster Training." In addition to this work, the members of the conference have submitted the following recommendations:

1. That extra effort should be made by observers in the southern and eastern United States to make pibal observations as high as possible when a hurricane is announced.

2. That the use of airborne radar, which has proved of considerable value in hurricane detection, be further encouraged. It is hoped that it will be extended in the future to night reconnaissance operations.

Before dispersing to their different stations, the participants expressed general satisfaction with the progress and results obtained. The demonstration laboratory sessions, in which sample hurricane maps were analyzed and discussed, were particularly commended as one of the most worthwhile aspects of the conference.

COOPERATIVE RESEARCH PROGRAM

Under the provisions of the Appropriation Act for cooperation with institutions of learning, the Bureau has entered into agreements with several universities to carry on various research projects. The following is a list of such projects to date for the current fiscal year with a brief description of each:

1. The University of California at Los Angeles. Investigation of relationships between selected characteristics of surface and upper air weather maps and the occurrence and amount of rainfall in winter months at Los Angeles.

2. The University of Chicago. Research to complete the design of a balloon-borne vertical velocity indicator and to provide personnel for observing and analyzing thunderstorms. Report accepted April 1947.

3. The University of Chicago. Evaluation and analysis of the data collected from observations and measurements in thunderstorms. (See "Thunderstorm Project," TOPICS AND PERSONNEL, March 1947.)

4. The University of Chicago. Exchange of ideas, data, and working facilities for application to the solution of forecast problems of mutual interest, especially cold waves, quantitative precipitation, and thunderstorms.

5. Harvard College. A program for taking special radiation measurements, particularly of solar radiation, and for research in the field of solar radiation designed to improve methods of measuring solar radiations and to make such methods more useful in the science of meteorology.

6. Iowa Agricultural Experiment Station. Development of sound statistical and climatological methods for the treatment of weather records in order to provide reliable estimates of climatic probability of occurrence of weather events important to agriculture and industry.

7. The Massachusetts Institute of Technology. Improvement of extended forecasts by development of new and improved basic methods and betterment of present methods.

8. The University of Nevada. Research leading to improvement of the measurement of snowfall and study of the meteorological factors affecting the melting of snow.

9. New York University. Investigation of techniques for the computation of vertical motion in the atmosphere and the application of vertical motion charts to weather forecasting.

10. The University of North Carolina. Development of sound statistical and climatological methods for the treatment of meteorological data for use in determining climatic risks to agricultural crops in the Southern Piedmont and other areas of North Carolina, and other climatological investigations as may be mutually agreed upon.

11. The Polytechnic Institute of Brooklyn, N. Y. Development and improvement of meteorological instrumental equipment, especially that designed to promote the safety and efficiency of air navigation, such as improved methods of measuring ceiling, temperature, pressure, and humidity at flying levels.

TRAINING IN METEOROLOGY IN THE UNITED STATES FOR PHILIPPINE STUDENTS

Thirty-three Philippine students have been awarded training grants for university study in meteorology and for intern training at Weather Bureau forecast centers covering a period of about 15 months. They will leave Manila by boat on May 17, and are scheduled to arrive at San Francisco, June 6. The universities at which they will be trained will include Chicago, New York, and U.C.L.A.

A LOOK AT WASHINGTON NATIONAL AIRPORT

The Weather Bureau station at Washington National Airport occupies the northern half of the third floor of the large and modern airport terminal building. On the roof above the Weather Bureau Office is the weather observatory, an up-to-the-minute affair rated as one of the finest in the country. Recent additions to the equipment include the installation of a radar set and a ceilometer recorder. WNA was the first Weather Bureau Office in the country to install storm detection radar, and the equipment is capable of detecting storm clouds at a maximum range of 100 miles. The ceilometer recorder, which keeps a continuous record of height of clouds above the station, has given excellent results since installation and is an invaluable aid to the observers.

Washington National Airport is situated on the south shore of the Potomac less than 15 minutes drive from downtown Washington, and the visitor to the observatory, after examining the modern equipment, generally casts his eyes on the wonderful panorama of our nation's Capital which this vantage point commands. Off to the northwest the Gothic bulk of the Washington Cathedral looms on the hilly horizon; to the north and northeast the main part of the city lies in a flat, lowland area; on the east and southeast rise the low bluffs in back of Anacostia and Bolling Field on the other side of the Potomac. In the middle foreground, where the Potomac curves around past the Tidal Basin and its celebrated cherry trees, the tall needle of the Washington Monument soars over the white simplicity of the Jefferson Memorial. Farther beyond, the dome of the Capitol towers over the pile of legislative buildings clustered about "the Hill."

R. C. Schmidt, acting official in charge at WNA, is thoroughly conscious of the fact that his station represents the Weather Bureau to the thousands of visitors who fly in and out of what he calls "the political hub of the world." From his office, the sight and sound of the busy air traffic outside present a constant reminder of the importance of weather service in the Washington area and a constant challenge to increase the efficiency of that service. Though he and his staff refer rather off-handedly to the VIP's (very important people) who fly in and out of WNA, it is quickly evident that they enjoy the experience of being called upon to issue a special forecast when President Truman flies to Mexico or Secretary Marshall takes off for a conference in Berlin.

Less in evidence, but at least equally important, are the non-aviation interests which WNA serves. The station is much more than a "very important" Airway Forecast Center. It is a District Forecast Center, with 10 States (New York, New Jersey, Ohio, Pennsylvania, Maryland, Delaware, Virginia, West Virginia, Kentucky, and Tennessee) and the District of Columbia as its responsibility. In addition, the station's organization chart includes the Radiosonde Analysis and Verification Unit (RAVU), a FAWS unit, and the International Aviation Forecast Service Center. The station is thus called upon to provide a large number and variety of weather services, far more than the average Weather Bureau Office, and the assignments of its 90-odd personnel have to be carefully planned in order to keep up with the demands made upon them.

Within the past few months, Mr. Schmidt has directed the planning and execution of a major reorganization. His objective was two-fold: (1) to make more efficient use of available personnel in supplying an ever-increasing number of requests for weather service, and (2) to give the forecasters some peace and quiet and permit them to concentrate as fully as possible on their crowded forecast schedules.

During the war years, the International Aviation Forecast Service was housed in the same building as the Air Transport Command, some distance from the other Weather Bureau offices in the terminal building. The reason for this was the necessity for close contact between the Weather Bureau trans-oceanic forecasters and the ATC operating personnel, who were in charge of the vast majority of nondomestic flights out of Washington. The ATC came to rely upon the Weather Bureau so completely that the weather forecast clearances for the Army pilots were signed by our civilian forecasters—something unique in military procedure. After active hostilities ended, the needs of the ATC naturally decreased. Since Washington is not a particularly busy trans-Atlantic terminal for commercial aviation, it became possible to transfer the International Aviation forecasters to the main offices, where their assistance was urgently required.

Each year of the last four or five has shown over its predecessor a doubling in the number of contacts from domestic aviation interests. In bad weather during the day, these aviation contacts alone have averaged one every 2 minutes. Two airway forecasters (one at night) have been kept busy answering four phones, talking to the pilots who call personally, and trying to draw their 3-hourly maps and write out their many forecasts. WNA has a number of satellite fields to which special attention must be given. In addition, the new flow-control program now under experiment requires that the CAA traffic controllers must be provided with a very detailed forecast every three hours.

This is only one-half of the picture. The other half concerns the comparable problems encountered by the district forecasters, one of whom is on duty at all times. He must make the regular 36 and 48-hour State forecasts, marine forecasts, hurricane forecasts (when the storm passes north of lat. 35° N.), and prepare forecasts for a great many industrial, commercial, and agricultural interests. He has the responsibility for the issuance of all warnings, such as cold wave, heavy snow, and windstorm warnings, necessary for general public interests and all interests other than aviation throughout the entire district. He must work up weather summaries for broadcasting purposes and extra, detailed forecasts for the special service centers, issue the shippers' forecasts, and supply the Corps of Engineers with quantitative precipitation forecasts for each of the 10,000 square-mile zones into which the district is divided. Requests for such services by the district forecaster have also been mounting. An index to the popularity of the general weather service is the fact that the automatic telephone forecast transmitter at Washington has been dialed 114,000 times in a single day by Washingtonians seeking weather information; the daily average is about 40,000.

Under the reorganization plan, the airway, district, and international aviation forecasters work together in the same large room. Each man draws only the maps necessary to his particular tasks; auxiliary charts, as far as is feasible, are prepared once for the use of all and kept conveniently on file on a table in the center of the room. This consolidation has meant less duplication of labor by the plotters; as a matter of fact, it has reduced the work of plotting by about one-half. Reassigning some of the former international aviation forecasters has made possible what is perhaps the outstanding innovation of the new organization, the "briefing office."

A small room, separated from the large forecast room by a glass partition, has been remodeled into an efficient information center. Though the planned equipment has not yet been completely installed, this briefing room is already operative and has amply demonstrated its worth. On a stand against the wall nearest the outside door, where pilots can easily inspect them, are placed the Northern Hemisphere surface and 700-mb. maps, every 12 hours; the latest U. S. surface map, every 3-hours; and the latest North Atlantic chart, every 6-hours. Posted nearby are three forecast cross sections (WA-CG, LG-WA-CS, WA-PS) giving the pilot a picture of the weather expected along the main airways out of Washington. The cross sections are made at 0600 and 1200 daily to represent mid-morning and mid-afternoon conditions.

The briefing counter is a long cabinet set against the glass partition next to the forecast room. Along its top, arranged approximately in geographical order, are kept the teletype reports received from stations over the entire country. The latest U. S. surface map is displayed on the center top of the cabinet, and supplementary charts, among them the Central Analysis 30-hour prognostic, are arranged for quick reference. Three novel telephone installations are being provided for the center and ends of the cabinet. The control box for each telephone handles 9 lines, and any line may be switched to one of the other boxes if desired. Special circuits connect each control box with the airport switchboard, the Central Office, and various important operational points in the terminal building. One to three briefers will be stationed here, as the needs of the service require, and they will have every conceivable facility for answering requests for information from the aviation interests. Those pilots who choose to call in person will find all the maps and charts readily accessible; it is planned to display some illustrative aids, such as pictures of the model cyclone, idealized cross sections of fronts and thunderstorms, in prominent places on the walls. Already installed are a barograph, thermograph, wind velocity recorder, etc. Another projected improvement is the cutting of a window in the glass partition, to facilitate contact between the briefers and the airway forecaster. He, along with the district and international aviation forecasters, will work in the privacy of the inner room, while the briefers will take care of practically all the outside contacts.

Another advantage of the new arrangement is that it favors consultation among the three forecasters, which in turn should produce better and more consistent prognoses. No loss is felt by the ATC in no longer having the international aviation forecaster personally available, because a PIREPS machine in the briefing room does double duty in transmitting forecast clearances from the IAFS man to another PIREPS machine at ATC. During hours that are slack for him, the IAFS man can help out in the briefing room, or assist the district forecaster if necessary. The new system has already succeeded in its main objects of eliminating, as far as possible, disturbing factors in the work of the three forecasters and streamlining the whole office procedure. The Washington National Airport station is very proud of its new set-up, and hopes to show the nation's capitol and its forecast area a little extra something in the way of Weather Bureau service.

VETERANS IN THE WEATHER BUREAU

Of the approximately 7,600 paid personnel currently employed by the Weather Bureau, about 1,749 or 23 percent are veterans of World War II. Although the majority of these are men, there are 100 women veterans on the lists. These two groups, together with an additional 2 percent, consisting of veterans from the earlier war, constitute the total number of former service personnel on Weather Bureau rosters. Of those presently employed, about 150 have 10-point disability preference. Tabulation of employment figures each month reveals that accessions of veterans to the rolls are being made from time to time, both as cases of reemployment and as new employees. The geographical distribution of the veterans shows that the proportion of veterans to the number of Bureau employees in each of the States ranges generally from about 10 to 40 percent. Veterans are employed in every State in the Union, with the exception of Delaware; in Washington, D. C. (about 300); outside the Continental United States in various territories and possessions (about 120); and in foreign countries (about 30).

In round numbers, about 750 employees went on military furlough from the Bureau. The number of fatalities was 7. Of the remaining number, 427 returned to claim their employment rights; another 50 declined reemployment; a number are still in the Armed Forces; and a fourth and considerable group (about 100) requested leave without pay to attend school and better their educational qualifications as provided in the GI Bill of Rights. Some are beginning their college training, others are continuing an interrupted college career, and still others are doing graduate work in meteorology that will permit them to qualify for better positions upon their return to the Bureau.

In accordance with the liberal policy of the Department of Commerce toward returning veterans, these employees have in many cases returned to positions reallocated to higher grades than those they left. In most cases, even when the grade of the position remained the same, the salary had been subject to some administrative raises during the period the veteran was in service, and in all cases he was given the full benefit of what was due him. When necessary, to aid him in taking on the new and more difficult duties of a reallocated position, on-the-job training facilities were set up for his benefit. But the most notable factor affecting the veteran and his job was that the Bureau attempted to recognize fully that many of the returning men had increased their experience and skills in relation to meteorology, had acquired new abilities and knowledge, and had strengthened their administrative powers during their service period. Many employees successfully completed professional training courses at leading universities while in the armed forces and enjoyed extensive experience for a long period in actual weather work. These two factors resulted in the return of more than 100 employees formerly in the sub-professional or CAF positions to professional jobs. Of the 130 who received accredited training at the professional level while in service, there were only a few cases in which it was unavoidably necessary for them, upon return, to accept sub-professional appointments until the opening of a suitable vacancy would make possible a professional rating.

Every attempt has been and is being made to restore veterans to duty rapidly and with full cognizance of their qualifications. Professional men in the Central Office and in the field are designated as placement officers to aid the veteran with his job problems and to facilitate his return to work promptly. The Bureau is cooperating with the Department in encouraging the employment of veterans to the fullest possible extent. The spirit and policy of all veteran legislation is to favor him in case of any reasonable doubt. As the Department Memorandum stated, this is our "clear obligation," and this is one obligation which has proved a pleasure to fulfill.

EUREKA SOUND

The mere statement that in 8 days, April 8–16, 1947, 106 tons of supplies and 5 men were flown in and a weather station established on Eureka Sound, within 600 miles of the North Pole, is in itself dramatic. It becomes even more impressive when the achievement is considered against the background of adventure and discovery which belongs to this part of the Frozen North.

Westward from northern Greenland, stretching approximately from 76° to 83° N. lat., lies a large island known as Ellesmere Land. It is separated from North Devon Island, to the south, by Jones Sound, and from Greenland by a series of waterways leading from Baffin Bay to the Arctic Sea. The Thule weather station described in the March issue stands on the Greenland coast at the northern limit of Baffin Bay, near the entrance to Smith Sound.

By the end of the nineteenth century, considerable geographical knowledge had been accumulated concerning the southern, eastern, and northern coasts of Ellesmere Land. Its interior, too, had been partly explored, but its western coastline was practically unknown, except for the portions discovered by the U. S. Signal Corps expedition under Greely in 1882–3 and by the famous Norwegian explorer, Otto Sverdrup, in 1899–1900. During the winter 1900–1901, Sverdrup's ship, the *Fram*, was secured in a fiord at the head of Jones Sound on the southwestern corner of Ellesmere Land. In April 1901, Sverdrup led a party northward over the ice along the Ellesmere west coast. His object was to ascertain whether, as he believed, a sound led northward from Norwegian Bay off the lower west coast, to Greely Fiord, known to exist on the northern part of the same shore. Pushing ahead through difficult and hitherto unknown country, the party encamped on the 29th at 78°50′ N. lat., 84° W. long. The explorers resumed the march the following morning convinced they would soon, or never, see the long-sought sound. About 1 p. m., they rounded a point, and to their joy beheld "a beautiful large sound extending northward as far as the eye could see!" On the spot, it was christened Eureka Sound.

Sverdrup subsequently explored almost the whole of the west coast of Ellesmere Land up to about 81° 40′ N. lat., and discovered several smaller islands farther westward. The next journey through the Eureka Sound area was made by Cook on his attempt to reach the North Pole in the spring of 1908. In more recent years, Donald B. MacMillan visited Eureka Sound on expeditions in search of the mysterious Crocker Land reported by another celebrated polar explorer, Robert E. Peary; and members of the Royal Canadian Mounted Police have passed along it on some of their annual patrols.

It was into this remote and lonely region that the planes from Thule ventured in setting up the Eureka Sound weather station. A Fairchild Flying Packet and two C–47's soared over the ice where Sverdrup, almost exactly 46 years ago, had toiled with dog and sled. Men and supplies were landed without incident in a few swift, carefully planned operations. A radio message on April 10 reported that the station would be in working order within 7 days.

The Eureka Sound project is a joint Canadian-United States undertaking. It was worked out in detail by the Arctic Section of the Weather Bureau, under Charles J. Hubbard. Plans were presented to the Canadian Government for approval, and concurred in by the Dominion authorities without change. Half of the Eureka Sound operating personnel are Canadians. The official in charge, J. Courtney, is a Canadian; the executive officer, Per Stoen, the radio technician, J. Trinko, and the cook, T. Sheret, are Americans. The other 2 of the 6 permanent personnel, the radio operator and the radiosonde observer, are both Canadians. Such international cooperation as this augurs well for the establishment of additional Arctic weather stations and an increase in the general knowledge of high-latitude meteorology.

Situated at Lat. 80° 13′ N, Long. 86° 11′ W., Eureka Sound is one of the most northerly weather stations in the world, comparing favorably with Russian high latitude stations. The station has a good exposure, open to the ice-locked sound on the north and west and with a low range of snow-covered hills, 3,000 to 4,000 feet high, some 50 miles back in Ellesmere Land to the south and east. It is expected that representative observations of Arctic weather will be secured and reported on a daily schedule. As at Thule, monthly flights will provide the crew members with plenty of mail and provisions. So, Eureka Sound has been transformed in less than half a century from an unknown waste to the reasonably comfortable home of a half-dozen enterprising weathermen.

ALASKAN NEWS

The people in Alaska don't eat whale blubber and live in igloos. You can take that on the word of Glen Jefferson, Director of the 8th or Alaskan Region, who has been in Washington attending the Regional Directors' conference. As a matter of fact, Mr. Jefferson, though he has been in Alaska since 1943 and has travelled widely over the Territory, has never even seen an igloo. The blubber and igloo myths are only a few of the many misconceptions which in Mr. Jefferson's opinion "Stateside people" hold about life in Alaska. It *is* cold in winter and there is no corner drugstore; but Mr. Jefferson is convinced from his experience that it is entirely possible to lead a healthy and reasonably normal life in this supposedly cruel land. "No one should be afraid of Alaska," he remarked. "It is rough and cold in spots, but the people are very, very friendly, and a man or woman who develops qualities of resourcefulness and initiative can lead a contented and rewarding existence."

As proof of these beliefs, Mr. Jefferson cites the experiences of the 190 Weather Bureau men and women who operate the Alaskan weather network. In the larger towns—Ketchikan, Anchorage, Fairbanks, Nome, etc.—the situation is pretty much the same as in some parts of the continental United States. Practically every Alaskan village, no matter how small, has its two-way radio set; every Weather Bureau station is readily accessible by air, some by rail, boat, or highway in addition. The stations in the larger towns have the familiar standard equipment, and working conditions are little different from Stateside.

Conditions at the more remote stations, while reminiscent of the frontier, are quite interesting, as a few examples will show. The Barrow station is located on the outskirts of the village of the same name and about 300 yards from the shore of the Arctic Sea. It is within a half-mile of the site of the original station constructed in September 1881 by the Signal Corps expedition under Lieut. P. H. Ray which took 27 months of observations there in connection with the International Polar Year. The present station, set up by the Bureau about 8 years ago, consists of three typical Weather Bureau buildings of the CAA type 41. They are a family unit, a combination family and office unit, and a bachelor unit. There is a full program of surface observations, as well as pibal and rawinsonde observations. The village of Barrow numbers about 350–400 inhabitants, of whom 30-odd are white. The village has a Presbyterian church, locally celebrated as "the northernmost church in North America," a hospital, and a school. As at the other Weather Bureau locations, there is a WB–CAA commissary, well stocked with nonperishable food items, which may be drawn on by invoice and repaid through salary deductions. The Appropriation Act makes it possible for the Bureau to provide in emergencies whatever medical attention may be required by any of its working personnel. Practically a complete hospital may be flown in, if necessary.

The Eskimos at Barrow, like most of their race, are simple, straightforward people. Though eager to lure a white man into a shrewd bargain, they will not steal and are fairly reliable if engaged for employment. The big event in their lives is the annual celebration of the conclusion of a successful whaling season—which means the killing of 5 or 6 whales. This celebration, known as "Nullikuttuk," is marked by dances, races, and a feast at which a slice of a whale's flipper, "muktuk," is regarded as a delicacy. The Eskimos are very adept at using the whalebone in a variety of ways. They shape it into long shreds, wind it, and weave it into baskets and similar articles. A small piece of bone, pointed at both ends, is often compressed into a U-shape and frozen in a chunk of blubber. Placed out on the tundra for a wolf to find, the bone springs back into shape inside the animal and adds a nice new wolf skin to some Eskimo belle's collection.

A remote interior station is Umiat, situated about 175 miles southeast of Barrow. It consists of a few buildings which squat on the tundra near the Colville River. Just to the south is the Brooks Range, a line of 7,000–10,000-ft. mountains extending roughly east-west across northern Alaska. Only bachelor quarters are available at Umiat, but Weather Bureau personnel can live there for a nominal sum. The program calls for surface observations only; pibals are planned. Personnel work at Umiat and Fairbanks on a rotation schedule of 6 months at each station. Umiat is in an area possibly rich in oil, and should test drillings prove successful, its size and importance seem certain to increase.

The village of Wales is the most westerly land station in Alaska. It stands on the tip of the rugged and mineral-laden Seward Peninsula. Across Bering Strait, it is possible on a clear day to see off to the northwest the East Cape of Siberia on the Asiatic mainland. The station consists of two buildings. Complete surface and pibal observations are taken. There are 4 Weather Bureau people, 2 teachers in the Alaskan native service, and a village of about 100 Eskimos. Unlike their folk at Barrow, the Wales natives have little or no success at whaling. They depend on seal and walrus, and some fishing. They produce beautiful ivory carvings from the walrus tusks; the Eskimos in the Seward Peninsula are famous for this type of work.

Mr. and Mrs. Ronald V. Coons, two of the Weather Bureau people at Wales, were amused and pleased by an incident which occurred this past March. A major network radio show dedicated one of its weekly programs to them, and in less than 2 weeks they were swamped with over 2,000 letters from as far away as Miami. Several of these friendly and much-appreciated messages came from Bureau personnel in the States.

