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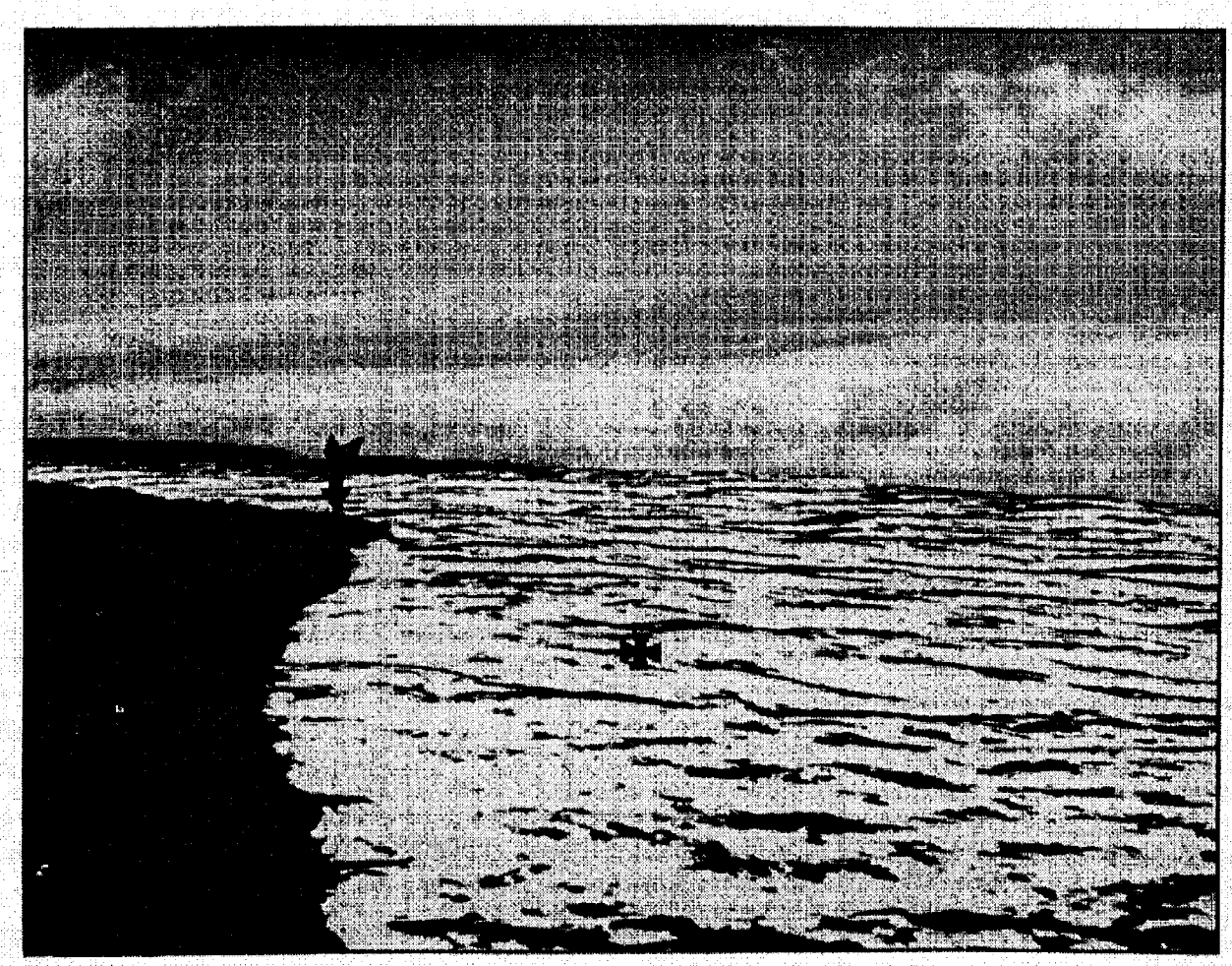

New Observatory in Hawaii

Volume 11 Number 1

National Oceanic and Atmospheric Administration
Weather Bureau Topics and Personnel

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WEATHER BUREAU TOPICS is published monthly to inform all employees about newsworthy operations and work programs of the Bureau; to give background on instructions; to carry news of new personnel assignments, retirements, deaths, and similar information about employees; and to serve as a medium through which ideas and views may be exchanged to promote efficiency and teamwork in attaining our common goals. While the contents, unless otherwise specified, reflect the Central Office viewpoint, they are not instructions but are presented for information. Opinions, discussions or comments by readers are invited; they should be marked for the attention of the Editor, TOPICS. WEATHER BUREAU TOPICS is distributed for official use only.

Volume 11 Number 1

Our New Format

WITH this issue, TOPICS changes its page size for the first time since 1915.

Since TOPICS began as "Topics and Personnel" in July, 1915, it has been printed in the same size; we have no way of being sure, but the size was probably determined by the "Station Regulations" book which old-timers remember —and this also was the size of many of the instrument and observational "circulars" that were printed in those days.

There have been many changes since then, among them the discontinuance of "Station Regulations," but somehow TOPICS has seemed too much of a tradition of the Bureau to be included. Almost all of the Bureau publications are now of the larger size, and it seemed time that TOPICS fell in line, especially since the increase will accomplish savings in press time (fewer pages, fewer plates and press runs), paper (a greater percentage of the larger page is text and less is margin), and will allow a more interesting arrangement of articles and pictures—as well as permitting the use of larger pictures and larger-scale diagrams.

For many years "Topics and