Gambell (accented on the first syllable) is located on Cape Chibukak, which is the northwestern tip of St. Lawrence Island. St. Lawrence lies southwest of Wales, in about the middle of the southern entrance to Bering Straits. The station operates a full program of surface and upper air observations, including raobs. The Eskimo village of about 300 is one of the most progressive and prosperous in Alaska. In the winter season, Gambell frequently experiences high winds, which make the cold feel more severe, but the observation crew boasts that it has missed very few radiosonde runs on account of weather.

About 500 miles south of Gambell is the Weather Bureau station at St. Paul Island. One of the Pribilof Group, St. Paul is the summer home of literally millions of seals. It is a matter of record that computations made in August 1943 fixed the Pribilof herd at over 2,700,000 seals. They arrive in late April or early May, and during the summer months the rookeries swarm with them. Strangely enough, the pups which are born there have to be taught to swim. A poor scholar would be left behind when the herd swims south at the approach of winter. St. Paul is under the jurisdiction of the Fish and Wildlife Service, and the sealing is controlled by governmental regulations. About 100,000 pelts are taken annually.

The Weather Bureau office occupies temporary quarters at St. Paul. Observations include rawins. St. Paul is not particularly cold, but overcast skies and precipitation are frequent. There are no trees, and a reindeer herd ranges over the grassy interior.

At these stations, which are among the most isolated in Alaska, husband-and-wife teams have proven most successful. Mr. Jefferson believes that the excellent service record these couples have compiled refutes the notion that Alaska, outside of the larger towns, is practically uninhabitable. While pleading guilty to the charge of being an Alaska "booster," he believes that fewer tall tales and more facts about the Territory will lead to a better Stateside appreciation of conditions and opportunities in "that wonderful country up North."

SIMPLIFIED LETTERS

Letter writing style can be greatly improved if the emphasis is placed on clarity, simplicity, brevity, and friendliness. The use of stereotyped and hackneyed phrases is in bad form. The National Office Management Association published in their monthly magazine, "The Noma Forum," an amusing poem, quoted below, which illustrates this:

We beg to advise you and wish to
state
That yours has arrived of recent
date.
We have it before us, the contents
noted,
Herewith enclosed are the prices
quoted.
Attached you will find, as per your
request,
The samples you want and we
would suggest
Regarding the matter, and due to
the fact
That up to this moment your order
we've lacked
We hope that you will not delay
it unduly
And we beg to remain, yours very
truly.

INSTRUCTIONS

PRESENTATION OF PAPERS BEFORE LOCAL CHAPTERS OF THE AMERICAN METEOROLOGICAL SOCIETY

The instructions which follow are to be understood as an exception to those issued in Circular Letter No. 13–46, "Clearance of text for publication, talks, or for local radio broadcasts." Presentation of research or other scientific papers before *local chapters* of the American Meteorological Society or other similar small groups of meteorologists requires prior approval only of the local official in charge.

MONTHLY WEATHER REVIEW

Some of the limitations effecting the Monthly Weather Review have been removed, and plans have been made to resume the publication of a limited number of special articles. As in the past, these articles will be brief contributions mainly to the fields of synoptic meteorology and applied climatology. Manuscripts from the field are welcome and full consideration will be given them for publication.

In the interests of efficiency and consistency, these rules should be followed as closely as possible in preparing papers for submission to the Central Office.

1. All manuscripts should be typewritten, double- or triple-spaced on plain white bond paper with 1½ inches margin at the top and about 1¼ inches on left and right sides.

2. All mathematical symbols should be clearly written, and equations or formulas should be spaced slightly apart from the textual matter.

3. Figures accompanying manuscript should be clearly drafted in black India ink on white paper whenever possible. Dimensions should not exceed 19 inches by 24 inches, although large figures are preferable to small ones. When drafting facilities are not available, a clear line drawing of a figure will suffice, since the final copy may be prepared in the Central Office.

4. References should be complete, with author, title, publisher, and date of publication in case of a book; author, title of article, name of publication, volume number, month and year, and page numbers in cases of periodical references.

5. If the paper is lengthy, subheads for particular sections are desirable.

PERSONAL

RETIREMENTS

Mr. Howard B. Cowdrick, Official in Charge at Marquette, Mich., retired at the termination of April 30, 1947, with over 39 years of service in the Weather Bureau. Mr. Cowdrick was born on May 2, 1884, at Napoleon, Ohio, and entered the Weather Bureau service as an Observer on September 16, 1907, at Tampa, Fla., and subsequently served at Houghton, Mich. Under date of July 29, 1933, he transferred to Marquette, Mich., where he served continuously until his retirement.

Mr. Warren B. Ent, meteorological aid at Curwensville, Pa., retired at the termination of March 31, 1947, on account of disability, after 17 years of Government service. Mr. Ent transferred to the Weather Bureau from the Civil Aeronautics Administration on July 1, 1943, as a junior observer. He was born August 30, 1890, at Danville, Pa., and his entire service was at Curwensville, Pa.

Mr. Abe Wiesner, Official in Charge at Alpena, Mich., retired at the termination of April 30, 1947, at the age of 70 and with over 42 years of service in the Weather Bureau. Mr. Wiesner was born on April 19, 1877, in Austria. He originally entered the Weather Bureau service on July 5, 1900, as an Observer at Vicksburg, Miss., and after serving on a number of other stations and at the Central Office, he resigned, effective at the termination of July 15, 1919. Mr. Wiesner returned to the Weather Bureau with assignment at the Wichita, Kans., station, effective December 1, 1923. On May 1, 1931, he was transferred to Alpena, Mich., where he remained until his retirement.

Mr. Robert M. Williamson, Official in Charge at Indianapolis, Ind., retired at the termination of April 30, 1947, with over 44 years of service in the Weather Bureau. Mr. Williamson was born on November 7, 1881, at Milan, Tenn., and entered the Weather Bureau service on August 1, 1902, as a student assistant at Knoxville, Tenn., resigning from this position on March 17, 1904. He reentered the service on July 1, 1904, as an Observer at Key West, Fla., and subsequently served at Buffalo, N. Y., the Central Office, Anniston, Ala., and Nashville, Tenn. He remained at the Nashville, Tenn., Office in the capacity of Official in Charge until September 16, 1943, when he transferred to Indianapolis, Ind., where he served as Official in Charge until his retirement.

F. W. Reichelderfer

F. W. REICHELDERFER
Chief of Bureau.

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WEATHER BUREAU TOPICS AND PERSONNEL

JUNE 1947

INFORMATION

TORNADO REPORT

Following the severe tornado which caused widespread damage in the Texas Panhandle and northwestern Oklahoma on April 9, 1947, E. L. Hardy, Regional Director at Fort Worth, Tex., detailed two investigators to the scene of the disaster. Vernon W. Schaad, one of the liaison officials of Region 4, journeyed to Amarillo, Tex., to meet H. C. Winburn, OIC at Amarillo; J. R. Lloyd, OIC of the Kansas City District Forecast Center, joined them there to represent Region 5.

On April 11, the investigating party drove to Woodward, Okla., via Glazier and Higgins, Tex., and during the next 4 days studied the circumstances attending the storm. It was found that the tornado first formed about 0.5 mile southwest of White Deer, Tex., about 5:42 p. m., CST, on April 9. It moved in a straight line northeastward across the Texas Panhandle at an estimated speed of 40 m. p. h. At about 7:22 p. m., it practically leveled the village of Glazier, Tex. The town of Higgins, Tex., some 15 miles northeast of Glazier, was struck with great severity about 7:45 p. m. Crossing the State line, the tornado roared into Woodward, Okla., at 8:43 p. m., destroying almost completely the northwestern half of the city (population 5,500). It dissipated in the neighborhood of St. Leo, Kans. The length of its path was approximately 220 miles, and its rate of movement averaged about 40 m. p. h.

From all accounts, this appears to have been one of the most severe tornadoes on record. Estimates place the number of fatalities at about 160 and the number of injured at about 1,000. Property losses amounted to about $10,000,000. A remarkable feature was the width of the storm. It was about 1.5 miles wide when it passed through the center of Higgins. Careful measurements made at Woodward show that it was 1.8 miles wide as measured directly across the path. The velocity of the winds in the tornado funnel was estimated at about 450 m.p.h. at a point 0.2 mile to the right of the center as it passed through Woodward.

Perhaps the best idea of the freakish fury of the storm is furnished by an incident which Messrs. Lloyd, Schaad, and Winburn give in their report as related to them in Higgins. When the tornado approached the town, a man happened to be standing in the doorway of a friend's home. He immediately closed the door and tried to hold it shut against the wind. The door was torn from his grasp, and he was

picked up and sent sailing through the air. Flying on an easterly course at a considerable altitude above the tops of some tall trees, he had several strands of wire wrapped around him. He was deposited on the ground about 250 yards from his friend's home uninjured except for some minor cuts and bruises from flying debris, but unable to extricate himself from the coils of wire. Meanwhile, his friend had gone to the door of his house and had also made the mistake of attempting to shut the door. He, too, promptly found himself soaring aloft, but on a northeasterly heading. He said afterward that when he took off from his doorway he wondered why he was not going off in the same direction in which his friend disappeared. Miraculously, he also was deposited on the ground with only minor injuries. He started to walk back to his home, but the wind was so strong he had to crawl along almost blindly. On the way, he came across his friend, still wrapped up in the wire, and managed to unwind him. The two men then crawled back to what remained of the house from which they had been blown. They found only the floor of the house left, but the owner's wife and 2 children were huddled on a divan, uninjured. The divan and a lamp were the only furnishings left on the floor.

SUMMER SESSION IN STATISTICS

Weather Bureau personnel aware of the increasing importance of statistical techniques in both meteorology and climatology, and looking for an opportunity to begin their studies in statistics, may be interested in the courses to be given at Blacksburg, Va., from August 5 to September 5, 1947. The Virginia Polytechnic Institute is conducting a Statistical Summer Session, in cooperation with Iowa State College, University of Michigan, University of North Carolina, and the Bureau of Agricultural Economics of the U. S. Department of Agriculture. The session is intended for engineers, biologists, physical scientists, social scientists, and professional workers with the proper requisites. All courses are on the graduate level, and a qualified student may take two courses plus a seminar. To receive credit, a final examination on September 8 or 9 must be taken successfully. Three courses are of particular applicability to meteorological and climatological problems. "Statistical Methods" will be given by G. W. Snedecor, professor of statistics and director of the statistical laboratory of Iowa State College, and author of the widely used textbook bearing the same title as the course. Analysis of variance and co-variance, multiple regression, statistics, and experimentation, are the topics to be covered. "The Mathematical Theory of Sampling", a subject pertinent to climatological section work, will be covered by W. A. Hendricks, who is in charge of the methodology section of the Bureau of Agricultural Estimates and has had close contact with the development and application of the mathematical theory of sampling. "Mathematical Statistics", by an instructor yet to be announced, will have an engineering approach and should be helpful in considering systematic and objective methods of attack on various weather problems. In addition, a daily seminar period will permit the students to hear from several noted statisticans, W. E. Deming, George Gallup, and Charles F. Sarle among them.

School fees total $25.00, and living expenses (food, lodging, laundry) amount to $65.00. Accommodations are available for both single persons and married couples. Veterans attending the session are entitled to the tuition and subsistence benefits of the G. I. Bill of Rights.

Under a rotating plan, the session will be held each summer on the campus of one of the cooperating universities. The Virgina Polytechnic campus at Blacksburg has the advantage of being located 2,100 feet high on a plateau in the Allegheny Mountains in southwestern Virginia. Blackburg's cool summer climate, pleasant scenery, and quiet college atmosphere are things the local Chamber of Commerce and sponsors of the Statistical Summer Session enthusiastically describe.

Interested personnel should write the Chief of Bureau, attention Training Section, stating their educational background and purpose in studying statistics. Those qualified may be granted leave with or without pay to attend the courses. Informational leaflets may be secured from Mr. Boyd Harshbarger, Statistical Summer Session, Virginia Polytechnic Institute, Blacksburg, Va.

ACTIVITIES IN INTERNATIONAL METEOROLOGY

At the meetings currently being held in Montreal, Canada, the Provisional International Civil Aviation Organization (PICAO) became a permanent body. As a result, the organization has dropped the word "Provisional" from its title and will henceforth be referred to as ICAO. Affiliation of the organization with the United Nations is expected in the near future.

Regional Air Navigation meetings of ICAO are scheduled to be held at Lima, Peru, commencing June 17, and at Rio de Janeiro, Brazil, starting July 15, 1947. Mr. Louis Harmantas, OIC of the Weather Bureau Airport Station at New York, has been selected as United States meteorological representative to these assemblies. The Lima meeting will have as its objective the formulation of meteorological requirements and regional supplementary procedures for the South American Region of ICAO, which embraces the entire continent. Similar work is on the agenda of the South Atlantic regional conference at Rio de Janeiro, for the countries of both South America and Africa bordering on the ocean. Five such ICAO regional conferences have been held to date, at Dublin, Paris, Washington, Cairo, and Melbourne. Delbert M. Little, Assistant Chief of Bureau for Technical Services, was this country's meteorological delegate to all these meetings, except that held at Cairo, which was attended by Norman R. Hagen, who for over a year has been serving as Weather Bureau Meteorological Attache on regular duty in England, France, Russia, and other European countries.

The Weather Bureau was represented at another meeting concerned with the problems of international aviation, the Air Traffic Control Conference held at Tokyo, Japan, April 9–12, 1947. Foster V. Jones, who is in Manila directing the American assistance to the rehabilitation of the Philippine Weather Service, and Leroy Coffin, administrative officer of the Weather Bureau Overseas Project at Honolulu, flew to

Tokyo to attend. The conference was called by Headquarters, Far Eastern Air Force, and its purpose was to revise the military directives on control of air traffic in the Pacific Ocean area to conform where practicable to ICAO standards, as recommended at the Melbourne conference last February. Providing for the inclusion of airways service in the Alaskan chain of islands was a second objective.

Meanwhile, arrangements are going forward for the Conference of Directors of the International Meteorological Organization (IMO), which will convene at Washington from September 22 to October 7, 1947. The conference will make final decisions on the recommendations of the several technical commissions of IMO, and consider questions of practical international application in meteorology. The primary aim is to achieve world-wide agreement on methods of observing, reporting, and forecasting the weather for all purposes. In preparation for the Washington meeting, an Organizing Committee has been established, with several subcommittees on arrangements drawn from the personnel of the Departments of State and Commerce. In each case, Weather Bureau men have been designated chairmen. Delbert M. Little is chairman of the Subcommittee on Finances, and the others are Merrill Bernard, Meetings and Facilities; R. W. Craig, Publicity; R. L. Higgs, Entertainment; C. O. Schick, Exhibits; and R. H. Weightman, Housing and Welcome.

B. C. HAYNES ON "OPERATION HIGHJUMP"

When the U. S. S. *Mount Olympus* sailed from Norfolk, Va., on December 2, 1946, one of the civilian scientists aboard was B. C. Haynes, Chief of the Observations Section in the Station Operations Division of the Central Office. Mr. Haynes was assigned as Weather Bureau observer to the Antarctic Expedition of Task Force 68, which expedition is perhaps better known by its Navy designation as "Operation Highjump." The *Mount Olympus* was the headquarters ship for the expedition, and flew the flag of Rear Admiral R. H. Cruzen, commander of Task Force 68.

After touching at Balboa in the Canal Zone from December 7–10, the *Mount Olympus* headed south on its long voyage to the Bay of Whales, an indentation in the Ross Ice Shelf of the Antarctic continent at the head of the Ross Sea. Mr. Haynes devoted most of his time during this part of the journey to a detailed study of Antarctic weather in preparation for flight forecasting activities at Little America. On December 30, the flagship arrived at Scott Island (lat. 68° S., long. 180° W.) and rendezvoused with two cargo vessels of the expedition, the U. S. S. *Merrick* and U. S. S. *Yancey*. In the vicinity of this rocky and inaccessible island, whose hundred-foot cliffs rise sheer out of the Antarctic Sea, many giant icebergs were visible, also much broken ice and the edge of the ice pack off to the south.

On December 31, with the ice-breaker, U. S. S. *Northwind*, leading the three cargo ships and the submarine U. S. S. *Sennet*, the expedition headed into the ice pack. Very little progress was made during the first 10 days, due to the absence of open water "leads" and the thickness of the ice. Mr. Haynes remarked that he was surprised at the

abundance of animal life in the ice pack. Seals and numerous whales were sighted, in addition to several kinds of birds. The omnipresent penguins, strutting on the ice cakes, were much in evidence. One intrepid penguin, however, was seen boldly riding along on the stern of the *Sennet*. The submarine, incidentally, soon had to retreat northward out of the dangerous ice, and was posted at Scott Island. On January 11, sailing conditions improved; the expedition was able to start a steady push southward through moderate to heavy pack ice, finally breaking into loose pack about midnight of the 12th and reaching the entrance to the Bay of Whales on the morning of the 15th.

During the voyage through the ice pack, Mr. Haynes worked closely with the Navy aerologists, analyzing at least one weather map a day and collaborating in the preparation of forecasts. A synoptic network was established upon arrival at the Bay of Whales, consisting of the base group, the *Sennet* (stationed near Scott Island), the Western Task Group operating around the rim of the Antarctic continent from longitude 160° E., to longitude 15° E., and the Eastern Task Group operating from longitude 140° W., to longitude 5° W. The base forecasters received 3-hourly surface observations from all ships as well as pibals, raobs, and rawins from each group. Such reports aided the forecasters in compiling a remarkably good record in connection with the frequent exploring flights sent out over the icy continent.

On January 19, 4 days after the expedition's arrival at the Bay of Whales, Mr. Haynes joined an inspection party which went to Little America III, the base for the previous Byrd Antarctic Expedition. The buildings of Little America III were found buried under the snow, with only the ventilators and antenna masts projecting above the surface. Construction of Little America IV, a 60-tent operational base on the Ross Ice Shelf, had been started, and a landing strip was also being made. Mr. Haynes' forecasting work on January 29 had a special interest. The aircraft carrier, U. S. S. *Philippine Sea*, was off Scott Island prepared to launch six *R4D's* (Douglas *DC-3's*) for a daring flight to Little America. Admiral Byrd arrived in the first plane on the following morning, and Mr. Haynes went ashore with a group of scientists and correspondents to greet the veteran polar explorer.

On February 3, Mr. Haynes was transferred from the *Mount Olympus* to the base camp where he worked in the Aerology Office or "Weather Tent" of Little America IV. Preparations were being made to leave about 190 essential military and scientific personnel at the base camp and evacuate the remainder of the expedition. This move was necessary in order that the thin-walled ships might be taken outside the ice pack before the freeze-up began. Accordingly, the *Northwind*, *Mount Olympus*, *Yancey*, and *Merrick* departed under the command of Admiral Cruzen on February 6, leaving 197 men at the base camp.

During his stay at Little America, Mr. Haynes continued his forecasting work in association with Navy aerologists. The first week on the ice was marred by bad weather, which stalemated flying operations. Mr. Haynes and the Navy forecasters were in frequent conference over flight weather possibilities with Admiral Byrd, who was anxious to in-

augurate the planned program of exploratory flights with the *R4D's*. On February 14 the weather changed for the better. In the succeeding week, several successful flights were made, Admiral Byrd's hop to the South Pole among them.

Bad news came on February 18. During the passage out of the ice pack, the *Merrick* had broken her rudder and had to be towed to New Zealand by the *Northwind*. This meant that the only other ice-breaker, the *Burton Island*, would have to carry out unaided the difficult mission of evacuating 197 men with their personal and essential scientific equipment from the base camp. It was apparent that not much time remained, for any delay in evacuating by the *Burton Island* might result in the base camp being cut off by the increasing ice pack.

On February 22, Admiral Cruzen returned to Little America on the *Burton Island* and ordered the camp closed and evacuation started. Shortly before midnight on the 23d, the ice-breaker steamed away from the Bay of Whales. Mr. Haynes remained aboard the *Burton Island* on the return trip and on March 4, after passing through the ice pack and encountering very heavy seas beyond, arrived at Port Chalmers, New Zealand. A brief stay was made here, and Mr. Haynes took the opportunity of conferring with Dr. Barnett of the New Zealand Meteorological Office in Wellington and inspecting some of the New Zealand meteorological installations. During the voyage home, Admiral Byrd took the opportunity to congratulate Mr. Haynes for his cooperation with Capt. G. F. Kosco, Chief of Aerological Operations for the expedition, in making forecasts for the flights from Little America. The *Burton Island* dropped anchor at San Pedro, Cal., on March 31.

In summing up his impressions of the expedition, Mr. Haynes believes it is best described as an unusual combination of the strange and different with the routine and familiar. The beauty of the ice-filled Antarctic seas struck him as something unique. He describes a flight out over the Ross Sea as "the most beautiful flight I have ever taken." Moving about on skis over the ice ridges at Little America was also a novel experience. Apart from the low temperatures, however, Antarctic weather impressed him as not unusual. Flying weather prevailed about 80 percent of the time, and, thanks to the efficiency of the synoptic network, no bad weather came in unexpectedly. Lows and fronts were charted on the maps and followed across the area in a fairly normal manner. A point in which Mr. Haynes was especially interested is the fact that standard Navy observational equipment and techniques were employed successfully and without need for modification. Despite the change of scenery, the weather behaved pretty much the same in Little America as in the United States. Just for the record, 1 month's observations (January 23-February 23, 1947) at Little America yielded the following figures; lowest temperature, −21.8° F., highest, +28° F.; daily mean maximum, 16.6° F., daily mean minimum, 2.5° F; and mean temperature, 10.7° F. With a Washington summer coming up, these are figures for Mr. Haynes to remember as he reminisces about "Operation Highjump."

INSTRUCTIONS

HISTORICAL WEATHER MAPS

Officials in Charge of all Weather Bureau stations in possession of a file of the Historical Weather Maps, Northern Hemisphere, Sea Level, are requested to inform the Editorial Section of the Central Office of this fact, stating if their file is complete. The series covers the period, January 1899–June 1939. The Central Office is attempting to combine all distribution records of the Historical Weather Map series, with a view toward keeping the station files up to date as new monthly volumes are issued. In order to insure an orderly and expeditious distribution, it is requested that the desired information be supplied before June 30, 1947.

DISPOSAL OF FORMS 1083A

The Joint Committee on the Disposition of Executive Papers (H. Rept. 58, 80th Cong., 1st sess., dated February 2, 1947) has granted authority for the disposal of Forms 1083A, Abbreviated Record of 6-hourly Synoptic Observations, after they are 3 months old. Formerly, the retention period was 1 year. In this connection see TOPICS AND PERSONNEL for August 1945, page 485.

850-MILLIBAR DATA

Effective with the 0130 EST observation of July 1, 1947, the height of the 850-millibar surface above sea level will be substituted for pressure at the 5,000-foot plane in synoptic reports from stations whose elevations lie between 2,500 and 9,500 feet, inclusive, above mean sea level. Instructions for computing the data are discussed in Circular Letter 30–47.

PERSONAL

DEATHS

Mr. Robert E. Hamblin, hand compositor (assistant) at Denver, Colo., died May 4, 1947, at 11:35 p.m. Mr. Hamblin was born April 5, 1921, at Denver, Colo., and entered the Weather Bureau service as a clerk-typist June 17, 1943, by transfer from the Treasury Department. He was later promoted to printer, effective February 16, 1945. His entire service was at Denver, Colo.

Mr. Herbert W. Havins, meteorological aid at Pampa, Tex., was killed in an airplane crash at approximately 4:45 p.m., April 19, 1947. Mr. Havins was born May 2, 1918, at Gordon, Tex., and entered the Weather Bureau service July 21, 1944, at Ft. Worth, Tex. His entire service was at Ft. Worth and Pampa, Tex.

Lieut. Donald V. Johnson, on military furlough from the Weather Bureau, has been reported by the Navy Department as having been officially determined to be missing as of March 19, 1945, in line of duty, while en route under orders to the Navy Weather Central, Philippines. Mr. Johnson was born August 5, 1915, at Marquette, Nebr., and entered the Weather Bureau service February 17, 1941, as an observer (meteorological aid) at Omaha, Nebr. On July 17, 1941, he was placed on leave without pay to enter Chicago University for advanced training in meteorology under the Civilian Pilot Training Program and returned to duty under date of February 18, 1942. His military furlough began April 17, 1942. The Secretary of the Navy has made a finding of presumptive death, the date of death for administrative purposes within the Naval service having been determined to be March 20, 1946.

F. W. Reichelderfer

F. W. REICHELDERFER
Chief of Bureau.

(WB—6-18-47—671

WEATHER BUREAU TOPICS AND PERSONNEL

JULY 1947

INFORMATION

PHILIPPINE METEOROLOGICAL STUDENTS

Thirty-one Philippine students selected for training grants in meteorology under the provisions of the Philippine Rehabilitation Act of 1946, arrived in the United States between May 25 and June 1, 1947. These students were selected by a competitive examination held by the Civil Service Commission of the Philippines. Assignments were made in groups to the following universities: Ten to the University of California at Los Angeles, Calif.; ten to the University of Chicago at Chicago, Ill.; and eleven to the New York University at New York City. The students will receive approximately 12 months of meteorological training at the universities, after which they will be assigned for a period of 8 months to intern training at Weather Bureau Forecast Centers where they will be given practical instruction in preparing forecasts for aviation and general purposes, as well as other service to the public. After the intern training they will come to the Central Office of the Weather Bureau in Washington to receive final instruction before returning to the Philippines.

ELECTRONIC COMPUTER PROJECT

A project whose ultimate effects on weather forecasting may be revolutionary has been quietly under way during the past year in the academic surroundings of the Institute for Advanced Study, Princeton, N. J. Known as the Electronic Computer Project, it is divided into an Engineering Division and a Meteorology Division. The latter is under the joint supervision of Dr. John von Neumann of the Institute for Advanced Study and Dr. Harry Wexler, Chief of the Special Scientific Services Division of the Weather Bureau.

Dr. von Neumann, recognizing the need in many branches of inquiry for a computer with characteristics superior to those previously developed, submitted a proposal for the construction of such a device to the Army Ordnance Department, which awarded a sum of $200,000 for the purpose in February 1946. The following June, the Office of Naval Research awarded approximately half that sum for a study of the application of electronic computation to dynamic meteorology. In addition, the Institute for Advanced Study plans to spend a like amount on the project.

In August 1946, a conference of meteorologists met in Princeton to discuss the project. Plans were made, and specific problems for investigation were assigned to several members of the conference. This latter group formed the nucleus of the Meteorology Division of the project.

Since last summer, work has gone forward in promising fashion, though it is still far too early to expect immediate, tangible results. Dr. Hans Panofsky (New York University), Dr. C. L. Pekeris (Columbia University), Lieut. Philip Thompson (Air Weather Service), and Professor Paul Queney (Institute of Geophysics, Algiers) have participated in the work under the direction of Dr. von Neumann and Dr. Wexler. The immediate aims of this group are the selection and mathematical formulation of meteorological problems to be solved by the electronic computer. Simultaneously, the Engineering Division has been engaged in planning the construction of a pilot-model of the computer, for it is unlikely that all the faults of the device will be anticipated. The pilot model should be completed in about a year.

From the forecaster's viewpoint, the most interesting feature of the project is the effort being made to link the theory behind atmospheric processes with future weather. A method was demonstrated as long ago as World War I for computing the future state of the atmosphere from differential equations which express its physical processes. The time and labor involved in the solution of these equations have so far prevented their practical application, though some theoretical investigations of this "numerical forecast problem" have been made. The Electronic Computer Project is making a vigorous attack on the problem, though admittedly still in the "prospecting stage." Through the liaison work of Dr. Wexler, the Weather Bureau is following the work of the Princeton group with interest.

WEATHER BUREAU MEN IN IRELAND

In the summer of 1946, Mr. A. H. Nagle, Director of the Meteorological Service of the Irish Free State, appealed to the Chief of Bureau for assistance in filling forecasting vacancies in the Irish weather service. The great post-war boom in trans-Atlantic aviation had converted Shannon Airport, near the town of Limerick in southwestern Ireland, into a major international air terminal. In meeting the increased demands for flight weather service thus heaped upon it, Mr. Nagle's unit faced a considerable handicap. A major part of its forecasting work was being done by meteorological cadets who had been pressed into active service before their training had been completed. It was planned to return the cadets to school, but no replacements for them were available in Ireland. Mr. Nagle accordingly requested that the Weather Bureau assist him in compiling a roster of qualified forecasters in this country from which he might recruit volunteers to fill the vacancies left by the cadets and aid his Service in utilizing the latest American forecasting techniques and facilities.

Since such cooperation as Mr. Nagle requested was clearly beneficial to the air transport interests of the United States as well as to the safety of American air travelers, the Bureau assisted him in obtaining the services of eight experienced forecasters. They were granted LWOP and every

effort was made to protect seniority rights and advancement eligibility. Four of them—Kenneth M. Barnett, Arthur L. Jacobson, R. Keith Leatherwood, and Henry R. McQueen—have within the past few months taken up their new duties at Shannon Airport. A fifth, Walter B. Davis, is on duty at Dublin. A letter, dated April 20, from Mr. Leatherwood, gives an interesting sketch of conditions in Limerick.

Accompanied by his wife and 2 children, Mr. Leatherwood flew to Ireland from Albuquerque, New Mexico, late in March. He found a surprising change of atmosphere—from dry, sunny New Mexico to the damp cold of ancient Limerick—but the same familiar problem—a housing shortage. After 3 weeks, however, he succeeded in renting a house. Because of poor heating facilities and delay in receiving the trunks containing their heavy clothing, the family at first felt the cold quite keenly.

Limerick lies on both banks of the Shannon, and Mr. Leatherwood's house, on the north side of the river, is about 15 miles from the airport. "Fortunately," he writes, "very frequent and inexpensive bus transportation is available, with some of the airlines providing station wagon pickup and transportation for the employees."

Concerning working conditions, Mr. Leatherwood reports that "the Irish are very friendly and all of us get along very well in the meteorological office. The methods and equipment in the office are quite up to date." He continues: "The forecasters are assigned monthly rotation to Atlantic Forecasting; European and Shannon Forecasting; and Upper Air Analysis and Prognosis. The 2 years' stay will be immensely broadening and improving to me professionally, and since the family is getting along very well in spite of the drawbacks, we are fairly serene. Prices are rather high (rent $102 per month, fuel $40 per month, groceries $100 per month), but we hope to be able to see the British Isles and the near edge of the Continent during some of my annual leave."

The Weather Bureau men in Ireland have signed 2-year contracts, at a salary of $6,000 (sterling equivalent) a year. Transportation allowances to the extent of $1,200 for married, $600 for unmarried employees were authorized, and personal effects (including automobile) were shipped from New York without charge. It is believed that openings in the Irish Meteorological Service still await qualified Weather Bureau employees. The basic requisites are graduate training in meteorology, preferably the "A" course, and a minimum of 2 years' forecasting experience.

TELEVISING WEATHER NEWS

The studio of Radio Station KSD in St. Louis, Mo., was the scene of a recent novel experiment in televising weather information. H. F. Wahlgren, O I C of the St. Louis Weather Bureau Office, gave a talk over the stations's television network, illustrating his remarks on the weather with charts and photographs. Reports indicate that the reception was excellent. Mr. Wahlgren televised clearly, and the charts and photographs were as distinct as though the originals were being viewed close at hand.

After his program was over, Mr. Wahlgren had the interesting experience of sitting in the studio and viewing the television pictures of the Texas City disaster. The images of the fires and explosions, he remarks, were as vivid as photographs in the Sunday rotogravure.

On the possible application of television as a means of rapidly disseminating weather information in easily understandable form to a large audience, Mr. Wahlgren is quite optimistic. He believes that "the weather map could be used for daily projection and dissemination over television, with the forecaster or some other trained Weather Bureau staff member explaining the probable movement of the high and low pressure areas; the fronts, their locations, and associated weather; the reasons why certain types of weather occurred or are occurring in various sections of the country and so on." The program manager of KSD has suggested a weekly Weather Bureau television program, and the experiment may lead to a promising innovation in the Bureau's public service.

Last year the representatives of two nationally known radio corporations approached the Weather Bureau with reference to the possibilities of television in broadcasting weather news. Conferences were held in the Central Office and preliminary plans were made for a trial period of daily service. Due to unforeseen installation delays the radio companies have not been able to carry out the plans, but the Central Office concurs fully in the importance of developing this new channel for dissemination of weather information. It is expected to come into widespread use eventually.

JERMIN MAKES SURVEY FLIGHT TO ORIENT

Thomas E. Jermin, supervising forecaster at WBAS, Seattle, Wash., a few months ago returned to his home city with a record rivaling that of the famous globetrotter in Jules Verne who traveled around the world in 80 days. Mr. Jermin's trip lasted only 19 days, but in that relatively short time he covered some 16,000 miles, from Seattle to Manila and return, in less than 84 hours flying time.

The reason for the trip lies in the recent development by American aviation interests of Pacific Ocean air routes. Northwest Airlines has already begun or will soon begin regularly scheduled flights to the Orient over the "northern route"—Anchorage, Shemya, Tokyo, Shanghai, and Manila. During the past several months, survey flights have been undertaken over the new route for the purpose of setting up installations and familiarizing personnel with conditions and procedures. At the invitation of Northwest Airlines, arrangements were made for Mr. Jermin to participate in the second survey flight, leaving Minneapolis in early February. It was important that the Weather Bureau be represented on such a flight, because it is responsible for providing most of the meteorological service required along the northern route.

Mr. Jermin boarded the DC–4 survey airplane, the *Trailblazer*, at Seattle, on the morning of February 11, 1947, and flew by way of Anchorage, Adak, and Shemya, to Tokyo. Excellent weather enhanced the impressive beauty of the Alaskan mountains, but the Aleutians lived up to their bad reputation. The landing at Shemya was made with full power and partial flaps into a 70-mile per hour wind. Conditions

improved, however, when the *Trailblazer* neared Japan. As seen from the air, Tokyo was a picture of destruction. Snow covered much of the ground and roofs and accentuated the black ruins of the fire-bombed industrial area. Everything seen on the streets of Tokyo confirmed this initial impression of destruction and poverty.

Leaving the Japanese capital on the morning of February 16, the survey plane deviated from the direct route to Manila in order to follow a projected feeder line, operating from Tokyo to Shanghai via Seoul, in the southern half of Korea. The *Trailblazer* soared over the wrecked naval base at Kure and the flattened waste that was once Hiroshima. After a stop-over at Seoul, "cold and decidedly Oriental," it landed at Kiangwan Airport, Shanghai, on the afternoon of the 18th.

The survey party remained in Shanghai during the 5 following days, except for a brief visit to Nanking, the historic capital of China. Shanghai was suffering from a fuel shortage and inflation. Coal was retailing for $300, American, per ton, and an American dollar bill could be converted into $12,000, Chinese currency. The final Shanghai-Manila hop was made on February 24. The scars of war were much in evidence as the survey airplane flew over Bataan, the wrecked barracks and hospital on Corregidor, and devastated Manila. Much progress in rebuilding had been made, and a symbol of this nation's assistance in the work of reconstruction was the U. S. Weather Bureau jeep parked in front of the old Shinto Temple which now houses the Central Office of the Philippine Weather Bureau.

The journey home was swiftly made. Leaving Manila on February 26, the *Trailblazer* flew direct from Manila to Tokyo, passing over Okinawa in the early morning hours. From Tokyo to Anchorage, the only break was an 85-minute stop for fuel and food. After an overnight stop at Anchorage, Mr. Jermin made the 8-hour flight to Seattle, arriving shortly before midnight on March 1.

As a result of the flight, Mr. Jermin has submitted to the Chief of Bureau a report on the various phases of airline operations over the northern route which relate to the work of the Bureau. Among the phases reported on were an evaluation of present weather installations and an estimate of future requirements, an indication of the ceiling and visibility minima appropriate to the different airfields, a report on the activities of Army, Navy, and airline meteorologists in the Japan-China-Philippines section of the route, and suggestions for Bureau action to furnish the best possible weather service in cooperation with the other agencies. Mr. Jermin particularly emphasized the need for more ship reports from the North Pacific west of the International Date Line and for better upper air analysis in the Far Eastern areas.

THUNDERSTORM PROJECT

The Thunderstorm Project has resumed full-scale operations on schedule at Clinton County Army Air Field, near Wilmington, Ohio. The operating area has a climatological expectancy of 6.7 thunderstorms during May and 9.4 during June. There were 9 storms over the area in May, however, and 6 during the first 2 weeks of June, so the project has benefited from an above-average frequency of thunderstorms. In planning the working schedules to insure having crews ready for the

storms, considerable assistance has been obtained from the twice-daily forecasts and synoptic map discussions furnished through the cooperation of the forecast center at Vandalia, Ohio.

While there has been no increase in the Thunderstorm Project operating personnel complement for the 1947 season, a number of supplementary studies have been added to its agenda. Among these are an attempt to determine quantitative precipitation by means of radar intensity echoes, conducted by the Army, and an atmospheric electricity investigation, by the Carnegie Institute, Department of Terrestrial Magnetism. Soil moisture and run-off studies are also being made in cooperation with the Division of Climatological and Hydrologic Services. Two of the innovations on the project during the 1947 season will be the determination of cloud tops and bases by triangulation of observations at as many as 5 stations and the use of modified radiosondes on a kytoon (combination kite-balloon, which has the appearance of a miniature blimp) for fixed low-level soundings. All in all, the Thunderstorm Project promises to have another busy and successful season.

DISTRIBUTION OF PUBLICATIONS

The following publications have been distributed to field offices of the Bureau since January 1, 1947, by action of the Editorial Section of the Central Office. They are listed in chronological order, by month, according to the date when mailing distribution was completed. Offices to which copies were mailed are indicated in the listing:

February:

On the Mechanism of Pressure Change in a Continental Anticyclone, by Robert G. Fleagle and James E. Miller, Department of Meteorology, College of Engineering, New York University, July 1946. Mailed to forecast centers.

April:

Extended Forecasting by Mean Circulation Methods, by Jerome Namias, U. S. W. B., February 1947. Revision of *Methods of Extended Forecasting,* by Jerome Namias, U. S. W. B., September 1943. Mailed to first-order stations and forecast centers.

May:

Maximum Recorded United States Point Rainfall for 5 Minutes to 24 hours at 207 First-Order Stations, U. S. W. B. Technical Paper No. 2, prepared by A. L. Shands and D. Ammerman, April 1947. Mailed to first-order stations and forecast centers.

June:

An Objective Method of Forecasting Visibility, by James E. Miller and Homer T. Mantis, Department of Meteorology, College of Engineering, New York University. April 1947. Mailed to forecast centers.

SURFACE ELEVATION FOR SAINT CLOUD RAOBS

The elevation (0.98 gdm) of the floor of the instrument shelter at St. Cloud, Minn., which is used as the "surface height" in raobs, is 317.

UPPER AIR OBSERVATIONS INAUGURATED AT CANTON ISLAND

Regularly scheduled pibal and rason observations were inaugurated recently at the Weather Bureau station on Canton Island in the Phoenix Islands. Rasons are made at 0400 and 1600 GCT, and pibals at 1000 and 2200 GCT.

INSTRUCTIONS

SUGGESTIONS ON WRITING TECHNICAL PAPERS

When a professional paper is submitted to the Central Office to be approved for publication, it is reviewed by a group of qualified meteorologists. Though the comments of the group naturally vary with each paper, several suggestions and criticisms are quite frequently repeated. These comments are summarized below, in the hope that they may prove useful to our prospective Weather Bureau authors.

Lack of time for research, due to the pressure of regular work, is perhaps the chief obstacle encountered by research-minded Weather Bureau meteorologists. They may overcome this obstacle by selecting a problem sufficiently small in scope to allow thorough treatment within the limitations confronting them. For example, rather than attempt to examine the whole question of forecasting visibility, the preferred procedure would be to investigate the problem for a particular hour at a single station during one season of the year. This sort of approach, by forcing the writer to focus his originally general ideas on a specific point, often serves to clarify and sharpen them. It also tends to produce a better-organized paper, one that can stand as a sound building-block for subsequent work of a similar character.

A serious obligation which rests upon a writer attempting scientific work is this: He must familiarize himself as completely as possible with the previous contributions to his subject. He should make it clear by references in the paper that he has considered at least the important pieces in the literature, and that he agrees or disagrees with them for specified reasons. It goes without saying that he should be scrupulous in distinguishing his predecessor's work from his own.

Knowing the background of the paper, the reader is better prepared to appreciate its purpose. This should be made obvious: The reader should never be in doubt as to what the author is trying to do. The objective may be crystal clear in the mind of the author, but the reader cannot know it unless it is told to him.

"Define your terms!" That is the most repeated injunction. Failure to assign definite meanings to the concepts used lends an air of vagueness and uncertainty to a paper. The author should be particularly on guard against employing, without explanation, words or expressions which have a special significance to him—and perhaps to him alone. Moreover, he should not hesitate to define even generally accepted terms whenever necessary. "Cyclogenesis," for example, may mean the intensification of an existing low-pressure center, the formation of a new one, or both. In a study of cyclogenesis, therefore, the criteria used to obtain the cases cited should be expressly stated.

This emphasis on defining terms may be given broader application. If the author wishes to discuss a selected hypothesis, he will assist the reader immeasurably by first stating and explaining it. If he wishes to build his paper upon a given proposition or set of propositions, he will fail to convince unless he furnishes adequate proof of it. If he makes

a general statement and offers only one example in support, he cannot expect unreserved acceptance. If he describes a forecasting procedure, say, and omits pertinent information, his readers will ask in bewilderment "Why did he do this?" "How did he do that?" If he has recourse to general concepts, such as "convergence," "orographic effects," to explain a specific problem, the reader may be permitted to doubt. In short, each unit of the paper, from the key terms to the paragraphs of exposition and demonstration, should be clearly defined.

Special care should be taken in those papers devoted almost exclusively to the analysis of data. The sources of the data, the period they cover, the processing they have received—such facts should be carefully recorded; otherwise, an independent check of the data is impossible. A primary requirement, of course, demands that sufficient data be used to justify the conclusions drawn. In some cases, only a few data may be available; in others, a large number. In all cases, however, as many data as are obtainable should be used, because a conclusion derived from scanty evidence carries little weight. For example, the fact that a proposed forecasting rule works in two or three situations does not entitle it to be advanced as a universal guide. Furthermore, when a group of cases is presented and various exceptions made for reasons given, the author should specify how many of the data are thus exempted from subsequent discussion, and how many form the basis for his final results. Unless this is done, the reader will be unable to evaluate the applicability of the conclusions to the data from which they are drawn. Finally, the author should whenever possible test his conclusions on a set of data different from the one used to derive them, and set forth his test results to allow an independent check.

These are some of the comments which have been made in the past and may be of benefit to future professional papers.

LONGITUDE OF KALISPELL, MONT.

The longitude of Kalispell, Mont., in the attachment to Circular Letter 30–47 should read longitude 114° 19′ W.

PBA TELETYPE SERVICE TO OTHER AGENCIES

The following is quoted from a PBA Teletype Operating Notice:

There appears to be some misunderstanding regarding the extent to which the PBA teletype system is available to authorized agencies. It has been brought to our attention that some agencies are under the impression that they can transmit traffic only to their own offices throughout the country. This, of course, is not true. Any office of any authorized agency may transmit messages to any other Government point on the PBA teletype system, unless there are contrary restrictions imposed by that particular originating agency. It is requested that this information be brought to the attention of agencies now being served. In accordance with the above, please note that you may send traffic via PBA to any Federal Government agency or department in any city served by PBA teletype system, unless your own agency has imposed contrary restrictions.

Offices using PBA facilities are authorized and urged to utilize this expanded service wherever practicable as a substitute for TWX or telegraph. The local PBA office will furnish whatever additional information is needed to correctly handle the messages.

WAR DAMAGE CLAIMS

The Weather Bureau has been requested by the Department of Commerce to ascertain whether any of its personnel have claims for war damage sustained while stationed abroad as civilian employees of the Department. Any employee having such a claim should forward to the Central Office his name, amount of claim, date, and location at the time the damage was incurred.

CIRCULARIZATION OF MAILING LISTS

In order to clarify the policy to be followed concerning the circularization of mailing lists, the Third Assistant Postmaster General has issued instructions regarding the use of penalty reply cards or envelopes by agencies of the Government to persons whose names appear on the mailing list of such agencies, for the purpose of enabling such persons to advise the agencies whether or not they desire to have their names retained on the mailing lists.

He emphasizes it is the intent of that office that information as to whether or not an individual desires to have his name retained on a mailing list to receive publications which are distributed free does not constitute "official information," but relates to the personal business of the individual concerned and, consequently, such communications are properly chargeable with postage.

All offices concerned with circularization of mailing lists are requested to comply with the above instructions.

ENVELOPES

Numerous stations requiring "franked" envelopes from Central Office stock are listing them on stores requisitions as "*plain*."

Printed envelopes used for mailing purposes bear the "penalty indicia" (frank) and are listed as "mailing—printed" in the Stock Catalog under Items 53–E–2995–65 to 53–E–4466–60, inclusive.

The word "mailing" in the Stock Catalog, identifying Items 53–E–1232 to 53–E–1844 for "blank" envelopes, was specified in the standard description furnished by the Procurement Division, indicating the type falling in the category of mailing envelopes. Nevertheless, the envelopes in this group bear no printing and should be used only for purposes other than mailing.

Stations are requested to exercise care in describing the types of envelopes desired when preparing stores requisitions.

PAPER

The Central Office has on hand a large supply of Stock No. 53–P–22686–5 Paper, manifold 50 percent rag, unglazed, yellow, 8 by 10½ inches. The paper in these tablets is a very good quality, pre-war grade, adaptable for carbon copies of letters, etc.

The paper was originally purchased for making multiple copies of telegraph messages and there appears to be no further need for the item. No issues have been made to the field during the past year and action is being taken to delete the item from stock.

A stores requisition should be submitted to the Central Office for your requirements.

PERSONAL

MR. THOM ELECTED TO AMES U. S. D. A. CLUB BOARD OF DIRECTORS

Mr. H. C. S. Thom, Iowa Section Director and Official in Charge of the Weather Bureau Office at Des Moines, Iowa, has reported his election to the Board of Directors of the Ames, Iowa, U. S. D. A. Club as Weather Bureau representative. There are only two such clubs in the State of Iowa—located at Sioux City and Ames.

RETIREMENT

Mr. James H. Gordon, Official in Charge at Yuma, Ariz., retired at the termination of June 30, 1947, with over 36 years of service in the Weather Bureau. Mr. Gordon was born on January 23, 1882, at Weathersfield, Conn., and entered the Weather Bureau service on February 1, 1910, as an assistant observer at El Paso, Tex. He subsequently served at San Francisco, Calif., and Fresno, Calif., resigning from the latter station on August 20, 1913. He was reinstated at Fresno, Calif., on June 22, 1914, and later transferred to Phoenix, Ariz. He entered the military service for World War I on May 16, 1916. He returned from military furlough on May 8, 1917. Under date of February 1, 1921, he was transferred to Yuma, Ariz., where he was employed until his retirement.

DEATH

Mr. Thomas F. McEnaney, who was retired at the termination of December 9, 1944, because of disability, died on May 27, 1947. A notice of his retirement and outline of his service in the Bureau will be found in TOPICS AND PERSONNEL for February 1945.

F. W. Reichelderfer

F. W. REICHELDERFER
Chief of Bureau.

(WB—7-18-47—675)

WEATHER BUREAU TOPICS AND PERSONNEL

AUGUST 1947

INFORMATION

WBAN ANALYSIS CENTER

The WBAN (Weather Bureau-Army-Navy) Analysis Center, under the direction of Mr. J. R. Fulks, was placed in operation at 2:00 p. m. EDT., July 16, 1947. It occupies the former Court and Library in the Old Administration Building and the Library Annex, and consolidates the separate analysis centers of the Army, Navy, and Weather Bureau which were organized in Washington in 1942 to meet wartime demands. This amalgamation was agreed upon by ACC/MET about a year ago and has been awaiting the availability of adequate space. ACC/MET is the usual abbreviation for the Subcommittee on Aviation Meteorology of the Air Coordinating Committee, the latter representing the whole range of Government interest in aviation activities.

COURTESY PAYS AGAIN

In the Des Moines Tribune of March 31, 1947, a columnist made the following statement, which needs no amplification:

If there's an office in Des Moines more consistently courteous than the United States Weather Bureau, I don't know which it is.

INAUGURATION OF PIBALS AT UMIAT, ALASKA

Twice-daily pibals (0400 and 1600Z), were inaugurated at Umiat, Alaska on June 27, 1947.

CLOUD SEEDING EXPERIMENT IN OREGON

Early last April, newspapers throughout the country carried brief stories and photographs on the cloud seeding experiment conducted by Eckley S. Ellison, OIC at Portland, Oreg. A narrative report prepared by Mr. Ellison now gives further details regarding the event.

About 11 a. m., on April 14, 1947, three airplanes met at a point 10,700 feet above the airport at Troutdale, Oreg. The "seeding plane," with Mr. Ellison aboard, carried two insulated cardboard cartons, each containing 17 pounds of finely crushed dry ice pellets. The two "observing planes" carried representatives of the press and radio. Owen P. Cramer and Howard E. Graham, meteorologists at the Portland Weather Bureau Office, were also among the participants.

Visual observations at the meeting point established that conditions were favorable for the experiment. Beneath a temperature inversion at about 10,500 feet, there was a broken cumulus cloud deck, containing supercooled water droplets at an estimated temperature of $-11°C$. No ice crystals were present, and no showers were occurring in the region within a radius of at least 25 miles in all directions. A fair test could thus be carried out, and with a good chance of success.

The observation planes descended to an altitude of about 500 feet beneath the base of the cloud deck, and the seeding plane thereupon flew just above the top, dropping the dry ice pellets from one of the cartons over a distance of 12 miles. It then circled to observe any effects on the cloud's upper portion, but none were seen.

The observers below reported snow showers from the cloud, beginning about 5 minutes after seeding was commenced. The snow melted as it fell and reached the ground as rain showers of moderate intensity. The showers began as a series of patches, forming along the line of the seeding plane's course. They soon merged into a solid 12-mile line of showers, slowly increasing in width to a maximum of $\frac{1}{2}$ mile approximately 15 to 20 minutes after inception. Some 45 minutes after inception the showers had practically vanished. A second cloud was selected and seeded from the remaining carton of dry ice, with results similar to the first experiment.

Mr. Ellison's work recalls the previous investigations of this nature conducted at Schenectady, N. Y., and in Australia. A report on the Australian experiments has appeared in "Nature" for April 12, 1947. In general, it confirms the account given in the April issue of TOPICS AND PERSONNEL, but no claim is made for the inch of rainfall which, according to first reports, was obtained in one of the Australian experiments.

WAVE STUDIES AID STORM TRACKING

Recent work in the investigation of ocean waves and surf was the subject of a conference held in Washington, D. C., under the auspices of the Navy Department, Bureau of Ships, this past February. Participants in the conference included representatives of the Navy Department, Woods Hole Oceanographic Institute, Scripps Institution of Oceanography, and the Weather Bureau. The development of methods for tracking storms at sea from wave observations was one of the topics discussed.

Dr. H. U. Sverdrup of the Scripps Institution of Oceanography reviewed the research activities conducted there. He stated that the analysis of wave spectrograms shows that long and low forerunners travel in advance of a heavy sea swell. These forerunners are not visible to the naked eye, but can be picked up by suitable instruments. They permit the computation of the position of the storm generating them. Storms at sea more than 3,000 miles away have been tracked by this method.

Dr. Sverdrup pointed out the potential value to ocean weather forecasting of a network of wave recording stations. Experimental stations of this type are at present operated by Scripps, Woods Hole, and the Department of Engineering of the University of California. These shore stations furnish useful information, but observations in the open sea are needed.

Dr. Harry Wexler, Chief of the Special Scientific Services Division, expressed the interest of the Weather Bureau in further developing methods for storm tracking from wave observations. He joined with

the representative of the Navy Aerological Service in pointing out the suitability of wave recordings as a means of collecting meteorological and climatological data for the Southern Hemisphere where direct observations are lacking over very great ocean areas. Better knowledge of Southern Hemisphere weather, which is much simpler than Northern Hemisphere conditions because of the large water surface, is important to general atmospheric research.

AMATEUR WEATHERMEN OF AMERICA

On March 30, 1946, a small group of weather enthusiasts met in Philadelphia, Pa., and founded the Amateur Weathermen of America. Under the leadership of David M. Ludlum, former AAF weather officer, the group has expanded in little more than a year's time to an organization of approximately 1,100 membership. The parent club in Philadelphia is the largest, with about 300 members. Permanent headquarters have been established at The Franklin Institute in that city.

The purposes of the Amateur Weathermen are to increase the popular understanding of weather and climate and to apply this knowledge for the greater enjoyment of daily living. Its activities are coordinated with the educational program of The Franklin Institute, and it is especially interested in projects that promise to enlarge the scientific outlook of American youth. It also maintains contact with the Weather Bureau, the American Meteorological Society, and the military weather services, all of which have encouraged its growth. Any person who enjoys studying any aspect of the weather is eligible for membership.

The first Nation-wide project of the Amateur Weathermen will be a study of the movement of summer thunderstorms. All members will be supplied with forms on which to record pertinent data on thunderstorms observed. The data will be collected at headquarters, analyzed, and made available to the Weather Bureau, Army, and Navy. At the invitation of Mr. Ludlum, C. O. Schick, Executive Officer of the Thunderstorm Project, described the work of the project at a recent monthly meeting of the Philadelphia club. Previous to the meeting, he was interviewed by Mr. Ludlum over radio station WCAU. Six days a week, at 6:25 p. m., the Amateur Weathermen broadcast announcements of interest to members and discuss the current weather.

A feature of the monthly meetings is the forecasting contest. Every member in attendance is required to make a forecast for Philadelphia for 7:30 a. m., the following day, and the winner is awarded an aneroid barometer as a prize. Making the forecast is not strictly a guessing contest, because of the cooperation of the local Weather Bureau Airport Station. A Bureau meteorologist projects on the screen the current analyzed map and auxiliary charts, and explains them to the contestants, with perhaps a few hints. This cooperation is greatly appreciated by the Amateur Weathermen, who feel they are being given a peek into the workings of the Weather Bureau.

MEXICAN WEATHER STATIONS

Since 1942, the Weather Bureau has been cooperating with the Mexican Meteorological Service in the establishment of a network of weather stations located "south of the Border." Arnold P. Eliot, liaison official between the Chief of Bureau and Dr. José C. Gomez, Director of the Mexican Meteorological Service, heads a staff of three Weather Bureau employees, with offices located in the American Embassy in Mexico City. The purpose of this group is to train Mexican personnel in observational work and in the operation and maintenance of radiosonde and other instrumental equipment. It also assists in establishing and equipping the cooperating synoptic stations.

About 20 stations are in operation under the program. They include 4 raob and 2 pibal stations, with observations scheduled to begin soon at an additional 5 pibal and 5 synoptic surface observation stations. Reports from these Mexican locations have proved of great value to forecasters in the southwestern United States. A good example of the importance of the network is furnished by the station established in December 1946 on Guadalupe Island off the coast of Lower California.

Located about 250 miles south-southwest of San Diego, at lat. 28° 52′ N., long. 119° 42′ W., Guadalupe Island lies in what has been termed the Pacific "blind spot." Few ships sail within an arc of approximately 90° from south-southeast to west-southwest of southern California, so weather information from this ocean area is almost entirely lacking. Out of this "blind spot," currents of moist, unstable air flow into southern California and Arizona during the winter season, and large and intense cyclonic storms occasionally move inland, some of them causing serious floods. Guadalupe's reports give sorely needed clues to the "blind spot" weather conditions. The island also lies very close to the West Coast hurricane track. In the late summer and fall, perhaps once every 2 years, tropical disturbances of rather severe intensity move up from the vicinity of Panama, pass near the island, and strike the southern California coast. A single, timely warning during the hurricane season by the Guadalupe station would easily justify its annual cost of maintenance.

Besides its meteorological importance, this lonely Pacific island has some curious points of interest associated with it.

Oriented almost directly north-south, the island is about 20 miles long and from 2 to 6 miles wide. The northern end rises abruptly from the ocean in high, precipitous cliffs. Interior elevations reach 4,000 feet in this vicinity. The ground slopes gradually to the southern end, where a sheltered cove offers a good landing place. The weather station is situated at the southern end.

The extremely rocky and barren landscape gives most of Guadalupe the appearance of a desert island. This is in part explained by the fact that it is the tip of an extinct volcano, rising some 15,000 feet above the ocean floor. The western half of the crater is visible from the air,

but the eastern half appears to have been eroded away, or perhaps blown off in an early eruption. The island's rocky character is accentuated, moreover, by the sparse vegetation, and behind this poverty of plant life lies an unusual story.

The earliest writers to notice Guadalupe described it as covered with brush and forests of cypress, palm, pine, and oak trees, and as having a plentiful supply of good water from springs. Little rain falls on Guadalupe, but many writers attributed the former abundance of ground water to the low stratus clouds and fog which are frequent on the island. According to the common explanation, the prevailing wind off the ocean, blowing upslope against the high land in the northern part of the island, caused the moisture-laden air to condense on contact with the dense forest growth. Considerable precipitated water is said to have thus resulted. Sinking into the ground and flowing through underground rock faults, it reappeared in a number of good springs.

At the present time, the only source of water on Guadalupe is a small well near the northern end. The trees and brush have likewise vanished, except for a few straggling cypresses. The decrease in vegetation, and perhaps in water as well, is due to the herd of several thousand goats which roams Guadalupe. Goats were introduced to the island over 50 years ago, probably by the whaling and sealing vessels which formerly touched there. They multiplied to such an extent that a visitor in 1906 estimated the goat population at 6,000 to 8,000. Some years later, an enterprising Mexican established a cannery on Guadalupe and many of the goats went into cans. Guadalupe goat meat evidently did not prove popular. The cannery failed, but the goats faced extinction from another cause. As they increased in numbers, the vegetation could not sustain them. In their quest for food, they ate all the young shoots and even the bark from the mature cypress trees. The result has been that now only old dying cypress forests stand in the northern part of the island and the ground is otherwise an arid waste.

Guadalupe is interesting from another aspect of "unnatural natural history." It was formerly the home of vast herds of fur seals and elephant seals, the latter being named for its odd proboscis which is shaped like the stump of an elephant's trunk. At one time, as many as 200,000 fur seals were estimated to live on Guadalupe, but hunters ruthlessly exterminated them, and they have been extinct for over 30 years. The elephant seals, too, were practically wiped out because of their valuable fat and oil. Only a small herd now survives. For the past several years it has been protected by the Mexican Government.

As mentioned previously, the Guadalupe weather station is located on the southern tip of the island. It is manned entirely by Mexican Navy personnel; all the other stations in the cooperative network are operated by Mexican civilians. Six-hourly synoptic surface observations are taken at Guadalupe and it is planned to add pibals soon. Once every

3 weeks, a Mexican Coast Guard patrol boat brings mail and supplies. Meteorology has thus added a new chapter to the strange history of Guadalupe Island.

PHILIPPINE METEOROLOGICAL STUDENTS

As reported in last month's issue of TOPICS AND PERSONNEL, 31 Philippine students arrived in the United States between May 25 and June 1, 1947, to begin university meteorological training. An additional smaller group arrived during July, and 2 more groups are expected to follow at 4-month intervals, totaling 19 students altogether. These groups will complete the quota of 50 students, provided for by the Philippine Rehabilitation Act of 1946. They are for the most part men who have seen some years of service in the Philippine Weather Service.

INSTRUCTIONS

STRIKE PROVISIONS, TAFT-HARTLEY ACT, 1947

Section 305 of the recently enacted Labor-Management Relations Act, 1947, contains the following provisions:

Any individual employed by the United States or by any such agency who strikes against the Government:

(1) Shall be discharged immediately;
(2) Shall forfeit his Civil Service status, if any; and
(3) Shall not be eligible for re-employment for 3 years thereafter in any agency of the United States Government.

Section 305 supplants the provision of the appropriation act prohibiting employees to participate in strikes against the Government.

COMMERCIAL RADIO BROADCASTS OF FLYING WEATHER

In the November 1946 issue of TOPICS AND PERSONNEL, there was a statement of policy regarding the broadcast of aviation weather information over commercial radio stations. That policy has been modified slightly, particularly with respect to the use of studio broadcasts for the dissemination of this information. Station officials are referred to Circular Letter 63–47 for details concerning this latest statement of policy.

PERSONAL

COMMENDATION FOR EMERGENCY ACTION

The attention of all personnel is directed to the following excerpts from a letter received at the Central Office from the Detroit Weather Bureau Office.

In Weather Bureau circles it is not unusual to find many employees who render outstanding service when emergencies arise. However, we feel that in some instances recognition should be given and the facts called to the attention of Bureau officials who may later be called upon to pass judgment on such employees in connection with promotions or transfers. We accordingly wish to call your attention to the initiative, ability to make decisions, and accuracy of such judgment or decision evidenced by Messrs. Kinunen and Comstock in analyzing the potentialities of the severe storm which developed suddenly in this area on March 24 and in promptly advising public utilities and other interests.

Commendation and appreciation of the prompt action taken has been expressed by a number of recipients of the warning, especially the Detroit Street Railway Company, who stated that they would have been unable to maintain service had it not been for the warning given some 6 hours in advance which allowed them time to collect men and equipment to have on hand when the snowfall began.

The initiative shown by Messrs. Donald W. Comstock and Eino V. Kinunen in taking emergency action to disseminate heavy snow warnings in this instance is most commendable and is appreciated by the Central Office. A letter over the signature of Chief of Bureau expressing Central Office appreciation was written to the Detroit Office and copies have been placed in personnel folders of the two employees to become a part of their permanent record.

EMIGH HONORED BY ALABAMA ACADEMY OF SCIENCE

E. D. Emigh, meteorologist in charge of the Weather Bureau Office at Montgomery, Ala., has been named president-elect of the Alabama Academy of Science, to take office in the Spring of 1948. The Academy has a membership of over 200 and is devoted to the advancement of the physical and social sciences.

DEATH

Mr. Patrick H. Smyth, who was retired at the termination of January 31, 1933, died in Montgomery, Ala., on April 8, 1947. A notice of his retirement and outline of his service in the Bureau will be found in TOPICS AND PERSONNEL for January 1933.

F. W. Reichelderfer

F. W. REICHELDERFER
Chief of Bureau.

(WB—8-18-47—675)

WEATHER BUREAU TOPICS AND PERSONNEL

SEPTEMBER 1947

INFORMATION

WEATHER BUREAU APPROPRIATIONS

During the last 10 years Weather Bureau appropriations have increased almost five-fold. Although some of the increase has been for temporary wartime expansion, most of it has been authorized for two purposes. These are (1) expansion of facilities and services in the normal civil functions of the Weather Bureau and (2) pay increases incident to grade reallocations and legislation which granted higher salaries to meet the rise in cost of living. Unless certain budgetary facts are known, erroneous conclusions are likely to be drawn with reference to Weather Bureau appropriations. The following summary is given for the information of personnel who are interested in the subject.

It should be pointed out that the regular annual appropriations, in general, are not available for increases in salary to meet the rise in living costs. Congress appropriates funds for this purpose for the Federal establishment as a whole. Furthermore, reallocations of grade cannot, in general, be accomplished from appropriations for service programs. Promotions can be made to higher positions established through authorized increase in program, but in such cases, the higher positions must be provided in the appropriation estimates and must be in line with Civil Service classification standards. Lest the facts be misconstrued, it should be emphasized that appropriation increases for new Weather Bureau services are not available for general increases in salaries not related to the new program.

Distribution of General Appropriations to Objects of Expenditures for Fiscal Year 1948 (Approximate: to nearest $1,000).

Personal Services (salaries)	$15,863,000
Travel (including transfers, ocean weather patrol duty, etc.)	478,000
Transportation of things	424,000
Communication services	1,080,000
Rents and utilities (other than telephones)	491,000
Other contractual services	331,000
Supplies and materials	2,164,000
Equipment	355,000

Lands and structures	$25,000
Grants, subsidies and contributions	9,000
Transfer to Bureau of Mines for helium	107,000
Total appropriations for 1948: (Annual, $21,052,000 and supplemental for overseas services, $275,000)	$21,327,000

NOTE.—Of the increases during the last few years, approximately $664,000 went to grant reallocations in accordance with the field survey and approximately $5,550,000 went to general salary increases resulting from specific legislation (P. L. 106 and 390, 79th Congress) to meet the increased cost of living.

CHANGE IN TITLE FOR ASSISTANT CHIEF FOR TECHNICAL SERVICES

Effective July 1, 1947, the title of Assistant Chief for Technical Services was changed to Assistant Chief for Operations. The new title is considered to be more descriptive of the activities coming within the jurisdiction of Mr. Little's office, and it is believed will eliminate some of the misunderstanding that has occurred in the past as to whether technical services embraces the purely scientific and research activities of the Bureau.

The divisions or offices which are under the Assistant Chief for Operations are: Climatological and Hydrologic Services, Instrument Division, Station Operations, Synoptic Reports and Forecasts, and the Arctic Weather and Thunderstorm Projects.

PUNCHED CARD PROGRAM

Punched Card Units, officially known as the Weather Records Processing Centers, are now being activated in all the regions. An account of the history and future prospects of the program is given below.

Punched cards were first developed in the U. S. Census Bureau in 1890, as a means of handling the vast numbers of census data. Their meteorological uses date from 1921, when they were utilized by the British Admiralty for the sorting of marine observational data. In 1927 they were used by the British for the summation as well as the sorting of weather data. In the United States, punched cards were employed in the early thirties to handle marine data in the preparation of "The Atlas of Climatic Charts of the Oceans." The weekly averages of precipitation for many stations in the United States were another early punched card achievement. Later came the punching of the 1130 data, resulting in the 1141 series of airport data and the "Airway Meteorological Atlas for the United States."

During World War II, an urgent need arose for climatological data processed in such form as to be readily interpretable in terms of military operations. By the end of the war, the Army had punched a large number of Northern Hemisphere weather observations and some Southern Hemisphere data for periods of 40 years or more. The Northern Hemisphere Historical Weather Maps were thus made possible.

One lesson learned during the war was to punch all available observational data, even though the immediate need for some of them might not be evident. That this lesson has been taken to heart is obvious from the types of punched cards which, by Weather Bureau-Army-Navy agreement, have been stardardized to cover meteorological observations. There are 7 cards in all. No. 1 for the hourly observations, No. 2 for the 6-hourly observations, and No. 3 for the summary of the day's data, give a complete picture of the daily weather as shown by the surface observations. The No. 4 card carries the pibal or rawin observations; 2 or 3 cards are used for long flights. The No. 5 card is used for radiosonde observations; as many as 8 of these cards may be needed for a single ascent. On the No. 6 card are punched the 1009, 1006, and 1024 data. The No. 7 card is the transmittal card. It takes the place of a letter of transmittal and also serves as a current inventory. Special cards of various other types are used for special purposes.

In cooperation with the Army and Navy, and with their financial support, a pilot project to test the punched card program on a field basis was begun in 1945. First-order Weather Bureau stations in Louisiana and Mississippi, next in Arkansas, Oklahoma, and Texas, were involved. A tabulating center was established at New Orleans.

The success of this experiment led to plans for the extension of the project. From May 19 to 23, 1947, a conference was held on the subject in the Central Office. The following field officials were in attendance: E. J. Christie of Albany, N. Y., J. H. Hagarty of Elkins, W. Va., C. E. Lamoureux of Raleigh, N. C., Benjamin Parry of New York, N. Y., S. S. Schworm of Richmond, Va., Leslie Smith of New Orleans, La., and H. C. S. Thom of Des Moines, Iowa. Central Office participants included J. A. Copeland (chairman), Merrill Bernard, W. C. Jacobs, and L. A. Stevens.

As a result of this conference, plans were drawn up and approved in June for making the weather data processing mechanization program Nation-wide. The first step was a meeting at Fort Worth from July 14–18 of the men selected by the Regional Offices to organize the program. New York sent Assistant Regional Director W. A. Bertrand; Atlanta, Assistant Regional Director R. L. Anderson and Regional Engineer A. J. Polos; Chicago, Regional Engineer W. E. Hiatt; Kansas City, Regional Engineer Verne Alexander; Los Angeles, Assistant Regional Director Leslie Warren; and Seattle, Assistant Regional Director Hugh Spangler. The Fort Worth delegates were Regional Director Erle Hardy, Assistant Regional Director H. L. Collins, and Regional Engineer R. J. McConnell. Merrill Bernard, L. E. Brotzman, John Copeland, and Leslie Smith represented the Central Office.

From July 21 to August 1, a second training program was held at Region 4 Weather Records Processing Unit in Fort Worth. A member of the liaison staff of each region was present. Instructions were given for organizing and supervising a crew to install the on-station punches and for training observers in their use.

When the punched card program is fully implemented, all first-order stations will be equipped with a hand punch and will be provided with detailed instructions for the punching of their local observational data. This will be the only equipment furnished field stations. In each region there will be a Weather Records Processing Center, with the necessary machines to process the punched cards.

The first phase of this program, that affecting the first-order stations, has already been started and is expected to be in operation by the end of the year. Liaison men are distributing the hand-operated punching machines and instructing station personnel in their use. The second phase of the program, the establishment of Regional Processing Centers, is similarly making progress. The Fort Worth Center is already in operation, and the establishment of the remaining centers is in an advanced planning stage. During the period August 1–October 15, mechanically inclined young men in the SP-6 grade will be selected and given special training to qualify as machine-checking supervisors in the centers.

When the program is in full-scale operation, all climatological observations, including river and rainfall, evaporation, etc., will be reported weekly to the Section Centers on a revised Form 1009, which will supersede Forms 1009, 1006, 1024A, and 1053A. The observer will make a single carbon copy of this form, as a safeguard against loss in the mail. He will be given an Annual Diary, replacing the present Form 1011, in order to facilitate his recording of the data and to have a more permanent record of the original observations than 1011 provides.

When the weekly 1009 reaches the Section Center, it will be examined for obvious errors and omissions, and passed on to the Regional Weather Records Processing Center where the data will be placed on tabulating cards. After being machine-checked, the cards in error will be repunched. Form 1009, after microfilming, will be returned to the Section Centers. At the end of each month, the cards will be sorted and summarized, automatically punching the summarized data on a summary card. This summary card will be processed by another machine, which will make the necessary divisions for the means. It will next be run through in conjunction with a card on which the normals have been punched, resulting in the punching of the departures from normal on the summary card, which is now complete with sums, means, and departures. The equivalent of the monthly Form 1009 will subsequently be reproduced by means of the monthly deck of cards and the summary card. Four copies will be made, two of which will go to the Section Center. One of the latter may be sent to the observer.

The extension of punched card methods to first-order station routine has necessitated a thoroughgoing review of present practices, many of which will be eliminated, simplified, or absorbed by the Weather Records Processing Center. It is proposed to eliminate Forms 1014, 1001,

1002, and 1003 at most first-order stations, and eventually the Climatological Record Book. A revised Form 1130A and the records from the recording instruments will then be the only records maintained, thus ending the excessive copying of data from one form to another, with the concurrent necessity of extensive checking. Two copies of Form 1130A will be made, one of which will be sent to the Weather Records Processing Center and the other retained in special binders which will be provided for the purpose. The only data to be summarized will be those for which there is a definite demand. Once the original observation has been certified by the observer to be correct, and the observation card punched at the local office, the work of that office will be completed. From there on, the machines will take over—checking, summarizing, and preparing the data for various types of publication.

MEETING OF THE INTERNATIONAL METEOROLOGICAL ORGANIZATION

In the April and June editions of TOPICS AND PERSONNEL, articles appeared concerning the meetings of the International Meteorological Organization. General information regarding the organization is contained in an article in the May issue of Bulletin of the American Meteorological Society.

The meetings of the various technical commissions and the joint meetings of Regional Commissions III and IV are being held in Toronto, Canada. Central Office Officials have been busy for weeks in connection with these meetings. The Weather Bureau is being represented at Toronto by several members of the Central Office staff who have been designated as members of the various commissions, as technical advisers, or as clerical assistants.

During the week of July 21–25 preparatory meetings were held at the Weather Bureau Central Office for the purpose of formulating the United States position on the numerous agenda items of the commissions. These meetings were attended by representatives of the Army, Navy, Universities, American Meteorological Society, American Geophysical Union, Air Transport Association, and other public and private interests. The results of these discussions have been considered in determining the United States position on Toronto agenda items.

More than 300 agenda items are being or have been discussed during the sessions of the 10 technical commissions at Toronto, all of which will have a bearing on meteorological practices and procedures of the Weather Bureau. One of the problems under consideration is the adoption or modification of the new international synoptic code form that was approved by action of the International Meteorological Committee at Paris in July 1946. It had been agreed that this code should be placed in effect no later than January 1, 1948. Since then it has developed that a number of the code features are unsatisfactory for universal adoption, and a number of the services indicate that they will be unable to adopt it or will be unable to make the change-over by January 1,

1948. Two of the major problems incident to its use will be the rewriting of existing instructions and the modification of and/or reprinting of existing maps, charts, and diagrams, which will entail considerable time and cost for all concerned. The final decision as to whether the new code will be placed in use, as of January 1, will probably be made at the conference of directors in Washington.

A number of equally important subjects are being discussed at Toronto, including standard units of reporting, i. e., metric units versus English units, knots versus m. p. h., Fahrenheit versus Centigrade, etc. The final decisions reached in all of these matters will no doubt affect Weather Bureau procedures to a greater or lesser extent, and it probably will be impossible for the United States to gain all of its objectives. Each service represented will have but one vote in the meetings, and since it is anticipated that approximately 85 separate services will be represented, it can readily be seen that on some controversial subjects the final resolutions adopted by the majority may vary considerably from the United States position. This is anticipated and expected. However, the Weather Bureau intends to cooperate to the fullest extent possible with the International Meteorological Organization in adopting uniform practices and procedures, believing that by doing so the advantages will outweigh the disadvantages.

During the conference of directors one of the most important discussions will be on the draft of the new convention, or constitution, for the World Meteorological Organization. At this writing, four drafts of this document have been prepared. These are the Paris Draft as prepared by the IMC, the United States Draft prepared by our State Department, the Canadian Draft prepared by the Canadian Meteorological Service, and the United Kingdom Draft prepared by the British Foreign Office. All of these drafts have been submitted to the member countries for study.

After the conference of directors has reached an agreement on the form and content of the new convention, or constitution, and before it can become binding on the members, formal action will have to be taken by the governments of the member States to adopt the instrument in order that the organization may enjoy treaty status.

OBSERVERS ON FAMILIARIZATION FLIGHT

Virginia C. Reynolds and Dorothy A. Hurd, observers at Denver WBAS, saw the pilot's side of the weather on a recent familiarization flight over the Rocky Mountains. The take-off was made from Denver on the morning of June 14, destination Durango, in the southwestern corner of Colorado, and return was made the same evening. The observers report that their strongest impression, aside from the beauty of the mountains, was a realization of the great amount of dependence any pilot must place on airway observations. These must be accurate and complete, and observers should know enough about practical flying problems to understand what conditions pilots and forecasters are inter-

ested in knowing about in addition to the required items. On the return leg of this particular flight, night thunderstorm conditions were observed. Noting the difficulty of detecting the cumulonimbus clouds between lightning flashes, Observers Hurd and Reynolds resolved to do their best to locate heavy cumulus areas before nightfall so that pilots may avoid them, and to specify as accurately as possible the direction of movement of thunderstorms. Requirements that may seem too strict on the ground are really indispensable to safety in the air.

SOARING MEETS IN CALIFORNIA AND TEXAS

The airport at Bishop, Calif., was the scene from June 14–22 of the 6th annual Western States soaring meet, and Wichita Falls, Tex., played host to the 14th national soaring meet, July 4–20. Weather Bureau personnel were prominent in both these events.

Situated in central California close to the Nevada line, Bishop lies in the Owens Valley with the Sierras on the west and the White Mountains on the east. Under proper conditions, a stationary cloud bank forms over the Sierras which, despite its tongue-twisting name of "Moazagotl," is spoken of with affection by every soaring enthusiast. This cloud formation indicates a standing wave in the lee of a mountain range, and strong vertical currents in the wave permit gliders to climb to great heights. "Moazagotls" were first named and used for soaring in the Sudetes Mountains of southeastern Germany. An international altitude soaring record was established under "Moazagotl" conditions near the Sudetes Mountains in November 1938, when Erwin Ziller reached a height of over 28,000 feet, 22,434 feet above the starting point. With contestants eager to take advantage of such a powerful soaring aid, "Moazagotl" hunting became the chief occupation of the Bishop WBAS forecasters as long as the meet lasted. To provide the needed upper-air information, pibals were taken and a Service C teletype drop temporarily installed.

Not only did Weather Bureau employees contribute in a meteorological way to the success of the Bishop meet, one of them participated, with enviable results, in the contest itself. Betty J. McMillen of the Bishop Office surpassed three United States women's two-place records on her fifth soaring flight. With one passenger Miss McMillen, on June 19, flew into a "Moazagotl" standing wave and climbed from 8,400 feet above mean sea level to 13,300 feet in 5 minutes. Unfortunately, she lost the wave but was able to cross to the east side of Owens Valley and soar along the White Mountains to Lone Pine where she landed. On the flight, Miss McMillen climbed 4,900 feet above point of release, covered 61 miles, and was in the air 3 hours and 15 minutes, thus bettering three previous U. S. women's two-place records.

The 14th national soaring meet held at Wichita Falls, Tex., July 4–20, has been called the biggest and most successful soaring contest ever held in this country. Seventy-two pilots competed, including

representatives of eight foreign countries. The meet produced two new international records, eight American records, two British, and one French. To Emil T. Lange of the Fort Worth WBAS and Harold Smith of the Mobile Unit of the 4th Regional Office were assigned the special forecasting and observational duties rendered necessary by the meet. When Mr. Lange was obliged to return to Fort Worth on July 16, his place was taken by James H. Ferguson, also of Fort Worth WBAS, for the remainder of the meet.

In place of the Bishop "Moazagotls," thermals were the principal source of interest to the Wichita Falls contestants. Between 100 and 125 pilots, ground crewmen, and officials were briefed by the Weather Bureau forecaster every morning shortly after 8 o'clock. Thermals were discussed in detail: whether bubble or draft type, whether dry or with cumulus development, their heights, direction of greatest intensity, possible location of punctures through inversions, etc. A comprehensive forecast of weather conditions within a 500-mile radius of Wichita Falls was given for the next 12 hours, and indications for the following day as well. Pseudoadiabatic, constant pressure, and winds aloft charts, along with surface maps, were prepared several times daily and displayed. In addition, the forecaster was sought for consultation throughout the day and frequently during the night. Contest officials and participants were generous in their expressions of pleasure with the Weather Bureau's cooperation in making the event a success.

FORECASTERS INVITED TO AGU-AMS-IMO MEETINGS IN CAMBRIDGE

In connection with the visit to North America of the Directors of meteorological services throughout the world to attend the meetings of the International Meteorological Organization in Toronto and Washington during August, September, and October, the American Meteorological Society and the Meteorological Section of the American Geophysical Union have scheduled special technical sessions in Cambridge, Mass., on September 17 and 18. It is expected that several foreign meteorologists will present scientific papers of general interest. A number of leading Weather Bureau forecasters have been invited to present papers and to assist in making the meeting a success for our foreign visitors.

The officers of the AMS have pointed out the paucity of scientific papers on weather forecasting during the last few years and have urged that Weather Bureau forecasters present more on this subject for publication in the scientific journals. They further point out that forecasting is a very important part of meteorology and more active participation by forecasters in the scientific and professional work of the Society is earnestly desired. Without the full collaboration of forecasters, progress in research and development in theoretical and applied meteorology cannot go forward as rapidly as it should. The benefits are mutual. The forecasters can help the Society and the Society can be of great assistance to the forecasters and the Weather Bureau,

FLOODS OF JUNE 1947

We are all familiar with the press and radio publicity given the June floods in Iowa, Missouri, Illinois, Nebraska, and Kansas. One outstanding feature of these floods was the accuracy of the river forecasts and warnings issued by the Weather Bureau River Officials. Timely and accurate forecasts and warnings during this period of disaster were of inestimable value in reducing loss of life and property. The staffs of the District Offices at Kansas City, Mo., Des Moines, Iowa, St. Louis, Mo., Burlington, Iowa, Omaha, Nebr., Davenport, Iowa, Norfolk, Nebr., Cairo, Ill., and Topeka, Kans., and of the Lower Missouri River Forecast Center are to be commended for an important public service well done. The rendering of this service required many added hours of work performed under extreme pressure.

MOVING DAY AT DENVER WBAS

"Moving" is the theme of a communication recently received from the WBAS at Denver, Colo. Unlike most stories about moving told in these days of housing shortages, the news from Denver has a cheerful tone. The airport station was shifted on June 25 from the upper floors of the Administration Building at Stapleton (Municipal) Airport to new and commodious quarters approximately one-half mile north-northwest. With the exception of the observatory on the second floor, the station is now located in a dozen conveniently arranged rooms on the ground floor of the CAA Communications and Weather Bureau Building. The move has more than doubled the working space of this important forecast center. The new forecast room alone is two-thirds the size of the entire former station, permitting better arrangement of equipment and materials. All 24-hour offices were surveyed as to size, color of walls, etc., by a lighting engineer, and fluorescent fixtures installed for maximum lighting efficiency.

E. B. Gittings, OIC of the station, writes that in addition to the advantages of roominess, excellent light, and convenient arrangement of rooms and materials, several other advantages to the new quarters have become apparent. Chief among these is the fact that the offices are now adjacent to those of four scheduled airlines and two freight lines operating into Denver. Most of these airlines do not have meteorological departments and great dependence is placed upon Weather Bureau forecasters. Mr. Gittings concludes his "moving day" report with the remark that "all personnel of the airport station at Denver are quite proud of the new and spacious quarters and extend an invitation to any and all who have the good fortune to come to Colorado, to visit with us!"

CAMPAIGN FOR COMMUNITY CHEST FEDERATION

In connection with the fall campaign for the Community Chest Federation, a memorandum from the White House to the Heads of Executive Departments and Agencies, is quoted for the information of all personnel:

THE WHITE HOUSE
Washington, D. C., June 2, 1947.

TO THE HEADS OF EXECUTIVE DEPARTMENTS

Again this fall Community Chests throughout the country will conduct their annual campaigns.

The Community Chests of America, and the Red Feather services which they unite in one annual campaign each year, provide local health, welfare, and recreational programs which are vital to the security, health and happiness of our American communities. Strong, healthy local communities make a strong, healthy nation.

I am confident that you will extend the full cooperation of your Department to Community Chests throughout the United States, its territories and possessions.

Such cooperation logically includes both the organization of effective solicitation of all employees of your Department and the subsequent setting-up of an adequate collection method for the convenience of those who wish to make contributions on an installment basis.

I have approved the appointment of Major General Philip B. Fleming, U. S. A., Administrator of the Federal Works Agency, as Government campaign liaison representative to the Community Chests of America.

I ask all employees to give generously.

/S/ HARRY S. TRUMAN.

INSTRUCTIONS

STATUTORY PRINCIPLES FOR JOB CLASSIFICATION

Public Law 269, 80th Congress, approved July 30, 1947, contains the following language in connection with the appropriations for the Civil Service Commission:

No part of appropriations herein shall be used to pay the compensation of officers and employees of the Civil Service Commission who allocate or reallocate supervisory positions in the classified civil service solely on the size of the group, section, bureau, or other organization unit, or on the number of subordinates supervised. References to size of the group, section, bureau, or other organization unit or the number of subordinates supervised may be given effect only to the extent warranted by the work load of such organization unit and then only in combination with other factors, such as the kind, difficulty, and complexity of work supervised, the degree and scope of responsibility delegated to the supervisor, and the kind, degree, and value of the supervision actually exercised.

This enactment makes specifically clear the basic principles on which job classification of supervisors must be effected, namely, that grade is fixed by three principal factors: (1) the kind, difficulty, and complexity of work supervised, (2) the degree and scope of responsibility delegated, and (3) the manner in which delegated authority for supervision *is actually exercised.*

REFUND OF RETIREMENT DEDUCTIONS

Public Law 263, approved July 30, 1947, has changed the Retirement Law to permit the refund of retirement deductions to employees separated with less than 10 years of creditable civilian service.

The three basic situations under the new Act are:

(a) Total creditable service (including military) less than 5 years—Employee is eligible for refund only.

(b) Total creditable service (including military) 5 years or more, but less than 10 years civilian service—Employee can choose between refund and deferred annuity.

(c) Total creditable civilian service 10 years or more—No refund of deductions covering service after January 23, 1942. Employee can receive refund of any deductions or deposits made prior to January 24, 1942, upon application.

Former employees who applied for refunds, but who received nothing or only a partial refund because of 5 or more years of service may be advised upon inquiry to submit new applications if they wish the refunds instead of the deferred annuities, provided their total *civilian* service is less than 10 years.

NOTICE TO CEASE STORM WARNINGS

Station officials are reminded that notification should immediately be sent to the appropriate forecast center when, in the fall, frost warnings are no longer needed in the vicinity of their stations. Notification to cease warnings should be by letter if delivery can be effected within 24 hours; otherwise, by telegraph. Card forms should not be used for this purpose. Stations in the Washington forecast district should send notification direct to the forecast center at the Washington National Airport instead of the Central Office.

CHANGE IN DESIGNATION OF STATION AT GRAND ISLAND, NEBR.

The station at Grand Island, Nebr., was changed from a WB/CAA station to a first-order Weather Bureau station on April 20, 1947. All correspondence to this station should be addressed: Weather Bureau Office, Grand Island, Nebr.

WEATHER BUREAU ACTIVITIES AT ST. JOSEPH, MO., MOVED TO AIRPORT

The Weather Bureau activities at St. Joseph, Mo., were moved to the Airport effective May 11, 1947. All correspondence should be addressed: Weather Bureau Office, Rosecrans Field, Route 2, St. Joseph, Mo.

PERSONAL

ADMINISTRATIVE INTERN AND UNIVERSITY SCHOLARSHIP PROGRAMS

Ernest L. Kvam of the Seattle, Wash., Regional Office, is the successful Weather Bureau candidate for the Civil Service Commission's Sixth Administrative Intern Program. Mr. Kvam was selected from among 4 candidates presented by the Bureau, and was one of 26 chosen. An idea of the rigorous screening to which he was subjected may be gathered from the fact that all the Government agencies were limited to a total of 55 candidates with 30 to be chosen, but only 26 survived the tests and interviews conducted in Washington, D. C., during July. Mr. Kvam began the intensive program of full-time work and study in Washington on September 2. The program will include actual experience in various Government agencies, daily reading and lectures on public administration, weekly seminars, and formal course work at a local university.

Under the University Scholarship Program, 10 Weather Bureau men have been assigned to the meteorology courses commencing in September at New York University, the University of Chicago, and the University of California at Los Angeles. Their names, present stations, and university assignments are listed below:

NAME	STATION	ASSIGNED TO:
De Ver Colson	New Orleans, La.	New York University.
W. A. Follansbee	Elkins, W. Va.	" "
Louis Goldman	Boston, Mass.	" "
J. T. Mihelic	Anchorage, Alaska	" "
J. R. Moeller.	St. Louis, Mo.	" "
L. G. Pardue, Jr.	Lakeland, Fla.	" "
C. K. Shafer	Dayton, Ohio	" "
W. F. Staats	Chicago, Ill.	University of Chicago.
J. C. Thompson	Burbank, Calif.	University of California at Los Angeles.
R. J. Younkin	Knoxville, Tenn.	New York University.

RETIREMENT

Mr. Richard O. Morelock, meteorological aid, Medford, Oreg., retired at the termination of July 31, 1947, on account of disability, with over 11 years of service in the Weather Bureau. Mr. Morelock was born on September 17, 1895, at Gold Hill, Oreg., and entered the Weather Bureau as a minor observer at Portland, Oreg., on November 1, 1935. He subsequently served at Seattle, Wash., and Medford, Oreg.

DEATH

Mr. Wilson R. Van Order, airway observer at Snow Hill, Md., died on June 16, 1947. Mr. Van Order was born on April 14, 1879, at Jacksonville, N. Y., and entered the Weather Bureau on December 11, 1936, at McRae, Ga. He subsequently served at Americus, Ga., and Snow Hill, Md.

F. W. Reichelderfer

F. W. REICHELDERFER
Chief of Bureau.

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WEATHER BUREAU TOPICS AND PERSONNEL

OCTOBER 1947

INFORMATION

WEATHERMEN GO TO SEA, TOO

"Landlubber!" is the epithet Weather Bureau field observers might hear from a colleague who has worked on ocean weather duty. The secret longing to go to sea that is dear to the hearts of many, plus a desire to contribute to the war effort, led many Weather Bureau employees to volunteer for ocean patrol duties. They entered a new kind of life, with traditional sailor's joys and dangers becoming an intimate part of their day-to-day existence.

Sailing from the mainland of the United States, or from Argentia, Newfoundland, weather ships docked at times in Bermuda, the Azores, Greenland, and Iceland, and for a short period following the end of the war, at Recife, Brazil. The easy camaraderie of the early part of a voyage and the pent-up tension of the last few days before landing became a familiar cycle to the former land-based observers. Like every sailor, the weather observer looked forward to in-port periods and "liberty."

In an exotic foreign port or back in his homeland, he had a pocketfull of pay and time to himself. He could buy fresh fruit and milk. And he found he appreciated many things that he had missed while at sea. For the most part, men who took this ocean duty liked it. Many who signed up for a minimum of a year's time elected to remain longer. Some of those on ships at the present time have continued in this work more than 4 years.

The sea-going weatherman became a Chief Petty Officer in the U. S. Coast Guard Reserve. He donned the uniform of the season, stowed his gear in a stateroom which he shared with a fellow observer, and took his meals in the officers' mess. Living conditions were good, and few were the traditional complaints on the food. Since the ship had been commissioned for this special weather duty, its officers cooperated closely with the Bureau men, changing the ship's course when necessary, to aid in releasing balloons, and providing the exact location of the ship in time for transmission of the data to the mainland by radio.

A Coast Guard cutter or frigate, or perhaps a converted Great Lakes steamer, put out from a base such as Argentia, to begin a patrol of about 30 days' duration. Several days' sailing brought arrival at a designated longitude and latitude, and the ship was "on station." With the new ship's appearance at this mid-ocean location, another vessel

which had been on station for a tour of duty was relieved and began the journey back to port. The ship remained on station 21 days, with the remaining time spent traveling to and from port. During this entire period the weather men, aided by one to three Coast Guard aerographers, took 3-hourly surface observations, 2 raobs, and 4 winds aloft observations, daily. Later, 2 rawins were substituted for 2 of the daily pibals, and with the end of the war, the Coast Guard added map-plotting to the routine. Observations were normally made within a 10-mile square area around a station location. But description of ocean patrol with these bare facts is wholly inadequate. Life aboard ship occasionally proved unpleasant and dangerous for the former land-based observers. The constant roll of the ship, the new tragedy of seasickness, and the imminence of danger from lurking enemy submarines became a major part of their lives. Storms at sea were a new menace to these men who were used to reading stable thermometers, studying smooth barograph traces, and working over steadily-operating radiosonde equipment. Seasickness plagued most of the observers; usually it was over after the first patrol or the first day or two of a patrol, but there were some men whose chronic indisposition forced them to abandon ocean duty.

Through the worst era of submarine warfare, the weather vessels continued to ply to and from the station locations. Radio silence was usually maintained from the shore base to 200 miles at sea when many enemy underwater craft were active just off the eastern coast. Usually the commanding officers on the ships could closely approximate the positions of submarines in their vicinity and were constantly on the alert for radar "contacts" and information from underwater sounding devices. Enemy attack changed the ship's routine entirely. Weathermen, like the crew, were assigned battle stations, sometimes as litter bearers. Another position was at the rail, for obtaining samples of oil which might come to the surface after the ship had dropped depth charges on an enemy craft. Whether the oil was sludge purposely released from the submarine engines, or oil that had been released as a result of a hit, could be determined from laboratory tests. Weather ships suffered torpedo attacks and have been credited with crippling the enemy. Crews tell of eating and sleeping in life jackets for days at a time in uncomfortable heat, for fear that sudden attack would not even give them time to reach for equipment kept at arm's length. Weather observations were necessarily forgotten under this pressure. Radio silence and complete blackout at night were strictly maintained at such times. The ship's course was changed without warning. The commanding officer had but one purpose, the safeguarding of his ship, and he directed intricate maneuvers to keep out of torpedo range or to lose a pack of submarines trailing him. The men witnessed torpedo attacks on U. S. convoys passing near them and saw our ships sunk. As in all warfare, there was cause for sorrow. One ship on routine

patrol failed to return or send any message of impending danger. First listed as missing, it has since been presumed sunk. Four Weather Bureau men were lost with this ship.

The weather itself had to be reckoned with. Few of the men could have imagined the fury of the lashing storms they experienced at sea. It was ironical that though these observers worked 12-hour shifts taking observations to complete the world-wide weather picture, storm warnings prepared on shore were seldom sent them, for security reasons. A nearby menacing storm might strike with the lack of warning which accompanied an enemy attack. Winds of Beaufort force 11 and 45-foot waves which met one ship were beyond even the experience of the captain, who had been at sea for 20 years. The rugged boats nosed into the storms and made little or no headway; on occasion they were blown as much as 100 miles off course. One ship, during a 32-day patrol, experienced 12 separate storms. Floating debris, ladders torn loose from their mountings, and broken rails made progress on deck hazardous. Still the weathermen attempted scheduled radiosonde releases and observations, and succeeded admirably in spite of the difficulties. They traversed windswept stretches of deck awash with high seas between weather office and instrument shelter. In North Atlantic and tropical storm areas there was tangible danger to ships and crews, and some Navy men were lost overboard.

Aside from obvious dangers of the patrols, there were many other new things to confront the observer at sea. He had been accustomed to an office with plenty of storage space and room for plotting data. On shipboard he worked in a cubicle only a few feet square, called the "weather shack," occasionally too small to accommodate more than one man. Adherence to blackout regulations and the often-tropical weather of a station left much to be desired for physical comfort. Weather equipment, including the "cotton region" shelter, anemometer, and radiosonde antennae, was mounted in the most favorable locations. Enclosures of canvas or wood and steel were built on deck for balloon inflation and storage of helium tanks. Everywhere space was at a minimum, and nowhere was there a clear way for launching the large balloons. Many balloons burst before release through contact with rough surfaces, as they flapped about in a high wind, and frequently instruments were launched, only to dip into the sea. In either case a new release had to be made, sometimes with no greater success than before, and the process had to be repeated. During blackouts, ships' hatches could not be used, necessitating the climbing of ladders by the observer on duty. After balloon releases the time consumed as he descended the ladder kept him from tuning the radisonde receivers in time to get the first few "contacts" of the flight, thus losing part of the record. Pilot balloon ascensions were limited by snow, spray, and low ceilings, or the ship's roll—up to 50 de-

grees—would make them impracticable. Two observers always made the pibals, since it was mandatory that one keep his eye glued to the theodolite.

The mortality rate of thermometers was comparatively high. Barometers failed to register accurately when mounted on bulkheads that vibrated with the engines or with the jolt of a ship dropping depth charges. Vibration of radio equipment caused wire to wear and produce shorts, and jarred radio tubes from their sockets. Sparking from the engines interfered with radiosonde reception, and constant watchful cooperation was maintained between weathermen and ship electricians. In every phase of observational work there was modification to be made in ordinary methods used on land. Weather Bureau Circular T, "Instructions for Weather Personnel Assigned to Weather Ships," was revised again and again as reports from OIC's of the weather crews brought to attention new problems peculiar to ship observing. There was a total of 8 editions issued from January 1940 to September 1946. Observers were called upon constantly to exercise their ingenuity to keep machinery in running order and to keep an adequate supply of equipment available. Most important of all during the war period, each observation transmitted to the Navy-controlled receiving station on land had to be coded carefully for security purposes.

Civilian observers who participated in ocean weather duty were an important cog in the vast military machinery of the war. Though the program began in 1940, by direction of the President and under joint Weather Bureau-Coast Guard control as a non-military service, the network of stations increased from 2 to 22 before the end of hostilities; 11 of these were operated by the U. S. United Kingdom and Brazilian authorities cooperated in maintaining these Atlantic ship stations during the war. During that time, operational control was largely in the hands of the Commander-in-Chief of the Atlantic Fleet. In 1946 this control was transferred back from the Navy to the Coast Guard. Following VE-Day, a "bridge of ships" was ordered to span the North Atlantic flight route, and another on the flight route from Natal, Brazil, to Dakar, Africa, to aid the military forces in redeploying troops by air and sea. The ships aided in air-sea rescue work whenever occasions arose.

Two Pacific weather patrol stations were inaugurated by the Weather Bureau in 1946. There is but one in operation at the present time.

Weather Bureau men aboard these ships were returned to civilian status in the autumn of 1945. Because of the continued need for weather observations in the ocean area, plans were laid at an international conference in London in September 1946, to maintain a permanent number of 13 weather ship stations in the Atlantic. The positions were set forth by international agreement among the interested Atlantic countries, and financial support and responsibility for operating them

was divided among the participating nations according to the relative amount of trans-ocean flying done by each. While the meteorological program of these vessels is their primary function, they also engage in air-sea rescue activities and provide air navigation aids to trans-ocean planes. Bathythermograph observations (sea-water temperature at various depths) are also made in cooperation with the Woods Hole Oceanographic Institute of Woods Hole, Mass.

WBAN COORDINATION

Early in the war the developing importance of weather in military operations showed the Army, Navy, and Weather Bureau the urgent need for close coordination of their meteorological activities. To accomplish this a Joint Meteorological Committee was set up in October 1942 under the Joint Chiefs of Staff.

The JMC was composed of the Chief, Weather Bureau, the Chief, AAF Weather Service, and the Officer-in-Charge, Navy Aerological Section. Its functions were to coordinate all meteorological matters of joint application. This included such things as basic methods and procedures, operations, and allocations of equipment for operational needs. Research and development was recently transferred in part to the Joint Research and Development Board.

But the JMC was organized primarily for consideration of military applications. With the coming of peace and the return of civilian weather to greater importance, the JMC was seen to be inadequate. An agency of broader scope and membership was needed. It was therefore decided in August 1945 to set up a subcommittee for this purpose under the Air Coordinating Committee, an interdepartmental committee for coordinating aviation problems, policies, and developments affecting more than one department or agency. Thus the Subcommittee for Aviation Meteorology (ACC/MET) was born.

At first the operating members of ACC/MET were identical with JMC, Dr. Reichelderfer of the Weather Bureau, Brigadier General D. N. Yates of the Air Weather Service, and Captain H. T. Orville of the Navy. State, Treasury (Coast Guard), and Post Office Departments and the Civil Aeronautics Board appointed observers to participate in the meetings. Recently, all except the State Department requested full membership, and the regular members of ACC/MET are now the Weather Bureau, Air Forces, Navy, Coast Guard, Post Office, and the CAB.

Under ACC/MET are four "working committees." The titles of three, Weather Reports and Communications, Climatology and Weather Records, and Meteorological Materiel are self-explanatory. The fourth is Special Problems, which is another name for research and development. This working committee is actively moving to coordinate the attack on mutual research problems.

OPENING AND CLOSING OF STATIONS

The following list gives the names of first-order stations which have been opened or closed in the past year, and not been previously reported in TOPICS AND PERSONNEL. The effective date of the change is also given.

STATIONS OPENED

Anniston, Ala.	Dec. 16, 1946	Kelso, Wash.	Dec. 10, 1946
Bishop, Calif.	Apr. 1, 1947	Port Angeles, Wash.	Jan. 1, 1947
Blue Canyon, Calif.	May 20, 1947	Roanoke, Va.	March 15, 1947
Childress, Tex.	Dec. 17, 1946	Stevenson, Wash.	Dec. 12, 1946
	Victoria, Tex.	Dec. 17, 1946	

STATIONS CLOSED

Altoona, Pa.	Aug. 1, 1947	Jacks Creek, Tenn.	Dec. 15, 1946
Augusta, Maine	Feb. 10, 1947	King City, Calif.	April 21, 1947
Baker, Oreg. (AP)	Dec. 5, 1946	Lafayette, Ind.	Feb. 9, 1947
Bangor, Maine	July 1, 1947	Martinsburg, W. Va.	Aug. 1, 1947
Burley, Idaho	Dec. 9, 1946	Millinocket, Maine	July 12, 1947
Coeur d'Alene, Idaho	Dec. 1, 1946	Newhall, Calif.	March 22, 1947
Erie, Pa. (AP)	March 29, 1947	Paso Robles, Calif.	Jan. 21, 1947
Gordonsville, Va.	May 16, 1947	Port Townsend, Wash.	Jan. 3, 1947
	Westfield, Mass.	Aug. 1, 1947	

MORE RAINMAKING

Cloud seeding experiments, reflecting man's age-old yearning to control the weather, continue to multiply, sponsored by newspapers, civic groups, and others with a desire to produce rain artificially. The role of the Weather Bureau has been to advise experimenters of what is known about the use of dry ice for this purpose, and on occasion for Bureau personnel to participate as observers. Two such tests in Illinois during August are reported by Dr. H. R. Byers, Director of the Thunderstorm Project, and Wayne A. McDaniel, OIC at Peoria, Ill.

The test in which Dr. Byers participated took place near Chicago on August 21, and was sponsored by a Chicago newspaper in cooperation with the Liquid Carbonic Corporation, manufacturers of dry ice, and the Illinois National Guard. Two National Guard planes were used, one to do the actual seeding and the other to fly beneath the cloud to observe results. Radio contact was to be maintained to prevent mistakes. Dr. Byers, with several newspaper reporters and photographers, rode in the seeding plane, piloted by Brigadier General Frank Allen of the Illinois National Guard.

The planes took off at 1400 C. S. T., and after about 45 minutes located a suitable cloud, a cumulus with a hard cauliflower top towering to 21,000 feet, about 20 miles northwest of Aurora, Ill. The Joliet radiosonde had indicated temperatures 0° C. at 15,000 feet and −10° C. at 21,000 feet, so it was decided to make a traverse through the cloud at 19,500 feet.

At 1455 C. S. T., 50 pounds of dry ice particles of assorted sizes were released within the cloud. As the plane passed through the cloud an accumulation of what appeared to be liquid water in the form of rime

was observed on the wings, indicating that this portion of the cloud consisted of supercooled water. Five minutes after the seeding the plane flew through the cloud at 17,000 feet. Moderate turbulence and what appeared to be a mixture of snow, rain, and snow pellets was encountered. At 19,500 feet at the time of seeding no turbulence had been observed.

Communication with the other plane had failed, so the seeding plane let down slowly, circling the cloud, to observe the effects at low level. At 4,000 feet it flew under the cloud base through an area of light rain 3 miles in diameter. This was at 1515 C. S. T., exactly 20 minutes after the cloud had been seeded.

It was Dr. Byers' belief that the seeding had caused the rain. But the sponsoring newspaper was not content with such a modest claim. On the day following the experiment, August 22, occurred a break in the heat which had held Chicago in its grip. Temperatures fell so sharply that a break in corn prices occurred. The newspaper took complete credit for causing the temperature drop.

The other experiment, which took place near Peoria, Ill., on August 19, was also sponsored by a local newspaper. No Weather Bureau personnel took part, other than to brief the pilot, and the results are those reported to Mr. McDaniel by the pilot and by inhabitants of the area over which the experiment was performed.

The pilot reported that he located a towering cumulus with top at 21,000 feet which appeared favorable for the test. Freezing level at the time was at 17,000 feet and the temperature at 21,000 was $-6°$ C. No noticeable turbulence was observed at the cloud top, nor had an anvil shape or crystal ice haze yet begun to form. At 1430 C. S. T., 30 pounds of dry ice in the form of shavings was seeded directly on top of the cloud.

The plane quickly made a descent to 14,000 feet where a rainbow was observed against the side of the cloud. The remainder of the descent, made as close to the cloud as possible, was through light rain. The pilot did not fly under the cloud for he said that at the base, turbulence and the intensity of the rain made such a flight inadvisable. He reported that 45 minutes later heavy rain was continuing with visibility below the limits of safe contact flying. Other reports from inhabitants of the area indicated that the rain covered an area approximately 8 miles long by 4 miles wide and was accompanied by thunder and lightning. None of the precipitation fell in a rain gauge, but several eye-witnesses described the rain as heavy and estimated the amount as 1 to 2 inches.

In preparing for the flight the Peoria newspaper sent a telegram, asking for advice, to an Arizona paper which had previously carried out such a trial. The reply carried dire warnings of the dangerous nature of the experiments. It claimed there had been reports of as much as 7 inches of rain falling within 14 minutes and advised that tests be car-

ried out over uninhabited areas. The telegram also warned that the seeding plane must not fly through the cloud once it had deposited the dry ice, as there was likelihood of "a heat blast comparable to that of an atomic bomb!"

All such exaggerated and unauthenticated reports should be treated with caution. Observations by Bureau scientists have so far given no indication that such extreme phenomena have occurred, or even can occur, under the circumstances.

CHANGE IN ADDRESS OF THUNDERSTORM PROJECT AT CHICAGO

Effective September 23, 1947, the address of the Chicago Headquarters of the Thunderstorm Project was changed to:

Thunderstorm Project,
U.S. Weather Bureau,
Room 334, Museum of Science & Industry,
Jackson Park at 57th Street,
Chicago 37, Illinois.

The telegraphic address remains Regional Weather, Chicago, and the telephone number remains Butterfield 5110.

WAKE ISLAND STATION OPENED

Wake Island, a microscopic speck of coral in mid-Pacific, is the Bureau's newest weather station. Scheduled to begin October 1, a program of pilot-briefing and rason work will be carried on by the six-man complement.

Establishment of the station was decided on in December 1946 as part of the "Hypo project," but action was delayed for months because of inability to reach a satisfactory agreement with Pan American Airways for food and lodging for Weather Bureau personnel. At one time the project was virtually abandoned for the present fiscal year and French Frigate Shoals, an even smaller atoll, was considered. But supply problems for the latter spot appeared insurmountable, and this too was given up. An agreement with PAA on $3 per day per person for food and lodging was finally reached and preparations for activation of the Wake station were completed.

Strictly speaking, Wake Island is a coral atoll composed of three diminutive islets, 2,300 miles west of Honolulu and 1,500 miles northeast of Guam. Largest of the group is V-shaped Wake with an area of 2 square miles. At each end of Wake, connected to it by causeways, are Peale and Wilkes Islands. Total area of the three islets and the lagoon enclosed on three sides is less than 4 square miles. Land around the triangular lagoon is nowhere more than 21 feet above sea level. The lagoon itself, nowhere more than 9 feet deep, is useless for ships. It does, however, provide smooth landing at all times for seaplanes. Umbrella hardwood trees, none over 20 feet high, cover much of the islands. Surrounding the whole atoll is a coral barrier reef.

Wake was discovered by the British in 1796, explored by the U. S. Navy in 1836, and formally made American property in 1899. Until 1935, however, it was uninhabited, except for rats, birds, and hermit crabs. Then Pan American Airlines established a base on Wake and built a small hotel on Peale.

With the ominous growth of war tension in 1939, Congress appropriated funds for construction of a base for submarines and aircraft. Work was still in progress when the Japanese struck on December 8, 1941, a few hours after the attack on Pearl Harber (Wake is west of the international date line). The island was surrendered after 2 weeks of intermittent attack by sea and air, and the Japanese held it until the end of the war.

After the recapture, and until June 1, 1947, the Navy maintained there a weather station of its own. After that time Navy personnel remaining on the island performed only caretaking duties for equipment left there and Pan American people took observations for the Weather Bureau. Navy meteorological equipment was transferred to the Bureau.

Most of the buildings consist of quonset huts, of which there are about 80 for living purposes and 10 larger ones for use as warehouses. The CAA is planning to build permanent structures and the Bureau may participate in this program. Because of the pleasant climate, however, many of the inhabitants prefer to live in tents. One disagreeable feature of life on Wake is the large number of rats infesting the place. It is thus necessary for everyone to sleep under nets and for small children to be kept in screened enclosures. An anti-rat drive is planned as one of the first actions to be taken by Weather Bureau and CAA personnel.

Since lack of dock facilities makes landing from ships inconvenient, most transportation to and from the islands is by air. There are, however, buoys offshore to which ships up to Victory size may tie. Supplies may then be ferried ashore by lighter. For aircraft there is the lagoon with a landing ramp to take care of seaplanes, and two runways, one 5,000 feet long, for land craft.

CONSOLIDATION OF ACTIVITIES AT HARRISBURG AIRPORT

Weather Bureau activities at Harrisburg, Pa., were consolidated at the airport office on September 24, 1947.

RADAR STORM DETECTION

The Weather Bureau has established a program to install, operate, and maintain radar equipment in a network of Radar Storm Detection stations. These are to be located at strategic Weather Bureau stations throughout the United States. At the present time, however, only four installations have been established. More stations will be installed as equipment becomes available. Present radar equipment used by the Weather Bureau was received from the Navy and is of the airborne type converted for use in radar storm detection.

The type of equipment now being used is designated AN/APS–2, operating on a frequency of 3300 megacycles per second, radiating a radio frequency peak power of 50 kw. Additional sets, it is anticipated, will be transferred to the Weather Bureau from the Navy Department. The range of this equipment is slightly over 100 miles. The equipment is capable of detecting and tracking thunderstorms, frontal activity, tornadoes, hurricanes, etc.

In the practical operation, observations are made every 2 hours both during supposedly fair weather and stormy weather. The reason for an observational program on this time basis in fair weather, as might be shown on the synoptic chart, is for precautionary purposes to insure that developments which would otherwise be overlooked on a spot basis do not go undetected on an areal basis. Radar indicators will report the description of a storm, will describe whether or not it is a line or group or a mass type of disturbance. The *intensity* of return on the indicators will show whether or not it is weak, moderate, or strong. The *character* of the weather situation is indicated by the echoes as to whether or not they are scattered or solid. The *tendency* is also of importance, showing whether the returns are decreasing or increasing and whether the echoes are scattered or becoming strong over the area under observation. The *direction* and *velocity of movement* of the storm is also shown. These items and others can be grouped in a code denoted as a RAREP, and transmitted to other stations. Such information as the foregoing makes it possible to have more accurate 1- to 3-hour short term forecasts, especially for the telephone service.

Of the four installations that have been made, the first was completed at Washington, D. C., February 14, 1947. The second was completed at Wichita, Kans., May 5, 1947, and the third was completed at Norfolk, Nebr., August 5, 1947. The final station at Wichita Falls, Tex., was completed for service use September 23, 1947. Additional installations will be made at other points throughout the country, as equipment becomes available. The three midwestern stations form an observational network which can possibly track nearly any storm within this general area.

At Norfolk, Nebr., it has been reported that protection to the public interest has more than paid for the installation, in a short period, in its ability to warn the public of approaching electrical storms, as in the generation of electricity where it is required that special precautions must be made to protect a power system supplying cities in the Elkhorn Valley. Flash flood protection to life and property in this river basin is another example of radar's use.

When sufficient experience has been gained in the use of this equipment, it is conceivable that the RAREP can be transmitted on a circuit from Kansas City, Wichita, Norfolk, Wichita Falls, and Fort Worth, making possible more effective use by the forecasting centers of the 3 radars in the Midwest.

A summary of the uses of radar in meteorology has been presented to the American Geophysical Union by Drs. E. Dillon Smith and Robert D. Fletcher.

INAUGURATION OF RASONS AT CANTON ISLAND

One daily rason was inaugurated on a regular basis at Canton Island, July 18, 1947. The surface elevation in rason reports is 4 in the units 0.98 gdm.

SWAN ISLAND

Swan Island is in reality two coral islands, separated by a 500-foot channel, and known as Great Swan and Little Swan. Located at latitude 17° 24′ N., longitude 83° 56′ W., in the northwest portion of the Caribbean Sea some 100 miles off the coast of Honduras, they are isolated members of the West Indies chain of islands. The islands enjoy a very mild climate with great equability of temperature day and night the year round. Fog is virtually unknown, sunshine abundant, and the strong trade wind is so constant that all the tree branches have been bent to the west-southwest. The average annual rainfall (since 1941) is 57.59 inches.

Little Swan Island, lying to the east of the larger island, is 1 mile long and ½ mile wide, with its major axis oriented in an east-west direction. It is rugged in contour and rises sharply out of the deep-blue sea to a maximum elevation of 60 feet. Covered by a stubby growth of thick vegetation, Little Swan is inhabited by neither man nor domestic beast.

Great Swan, ¾ of a mile wide and 1 ¾ miles long, has a fairly level terrain with a maximum elevation of 52 feet. Except for a 50-acre clearing near the western end on the site formerly occupied by the United Fruit Company, it is heavily vegetated. A forest of tropical trees, some 60 feet in height, covers approximately two-thirds of its area. The remainder of the island, mostly the western and southern portions, has been cleared and planted with cocoanut palms. Thick grass covers the intervening ground. No snakes or poisonous insects, nor any of the common tropical diseases have ever been reported on Great Swan.

The inhabitants of Great Swan number 10 Americans, employees of the Weather Bureau and the CAA, and about a dozen natives, who live by raising cattle, selling cocoanuts, and performing miscellaneous services for the white colony.

The Weather Bureau Office is located on the CAA reservation, which is the large clearing on the western end of the island. A sandy beach, anchorage, and a small native village are nearby. All buildings are CAA property, but the employees of the two agencies share all facilities on an equal basis. The Weather Bureau Office and the CAA Communication Station occupy one building, bachelor living quarters another, and mess and recreation halls a third. Other buildings house the diesel electric plant, the water supply system, and the storage facilities.

The cost of living on Swan Island is low, amounting for an individual to about $50 monthly. This amount breaks down to $35 for food, $5 for room (deducted by the Government), and $10 for miscellaneous expenses, including laundry which is done by the natives. The cost of food is borne through a common mess fund. An excellent table is set, with a very good grade of native beef at 12 cents a pound, and the rest of the food purchased at a reduced rate from a Government commissary in the Canal Zone and transported free of charge by the Navy. Mail arrives at least biweekly by motor vessel. In the event of serious illness or injury, the Navy will furnish a seaplane for removal of the victim to the mainland.

The Swan Island Weather Bureau Office, with a staff of seven, headed by C. A. Richards, is a very important outpost in our meteorological network, and its reports assume special significance during the hurricane season. A full program of raobs, pibals, and 3- and 6-hourly synoptic observations is maintained. All reports are transmitted by CAA radiotelegraph to New Orleans, La., where they are disseminated to the rest of the network.

INSTRUCTIONS

FEDERAL EMPLOYEE ACTIVITIES WITH CHAIN LETTERS

The Postal Inspection Service of the Post Office Department has been alerted throughout the country to take immediate action on persons found to be furthering a current chain letter scheme.

Any person participating in this scheme, either directly or indirectly, is subject to criminal prosecution for using the mails in furthering a lottery. Even though the list of names is circulated from hand to hand, and the remittance only is transmitted through the mails, participants are nevertheless violating Section 213 of the U. S. Criminal Code.

Weather Bureau employees are warned of the seriousness of permitting a chain letter scheme to operate in Government buildings, and their attention is called to the fact that participants may be prosecuted as violaters of the U. S. Criminal Code.

FREIGHT SHIPMENTS TO SEATTLE

The Seattle Regional Office requests that all freight intended for that office be addressed to the regional supply depot at Boeing Field instead of the Federal Building. The address is: Weather Bureau Regional Office Depot, Boeing Field, Seattle, Wash. This change should be noted on copies of the August 1947 issue of "Addresses of Weather Bureau Offices."

BLANK PRINTING PAPER

All purchase requisitions for blank 12x19 Climatological Data paper forwarded to the Central Office should indicate the consignee's complete shipping address, including the actual point of delivery, such as the building, street, and number. This size paper is supplied and shipped by the Government Printing Office. The smaller sizes of blank paper (8x12, 9¼x9¼, etc.) will be furnished from Central Office stock upon receipt of a stores requisition.

PERSONAL

RETIREMENTS

Mr. John J. Murphy, Official in Charge of the Pittsburgh City Office, was retired at the termination of August 27, 1947, on account of disability. Mr. Murphy was born on January 7, 1890, at Eastport, Maine, and entered the Weather Bureau service as messenger at Eastport, April 1, 1908. He was absent on military furlough from August 1917 to August 1919. Upon his return to Eastport from military duty, he was advanced to observer and later to meteorologist, serving as Official in Charge until the time of his transfer to the Norfolk, Va., station in 1932, as Official in Charge. His active service at the latter station continued until his entry on military duty in the Army in 1942. Following his return from duty in the Army, he was assigned as Official in Charge of the Pittsburgh, Pa., station, effective March 8, 1946.

Mrs. Sadie C. Ward, Classification Clerk in the Division of Personnel Management of the Central Office, retired at the termination of August 26, 1947, on account of disability. Mrs. Ward was born on August 23, 1898, at Knightstown, Ind., and entered the Government service on April 24, 1918, in the War Department. She transferred to the Weather Bureau on August 26, 1929. Her entire Weather Bureau service has been in the Central Office.

DEATH

Mr. Arthur F. Piippo, Official in Charge of the Sault Ste. Marie station, died on August 26, 1947. Mr. Piippo was born February 15, 1894, and entered the Weather Bureau service October 5, 1918, as an observer at Madison, Wis. He was transferred to Sault Ste. Marie, Mich., October 16, 1932, where he was employed until his death.

F. W. Reichelderfer

F. W. REICHELDERFER
Chief of Bureau.

(WB—10-27-47—675)

WEATHER BUREAU TOPICS AND PERSONNEL

NOVEMBER 1947

INFORMATION

IMO CONFERENCE OF DIRECTORS IS SUCCESS

The Conference of Directors of the International Meteorological Organization in Washington, D. C., September 22 to October 11, 1947, reached agreement on many items that will advance world-wide cooperation on meteorological matters.

Directors of Meteorological Services, delegates and advisers representing 56 countries, and observers from ICAO and the United Nations, attended the meetings in the State Department international conference suite. Meetings lasted until October 11 because of the importance of, and work involved, in several items on the agenda.

At Toronto the 10 technical commissions and Regional Commissions III and IV (the Americas) had previously prepared more than 400 technical resolutions, covering many international phases of meteorology. Among the more important decisions made at Washington was the adoption of a universal synoptic code for weather messages from land and ship stations. The new code, approved by unanimous vote of the conference, is a modification of the code adopted at Paris in 1946 by the International Meteorological Committee. Many other codes were revised. It was agreed that the new codes would be introduced simultaneously throughout the world on January 1, 1949. Information regarding the new codes will be forwarded to all field stations in the near future.

Adoption of the new synoptic code necessitated a change in the index numbering system. Work has already commenced on the assignment of new index numbers for the synoptic reporting stations in order that use of new numbers may begin at the time the new code is introduced.

Other important work of the conference in the technical field included the establishment of two new technical commissions, The Polar Commission and the Commission on Radio-Electric (Sferics and Radar) Meteorology.

The most time-consuming item on the agenda of the conference was the draft convention, or constitution, for the World Meteorological Organization. This document was agreed upon in final form near the close of the conference and the document was signed by representatives of 32 States. After this document has been formally ratified or accepted by 30 States, and the organizing conference has completed its work, the new World Meteorological Organization will come into being and replace

the International Meteorological Organization, which has existed as an informal body without treaty status since 1878. The new organization will negotiate for affiliation with United Nations and for status in meteorological matters similar to that of ICAO in aviation matters.

The Chief of the Bureau was re-elected Vice-President of the organization and was continued as President of Regional Commission IV for North and Central America. He was also re-elected to membership on the International Meterological Committee, the governing body of the International Meteorological Organization between Conferences of Directors. Mr. D. M. Little was re-elected Vice-President of the Commission for Aeronautical Meteorology. Mr. I. R. Tannehill was advanced from Vice-President to President of the Commission for Synoptic Weather Information to succeed the retiring President, Mr. E. Gold, who had occupied the position since 1923. The Commission on Projections for Meteorological Charts, of which Mr. Tannehill was President, was dissolved, the Conference considering that nearly all of the work assigned to the commission had been satisfactorily concluded. Mr. Merrill Bernard was re-elected Vice-President of the Hydrological Commission. He served as acting president during the Toronto and Washington Conferences. Other members of the Weather Bureau staff were elected to important positions as chairmen of standing subcommissions.

State Department conference facilities were at the disposal of the organization and full use of the facilities contributed to a large extent to the success of the conference. Simultaneous interpretation eliminated the language difficulties and permitted each delegate to speak in the language in which he could best express himself.

A spirit of cooperation and an endeavor to further world-wide collaboration characterized the conference, and the delegates departed with the feeling that the conference had been a success.

Arrangements for hospitality were sponsored by the Air Force, Navy, Weather Bureau, State Department, American Meteorological Society, American Red Cross, National Geographic Society, international air carriers, and several meteorological instrument manufacturers. Many delegates made frequent visits to the Weather Bureau to study general administration, the WBAN Analysis Center, the forecast office at Washington National Airport, and other offices. Highlight of the entertainment program was a tea at the White House where delegates and their wives had the opportunity to meet the President of the United States.

HURRICANE WARNING SERVICE

The hurricane warning service of the Weather Bureau continued its fine record of outstanding public service in connection with the severe hurricane which swept over south Florida into the Gulf and over New Orleans during the third week of September. The message quoted below was sent to the forecast offices and local offices most directly concerned. Many of these personnel faced personal hardships and dangers in carrying out their responsibilities under extremely trying conditions.

Credit is due also to many others in the Bureau who helped make the service possible by collecting the necessary information, making special arrangements of all kinds, and distributing the warnings and advices. Regional offices, station officials and their assistants, MOBEU personnel, communications clerks, observers, and all others who contributed may be justly proud of the Bureau's record in this emergency.

Loss of life was extremely small in proportion to the property damage, particularly in view of the severity of the storm and the number of populous communities affected, and both were held to a minimum by timely and accurate warnings.

The Chief of Bureau is glad to have this opportunity personally to congratulate those who assisted in making possible this commendable record.

COPY OF TELEGRAM, SEPTEMBER 26, 1947

Airway Observer, Washington
Attention Schmidt and Assistants
Hurricane Observer, Miami
Attention Norton and Assistants
Observer, New Orleans
Attention Stevens and Assistants
All Stations Hurricane Circuit

Congratulations from Chief of Bureau and Central Office staff to all concerned on accurate and timely and generally excellent advices and warnings on hurricane of September 11 to 20.

REICHELDERFER

FLIGHTS MADE INTO HURRICANE

Two reconnaissance flights into the September hurricane were made by R. H. Simpson of the Central Office. The flights were made from Bermuda in an AAF B-29 plane of the 53rd Reconnaissance Squadron for the purpose of obtaining temperature data and information on cloud structure of the storm. An attempt was made on both trips to top the cloud system of the storm, but after circling to 36,300 feet the first day and 36,750 feet the second day, the plane was still far below the top of the cirrostratus layer that capped the storm.

Two important facts were revealed by these flights. First, the convective cloudiness seemed definitely to align itself in preferred channels or bands which spiralled inward toward the center. Between these cloud bands were wide areas which were only partly cloudy below plane level. Clouds in this area were small cumulus or stratocumulus with depressed tops.

Secondly, turbulence was found to be very slight, in fact, almost entirely absent between the principal bands of clouds. On one occasion, flying at only 7,500 feet, the plane was able to navigate down one of the partly cloudy channels to within 100 miles of the storm center in the northwest sector of the storm without encountering noticeable turbulence.

The use of radar to locate and navigate between turbulent rain areas of the storm was explored and found to be feasible. This may point the way to a safer and more practical method of hurricane reconnaissance in the future.

A collection of temperature data was made in an attempt to learn more of the structure of tropical cyclones and to better define the characteristics and contours of a tongue of warm air, associated with the storm, which had previously been discovered from radiosonde data to be significantly elongated in the direction of storm movement. Analysis of these data is not complete as yet but may provide another step in the development of important new methods for evaluating trends in hurricane movement.

CLOUD PHYSICS RESEARCH PROJECT INSTITUTED

The Weather Bureau, U. S. Air Force, National Advisory Committee for Aeronautics, and Navy are now actively engaged in implementing a Cloud Physics Research Project at Wilmington, Ohio. This project, under the direction of Dr. Ross Gunn, Director of Physical Research for the Weather Bureau, has been instituted for basic study of the physical processes that accompany the production of rain, hail, and snow.

Scientific advances made recently in the modification of weather by artificially causing precipitation of rain from certain types of clouds have emphasized the necessity for forward-looking and carefully controlled quantitative studies of the fundamental physical processes involved. Wide publicity has been given to numerous experiments throughout the country on the artificial inducement of precipitation from supercooled clouds. Generally, the success of these experiments depends on finding clouds that are nearly ready to discharge their moisture. Many weather scientists feel that the physical quantities involved in most of the experiments were not well enough known, and that conditions were not well enough controlled to show with certainty the scientific or economic significance of the results of the cloud seeding experiments. Moreover, the amount of rain, and its areal extent, produced in various localities and under differing circumstances, were not exactly determined because of the absence of adequate numbers of rain gauging stations.

Thus, there has been a serious lack of basic, factual details in most of the experiments heretofore conducted. Because of this the Bureau is organizing this basic research project for quantitative study of cloud physics—to investigate the detailed processes by which a cloud is formed, how it is maintained for considerable periods of time, and how it finally drops the moisture in the form of rain.

It is planned to measure the physical properties and characteristics of various types of clouds capable of producing rain or snow. The factors controlling the stability of natural clouds and the physical changes taking place that determine the condensation of a cloud into rain are all imperfectly known and understood. A carefully controlled study of them is part of the planned program.

Field operations of the project will be carried on near Wilmington, Ohio, with the cooperation of the U. S. Air Force's All Weather Flying Division, NACA, and the Navy. The Weather Bureau is adapting some of the facilities originally used in the Thunderstorm Project.

The Air Force's All Weather Flying Division based at the Clinton County Army Air Field will cooperate with the Weather Bureau in carrying out radar studies and necessary air operations. Their experience during the past 2 years in flying through thunderstorms to study storm behavior and turbulence characteristics will be of material assistance in the new project. The NACA expects to provide research experts and one aeroplane completely equipped for the measurement of the physical properties of clouds, including droplet size, distribution, and total water content. Experience of the experts who have worked on the NACA Icing Research Program during the past few years is expected to be of great material benefit in the course of the Weather Bureau's investigations.

The field operations at Wilmington, Ohio, under the supervision of Mr. Richard Coons, will be supplemented by laboratory investigations at Washington, D. C.

STATIONS CLOSED

The Weather Bureau Office at Summit, Alaska, was closed October 4, 1947, and pilot-balloon observations from Summit were discontinued as of that date. CAA personnel will continue the surface observations.

The on-call airway observing station at Lamesa, Tex., was closed September 10, 1947.

The on-call station at Townsend, Mont., was closed October 15, 1947.

STATIONS OPENED

The CAA station at Custer, Mont., which was closed December 6, 1946, was reopened October 5, 1947. Hourly observations with 3- and 6-hourly additive groups are transmitted.

On-call airway weather observing stations were opened at Palestine, Tex., September 15, 1947, and at Brownwood, Tex., September 18, 1947.

A supplementary weather station was established at Mt. Vernon-Anacortes, Wash., September 15, 1947.

ARCTIC MISSION COMPLETED

The 1947 joint Arctic expedition of the Weather Bureau, U. S. Navy, U. S. Air Force, and the Canadian Meteorological Service, recently returned to the United States after carrying supplies to the Thule and Eureka Sound Weather Stations, installing an automatic station at Dundas Harbor, and establishing a new station and airstrip on Cornwallis Island.

Supplies for Thule were carried principally by the U. S. S. *Winston* which reached the station without escort June 28, some 4 weeks earlier than is normally possible in those waters because of the ice. Task Force 68, composed of the ice-breaker U. S. S. *Edisto* and two cargo vessels, the U. S. S. *Wyandot* and the U. S. S. *Whitewood*, arrived July 23, with supplementary supplies and a replacement crew for the Thule station. The new crew immediately moved ashore to double up with the old crew, so they could become indoctrinated quickly and begin to share the work schedules. The old crew departed by military aircraft August 2.

The automatic weather station provided by the Navy for experimental arctic installation had originally been scheduled for placement in the vicinity of Beechey Island. But difficulties of travel over Lancaster Sound ice would have made impossible the necessary bi-monthly service by a patrol from the Royal Canadian Mounted Police post at Dundas Harbor. The station was therefore placed at Dundas Harbor near the RCMP post.

Air reconnaissance of the route to Eureka Sound early in August revealed that ice conditions were slack enough for travel. So on August 4 the U. S. S. *Edisto* and the U. S. S. *Whitewood* began the crossing of Norwegian Bay. A helicopter operating off the U. S. S. *Edisto* was used for scouting the route ahead. When the ice became heavy the ice-breaker towed the U. S. S. *Whitewood*, but eventually the cargo vessel had to turn back. The U. S. S. *Edisto* then went on alone, finding Eureka Sound nearly ice-free after completing the Norwegian Bay crossing August 8. The Slidre Bay weather station at latitude 80° N., was reached August 9.

Two additional men, one American and one Canadian, were left at the station, bringing the complement to eight, four Americans and four Canadians. In addition, two young eskimo dogs were left with the crew to help morale. Equipment delivered included rawinsonde apparatus (SCR 658), balloon inflation shelter, rawinsonde instruments, helium, a prefabricated building with fiber-glass insulation, a year's supply of food and fuel, and a "weasel," (a caterpillar-tread cargo and personnel carrier).

A post office, the most northern in the world, was established. Original plans for establishment of a new weather station which would be central to the Canadian Arctic archipelago and serve as a base for further operations, had called for location on Melville Sound, at or near Winter Harbor. But unusully heavy ice in the Sound and a damaged propellor on the U. S. S. *Edisto* caused abandonment of these plans.

Resolute Bay, on Cornwallis Island, was selected instead. The task force reached Resolute Bay August 31 and immediately began construction of an airstrip. Equipment and supplies for the weather station and base were unloaded from the *Wyandot* in 6 days and by the time it was necessary for the Navy ships to leave on September 13, about 4,000 feet of airstrip had been completed. A group of Air Force engineers remained to extend the airstrip to 6,400 feet, after which they were brought out by aircraft. The first plane landed on the strip September 31.

EXCUSED ABSENCE FOR CEREMONIES

The various veteran organizations have assumed responsibility for providing guards of honor or firing squads at the time of local ceremonies for World War II dead returned to the United States for final burial. It will be the policy of the Bureau to grant employees who actively participate as members of such firing squads or guards of honor the necessary time off without charge to leave or loss of pay, unless such absence would interfere seriously with the work program of the employee's installation, and where the excused time would not exceed 1 day.

DISTRIBUTION OF PUBLICATIONS

Reference is made to the July 1947 issue of TOPICS AND PERSONNEL which listed a number of late publications that had been distributed in limited numbers to field offices. The following is a continuation of this listing:

Icing Properties of Non-Cyclonic Winter Stratus Clouds, by William Lewis, National Advisory Council on Aeronautics, Technical Note No. 1391, September 1947.

Icing Zones in a Warm Front System with General Precipitation, NACA Technical Note No. 1392, July 1947.

A Flight Investigation of the Meteorological Conditions Conducive to the Formation of Ice on Airplanes, by William Lewis, NACA Technical Note No. 1393, August 1947.

All of these were mailed to forecast centers during October 1947.

NOTE.—Mr. Lewis is a Weather Bureau employee assigned to work in collaboration with the staff of the Ames Aeronautical Laboratory on the NACA icing research program. Mention of this was inadvertently omitted in the above Notes.

Daily Synoptic Series, Historical Weather Maps, Northern Hemisphere Sea Level and 500 Mb., issued by the Headquarters, Air Weather Service, 1947. Mailed to all stations which indicated by letter (reference TOPICS AND PERSONNEL for July 1947, p. 141) that they wished to keep a complete file of this series. Volumes missing from the files were sent as well as the new October-December 1945, and January 1946 issues.

NOTE—This series was first prepared and published by the Weather Bureau for the period from January 1899 to June 1939; it contained 486 volumes, bound by months. The Air Weather Service series was initiated to begin with September 1945 and continue to June 1948; this series also includes tabular data.

The Panel on Meteorology of the Joint Research and Development Board has considered the need for publishing the Historical Weather Maps following completion of the Air Weather Service series. The Panel has recommended that the Weather Bureau undertake preparation of these charts for the period subsequent to June 1948, the date of the last month's edition to be prepared by the Air Weather Service.

GOOD MANAGEMENT IS SELF CONTROL

The following is an excerpt from James Y. Cameron's book, *The Other Way*, as quoted in "Modern Management," published by the Society for the Advancement of Management:

"Management * * * or control * * * is the pivot point of all productivity and creativeness. It is the center of life itself.

"Good management results in a positiveness and full harmony of existence. Poor management eventuates in failure or only half-life.

"All the theories concerning management procedures are totally valueless if the manager is inept in his own personal self-control.

"The Chinese refuse State office to an individual who has not learned to control first himself and then his family.

"The manager today whose temper is short within the confines of his own home stands little chance of success in his business, in his control over others.

"Man's intelligence has become more refined ever since the turn of the century. Results are unattainable by Simon Legree methods, by the sheer outranking of others. Man is coming to understand that positive manifestations occur only when the inner life of the individual is positive. Suddenly man has become aware of the necessity to know himself, to turn to himself, and learn to control himself if he would control others.

"The leaders, the true and honest leaders in government and industry, are not the noise makers, but the quiet, steady, and thoroughly integrated persons. They pull, they do not push. General Patton likened the control of men to the action exerted on a piece of string. If the string is pushed, it bunches up into a useless tangle of cotton. If it is drawn gently, it assumes a straight line and will take any direction the controller wishes.

"When a 'command' ceases to function capably, producing only half of its potential, the controller does well to look first within himself. If he can in all honesty exonerate himself, then, and only then, is he entitled to place the blame elsewhere."

FIELD TOPICS

From recent issues of "The Breeze" (Region 2), "The Thunderer" (Region 6), and "Borealis Briefs" (Region 8) come the following items:

Chattanooga, Tenn.—Following the visit of President Aleman, the Chattanooga Chamber of Commerce sent its thanks to the local weather station for "arranging perfect weather." Place your order now for prompt delivery!

Tampa, Fla.—A student pilot came into the Weather Bureau Office recently and said he was sent by his instructor to get the temperature and *vieupoint* for Sarasota, Fort Myers, and Drew Field.

Asheville, N. C.—"Tap Roots," a forthcoming film, was on location in the vicinity of Asheville for about 6 weeks, arriving early in June. Cloudy and rainy weather conditions were not favorable for the technicolor shots and delayed work for several days. The Asheville Office prepared special early morning forecasts daily for the movie makers, giving information for the current day and the trend for several days ahead. Soon after the departure of the company from Asheville, the following letter was received at the WBO from a representative of the producers: "I would like to thank you very much for the cooperation you have given us, and to congratulate you on the accuracy of your forecasts. In the making of motion pictures on exterior locations, accurate forecasts are extremely desirable and yours have been particularly so."

Elko, Nev.—The airport was briefly threatened during July by a raging brush fire, which advanced to within ½ mile of the hangar and office buildings. Luckily the flames were checked just short of the SW runway and Elko station is still operating.

New Orleans, La.—The name of Dr. Isaac Monroe Cline is familiar to older Bureau employees and to residents of the lower Mississippi Valley. Now 86 and retired for several years, Dr. Cline industriously collects works of art and restores old masters. In his autobiography, "Storm, Floods and Sunshine," he presents the interesting theory that Southeastern United States could very well have been the site of the original Garden of Eden.

Dr. Cline's reasoning is direct. Noah built the Ark of gopher wood. And gopher wood is found in only two places on the globe, viz., Armenia (where he disembarked after a voyage of some 150 days) and the Apalachicola swamps in Florida. If he had built it in Armenia as is generally supposed, it would certainly have drifted far afield in 150 days and landed somewhere in eastern Asia. Assuming that it began its journey somewhere in America it might have been carried by prevailing winds and currents to Armenia, and that, believes Dr. Cline, is exactly what happened. For a complete exposition of this delightful hypothesis you should get a copy of Cline's book and let him do it in his own appealing way.

Says Dr. Cline in summary: "The Garden of Eden implies a place of delight, and Noah and his family must have been delighted when the Ark touched ground on Mount Ararat, for they thought they were again in Paradise. They did not know that they had been transferred to another continent. The original Garden of Eden was rediscovered by Christopher Columbus in 1492, 5,692 years after the flood had removed the original inhabitants to a different part of the world. The Garden of Eden was not only rediscovered, but it has since been redeveloped, and people today find more delight in living on this continent than in any other part of the world."

Merrill Field, Anchorage, Alaska.—OIC Perry Epperly and Forecaster Fred Peake had the honor of briefing the entire crew of the Northwest Airlines inaugural flight to the Orient. Fog, drizzle, and low ceilings were not a pretty picture, but the crew received flight maps and weather advice before they left for Elmendorf for their historic takeoff. Since, there have been several happy landings on the Tokyo-Chain-Anchorage flights.

St. Paul Island, Alaska.—The St. Paul Island Weather Bureau station is located on St. Paul Island, the largest of the Pribilof group. The Weather Bureau and Coast Guard are minority residents as compared with the Fish and Wildlife Service which exercises supervision of the island and carries on the annual sealing project. Annually, several million fur seal migrate to the Pribilofs, to breed and bear their young, filling the rookeries which line the shores.

The Weather Bureau, during the first 1½ years of operation, occupied a small dwelling in the village. The village, incidentally, is undoubtedly the most modern and progressive of any in Alaska because of its operation under the Fish and Wildlife Service. The several hundred Aleut residents are entirely free of any disease, enjoy pleasant living conditions, and share in the financial returns of the annual sea "take."

Recently, Weather Bureau operations were shifted to "Unit 365," a former Coast Guard installation about 4 miles from St. Paul village. The unit is self-contained and self-sufficient, there being power, water, and sanitary facilities designed to serve about 30 persons.

With occupancy of "Unit 365," portions of the building were converted to living quarters, with sufficient space left over for a huge recreation hall and very spacious office rooms, including a communications room. Two-way FM communications are in operation between WB and Coast Guard, and WB and FWS. Almost at the front door lies the landing strip which is adequate for easy C–47 operations. Good roads permit access to all parts of the island. The island is served frequently by FWS and CG boats and intermittently by plane. Medical and dental service is continuously available.

Low clouds and fog occur with relatively high frequency; strong winds are common; in general, temperatures are comparable to those along the Aleutians. Precipitation occurs frequently but not in appreciable amounts.

PERSONAL

RETIREMENT

Mark H. Stanley, meteorological aid at Los Angeles, Calif., retired September 30, 1947, because of disability, after more than 23 years in the Bureau. Mr. Stanley was born November 26, 1895, at Lapeer, Mich., and entered the Weather Bureau service March 1, 1924, as an observer at Grand Junction, Colo. He transferred to Los Angeles, July 16, 1928, and was employed there until his retirement.

F. W. Reichelderfer

F. W. REICHELDERFER
Chief of Bureau.

(WB—11-27-47—675)

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WEATHER BUREAU TOPICS AND PERSONNEL

DECEMBER 1947

INFORMATION

LOCAL FORECAST RESPONSIBILITY

For the purpose of improving our forecast service, the Weather Bureau, during the past few years, has granted a large measure of authority and responsibility to local offices for making local forecasts. It has been noted, however, that some employees have explained inadequate forecasts by giving the impression to the public that local offices are required to accept forecasts prepared at district forecast centers. Similarly, it has been reported recently that some Flight Advisory Weather Service Offices have declined to give forecast information on the grounds that the Central Office has refused to authorize them to make forecasts. Doubtless, statements of this kind are made thoughtlessly, rather than with the deliberate intention of shifting responsibility or diverting criticism toward forecast centers. Such explanations may relieve the local official of immediate embarrassment, but they direct criticism toward the forecast centers or the Central Office, and will eventually serve only to bring discredit on the organization as a whole.

In recent years, the policy of the Weather Bureau has been to decentralize forecasting to the fullest extent practicable, but it is obvious that a degree of coordination and specialization is necessary. It is essential, there-

fore, that the various offices and individuals of the Bureau function as a team and that the forecasts and advices released to the public represent a summation of the considered judgment of each official who contributes to the stream of information that finally becomes a forecast. Under these circumstances each forecast or advice is properly issued as a Bureau pronouncement, rather than as the opinion of any one individual or station. In the interest of furthering this teamwork and achieving the best possible forecasts, telephone coordination of differing forecasts is useful, but the practice is *not* intended to limit either the authority or the responsibilty of the local official.

When requests are received for advices extending beyond the time range of available forecasts, it is appropriate to explain that they will not be available until a specified time of issue. Likewise, a request for a forecast which must be obtained from another office may be answered by explaining that facilities required for the preparation of such a forecast are not available at the local station and it will be necessary to make arrangements to secure the forecast from another office. By careful wording of such replies, we can convey the impression that the Bureau operates as an organized team to provide the best possible weather service, utilizing the facilities of all offices to the best advantage.

It is suggested that each employee refresh his memory concerning the importance of the local station in the forecast program by again studying the "Storm Warning Manual" (WB–1455), the "Manual of Instructions for Issuance of Cold Wave and Related Warnings" (WB–1347), and the following Circular Letters: 21–41, 38–41, 41–41, 47–41, and 140–41.

STATION OPENED

A First Order Weather Bureau Airport Station was established at San Angelo, Tex., November 1, 1947.

NEW ADDRESS FOR WBO, ST. JOSEPH, MO.

Because of unsatisfactory mail delivery, the address of the St. Joseph, Mo., Weather Bureau Office has been changed. All correspondence, freight, and express should now be addressed: Weather Bureau Office, St. Joseph 51, Mo.

PHILIPPINE WEATHERMEN COMPLETE TRAINING

In accordance with plan outlined in TOPICS AND PERSONNEL of July 1947, the first group of 6 employees of the Philippine Weather Bureau has completed a stay of about 4 months in this country. They have each visited one or more Weather Bureau field stations and the Central Office.

Before their departure they addressed a letter to the Chief of the Weather Bureau, which said in part, "Through you we wish to express our most profound appreciation and thanks to all the Weather Bureau officials and employees who did everything they could to help and guide

us in our assigned mission here in the United States. In about a week from now we will be home in our beloved Philippines but the memory of the sympathetic and understanding friends whom we have had the pleasure of meeting in the United States will always remain with us." Letters from field stations, where they received instruction, tell of the fine character of our visitors and the satisfaction it was to have had a part in their training.

EDITORIAL POSITION OPEN IN CENTRAL OFFICE

A vacant position in the Editorial Section of the Central Office may be of interest to certain personnel in the field service. Candidates must have a good background in the physical sciences, including professional training in meteorology; proficiency in English; and the ability to prepare readily understood and interesting articles of a scientific nature for both lay readers and professional meteorologists.

The work of this position includes the editing of articles and illustrative material for the Monthly Weather Review and the series of research and technical papers, and the preparation of articles for TOPICS AND PERSONNEL, encyclopedias, yearbooks, and similar publications.

The initial grade of the position will be determined largely by the education, experience, and other qualifications of the person selected to fill it. Interested persons with the requisite background and capabilities are urged to write promptly to the Central Office, Attention of Special Scientific Services Division, giving pertinent details of their qualifications for the position. Correspondence should be routed through the Regional Offices.

WEATHER SHIP RESCUES AIR PASSENGERS

The U. S. Coast Guard Cutter *Bibb*, with weathermen A. A. Honka, J. W. Park, S. Slessinger, and R. H. Yarbrough aboard, left Boston September 29 for regular weather patrol on Atlantic Station "C," about 900 miles northeast of Newfoundland.

On October 14 the flying boat *Bermuda Sky Queen* (*NC-18612*), en route from Ireland to Baltimore, Md., ran out of gasoline and made a forced landing at the station. Rescue operations are graphically recorded in the Coast Guard's Official Assistance Report:

14 October 1947 (GCT):

0911 Received from Valencia Radio notice that *NC 18612* with 69 souls returning to Weather Station "C" for landing.

0938 Plane sighted; cutter drifting.

0941 Plane came up and established communications and circled. Landing relation of plane and ship discussed on 4220 kc.

1004 Plane landed undamaged.

1025 Pilot desired mooring line be passed, came close to in lee of cutter with slight collision and damage to port wing, tip and nose. Plane and cutter drifted close to, released oil as needed.

1037–1152 Surfboat surveyed behavior of plane and practiced approaches. Cutter advised plane that special weather forecasts and local conditions indicated moderating wind for 15 October afternoon, and recommended waiting, but placed decision to abandon ship or begin boat operations at plane's discretion. Plane

advised to test and try flotation of life raft. Plane and cutter floated rafts on retrieving lines. Rafts in each case blew into air and spun about on lines. Cutter conducted test maneuvers about plane. Plane set watches on controls and kept plane steered into wind with excellent results. Plane made leeway at 4.2 knots, cutter at 3.4 knots, wind being 30 knots.

1715 Plane stated deemed desirable to make transfer by some means, as plane showed some weakening. Plane directed to test flotation of raft with human cargo, using strongest men, and, if satisfied with results, to cast raft loose and cutter would retrieve.

1740 5-person raft launched with 3 men, cutter was drifted onto raft, raft and men retrieved at 1757. Plane requested large rafts.

1916 15-person raft was passed to plane using shot line from motor surfboat and plane directed to secure same as debarkation platform. Wind 30-39 knots.

1930-1954 Seven passengers jumped from plane to raft, taken off raft by boat, and passed on board cutter. Cutter made oil slick down wind of plane, then laid across wind ahead of plane to form lee. Used searchlights.

1958-2017 Operation repeated with 10 passengers.

2020-2037 Operation repeated with 11 passengers.

2100 Raft broke painter; adrift with 16 passengers; motor surfboat departed ship.

2130 Boat and raft swamped; boat coming apart.

2145 Ship drifted into boat and raft and retrieved passengers and boat crew. Boat and raft cut adrift. Boat tanks were flooded; raft had multiple punctures.

2339 Monomoy surfboat towed 15-person raft to plane and passed painter by shot line. Boat remained near plane. Plane Captain deemed further debarkation unjustified, as raft provided means of quickly abandoning ship.

15 October 1947 (GCT):

0045 Boat returned and hoisted; operation suspended.

0913-0931 Operation repeated using gig; 8 passengers. Wind 13 knots, slight sea, heavy swell.

0946-0958 Operation repeated with 6 passengers, using Monomoy surfboat.

1010-1033 Operation repeated with 6 passengers, raft adrift.

1035 Gig brought 2 passengers. Total 69. Operations completed.

1320 Fired incendiary bullets into plane.

1345 Plane burned and sank except sponson section and tail section.

1430 Remnants sunk with gun fire.

The *Bibb* returned to Boston October 19th.

GERMAN WEATHER SERVICE BEING REVIVED

During Germany's final desperate half-year in World War II many German meteorologists were transferred from weather forecasting to other duties which were considered more urgent. In the last few weeks of the war the national weather service of Germany completely collapsed. By V-E Day, for the first time in 65 years, no organized weather service existed anywhere in Germany. Meteorologists were among the scattered and confused population. Observatories were idle or destroyed.

The story is told by Col. Don McNeal, Chief of the Meteorological Section in the U. S. Army's Office of Military Government for Germany (OMGUS) in a recent issue of the Weekly Information Bulletin put out by OMGUS.

Colonel McNeal goes on to say that at that time the U. S. Army Air Weather Service (21st Weather Squadron), advancing with the Ameri-

can Armies, had established and operated a weather service throughout the American occupied area of Europe. By the end of the war its network of stations covered the area which was later to be known as the U. S. Occupied Zone of Germany. This service was operated for the benefit of the Army occupational units. Observation stations and forecasting offices were located in accordance with the needs of tactical units. No immediate concern was given to the provision of weather advices for the German economy.

First Steps in July 1945

The first step toward rehabilitation of a German weather service was taken in July 1945, in the form of a directive issued by the Commanding General, USFET. This directive provided that immediate action would be taken by the U. S. Army Air Weather Service to provide all necessary weather information for German industrial, agricultural, and other economic interests.

At the earliest date and to the fullest extent possible, German meteorological personnel were to be assigned to the preparation of weather forecasts for German interests. No German personnel were to be permitted, however, to prepare airways, terminal, or flight advisory forecasts. All German meteorological records and files located in the U. S. Zone were to be placed under military control and preserved against destruction, and surveys of German meteorological equipment and supplies were to be made with a view to their ultimate use by a reconstituted German weather service.

The meteorologically strategic location of Germany made it desirable that this country again become a cooperating unit of the international meteorological effort. But because of the division of Germany into four Zones of Occupation, it has not been found opportune to reconstitute a central German meteorological service. In anticipation of the eventual reconstitution of a national service, however, the establishment of zonal organizations in the four zones of occupation has been provided.

Zonal Organization Established

The German Zonal Meteorological Organization in the U. S. Zone was established early in 1946, with headquarters at Bad Kissingen. It is organized as a German civil agency under the Bavarian Ministry of Education and Culture, at present employing about 550 Germans. It operates 47 surface synoptic observation stations, 2 agricultural meteorological stations, 8 bioclimatological stations, 136 climatological stations, 1,287 precipitation measuring stations, 1,243 phenological stations, 3 rawinsonde stations, 3 upperwind measuring stations, 8 supervisory centers, 2 aviation meteorological offices and 2 forecasting centers.

Collection and dissemination of meteorological information within the zone is accomplished hourly by telephone and teletype. The 8 supervisory centers and the 2 forecasting centers are connected by a teletype net. Each supervisory center collects observational data, from its

dependent observatories, by telephone. These are then transmitted over the teletype net in scheduled sequence. Thus each supervisory center and each forecasting center have available hourly observational data covering the entire zone. The supervisory and forecasting centers also operate radio intercept stations in order that necessary reports from other countries in Europe, and from the Atlantic, may be available for the analyses.

One important recent development has been the establishment of meteorological offices at the Tempelhof and Rhine/Main airports. These important centers provide all necessary weather service for civil airlines operating in and out of these airports. Anticipating this development, the meteorological section organized an intensive training course for German aviation meteorologists and observers at Templehof. This training extends to all phases of airline forecasting and is adjusted to cover recommended international practices and procedures with respect to documentation. No German is assigned to aviation meteorological work until he has successfully completed this training and indoctrination. Each German aviation meteorological office is supervised by a field representative of the meteorological section. Additional aviation meteorological offices will be established at Munich/Riem and at Bremen, as required.

Through the 30 months that have elapsed since the end of the war, a German meteorological service has been gradually rehabilitated in the U. S. Zone of Occupation. It now exists as a well established German civil agency, fully serving the economy of the zone, assisting the occupational forces as required, already serving international civil aviation and operating as an essential unit in international meteorology.

FIELD TOPICS

Barrow, Alaska.—Barrow is slowly beginning to appear more like a city. Enough lumber and supplies arrived on the boats this year to build 28 new houses for the natives and some of these are now beginning to take shape. Also, streets have been laid out; tractors and machinery are now hauling gravel up from the beach for these streets.

Wales, Alaska.—Wales was visited this summer by Siberian natives who came across the Bering Strait from East Cape in three small whaling boats. Their destination was Nome—reason: to do some trading. They did a small amount of trading here. The first two boat loads left for Nome immediately, but the last boat load remained at Wales overnight, so this event called for a celebration. An Eskimo dance was scheduled to take place at the kur-ghe (dance hall) that night. The Siberians were claimed to be excellent dancers, so of course we knew what to expect. The Wales natives sang and danced for a while. Then the climax came. One Wales native man set a pair of gloves in the middle of the room. This was a friendly gesture suggesting that the Siberians were invited to dance. The Siberians understood and staged

a wonderful performance. They were asked to sing their own dance songs which were quite similar to the Wales custom, but there was one difference in their songs. The Wales natives sang a dance song once, which was very short. The Siberian natives sang their dance song twice, first very softly while beating slightly on the drums, then with all force, vigor, and vitality to the loud oriental beatings of the drums.

Fairbanks, Alaska.—The Tanana Valley Fair was held here August 21, 22, and 23, 1947. The Fairbanks Weather Bureau station participated in this fair by entering an exhibit of instruments and by displaying charts showing the amount of rainfall so far this year compared to normal amounts, the daily surface weather maps, and a chart showing the length of the growing season each year since the records were started here. Also on exhibit were copies of the latest monthly and annual meteorological summaries. Great interest in the work was shown by the local populace.

INSTRUCTIONS

ACCIDENTS INVOLVING SERVICE AIRCRAFT

Weather Bureau employees investigating or otherwise concerned with accidents occurring to U. S. Air Force or Navy aircraft should use considerable discretion in disclosing to the public the names of service personnel involved. It is Air Force and Navy policy to withhold the names of such personnel from publication until the next of kin have been notified. The office of the Secretary, Department of the Air Force, has requested the Weather Bureau to cooperate in withholding the names of military personnel involved in aircraft accidents.

Following a recent accident involving an Air Force plane, a civilian Government employee obtained medical information by radio for treatment of an injured crew member. In doing so he revealed the names of personnel concerned and this information reached the newspapers. Relatives of the injured person learned of the accident in this way before they could be officially notified.

The actions of the employee were praiseworthy and he was officially commended, but if he had been aware of the possible consequences he might have obtained the needed information without revealing names to the public.

PERSONAL

WEATHER BUREAU EMPLOYEE RECEIVES AIR FORCE AWARD

The Air Medal, ordinarily awarded by the U. S Air Force only to military personnel, has been presented to a Weather Bureau employee, Edward E. Goodale of Arctic Operations in the Central Office. This unusual award was the result of Mr. Goodale's part in helping rescue the crew of a B–29 bomber forced down in the Arctic in February 1947, when he was official in charge of the weather station at Thule, Greenland.

The Thule station had received word by radio that the B–29, doing reconnaissance work out of Ladd Field, Alaska, was believed forced down somewhere in the Arctic region. Neither rescue workers at Ladd Field nor the North Atlantic Search and Rescue crews at Fort Totten, N. Y., could get a bearing on the plane's position. Thule had the only radio receivers close enough to receive a radio message from the crippled plane's transmitter. Weather Bureau cooperation was requested for monitoring the radio bands in hope of such a message. When a message was finally picked up, a C–54 passenger plane was dispatched from Fort Totten. The pilot, who stopped at far northern Thule for refueling, requested Mr. Goodale to accompany him in order that the meteorologist's advice on landing conditions on the ice might assure the speediest successful landing possible. Mr. Goodale estimated that ice conditions in the vicinity of the plane were similar to conditions at Thule, which were safe for landing. Though the landing space was limited, the rescue was carried out with dispatch, rockets being used to get the plane off the ground again in the 800 feet available for a runway. For courageous personal assistance in helping to save lives and for his cooperation on the part of the Weather Bureau station at Thule, Mr. Goodale, although a civilian, was given the Air Medal by the Air Force.

Mr. Goodale's Polar experience includes 2 years as a dog-sled driver with the first Byrd Antarctic Expedition, and 1½ years as a civilian consultant of the Army, helping to establish weather stations in Arctic territory immediately following our entry into World War II. Later he was commissioned a major in the Army Air Forces and was chief of the Air Transport Command's Search and Rescue Section, North Atlantic Division, at Fort Totten until 1946.

RETIREMENTS

Mr. Carl A. Scott, clerk, Memphis, Tenn., retired November 2, 1947, on account of disability. Mr. Scott was born April 10, 1904, at Memphis, Tenn., and entered the Weather Bureau service September 17, 1920, as a messenger. His entire service was at Memphis.

Thomas E. Reed, official in charge, Binghamton, N. Y., retired October 31, 1947. Mr. Reed was born July 16, 1887, at Girardville, Pa., and entered the Weather Bureau service April 16, 1913, as an observer at Tacoma, Wash. He subsequently served at Ithaca, N. Y., New Haven, Conn., Boston, Mass., and Binghamton, N. Y., where he remained until his retirement.

DEATH

Carl F. Muehsam, meteorological aid, Las Vegas, Nev., died October 18, 1947. Mr. Muehsam was born June 28, 1909, at Philadelphia, Pa., and entered the Weather Bureau service January 21, 1946. His entire service was at Las Vegas.

THUNDERSTORM GLIDER WORK RECOGNIZED

Paul Tuntland, a glider pilot of the Soaring Society of America, Inc., has been awarded the Warren E. Eaton Memorial Soaring Trophy for his work with the Thunderstorm Project. The award is made annually by the Soaring Society to "the outstanding pilot chosen contributing most to the Art, Sport, and Science of Motorless Flight during the year."

Gliders of the Soaring Society were used at Orlando, Fla., during the thunderstorm season of 1946 to perform certain investigations in and around the storms. During one of these flights Mr. Tuntland set an unofficial world altitude record for gliders of 22,700 feet.

F. W. Reichelderfer

F. W. REICHELDERFER
Chief of Bureau.

(WB—12-10-47—675)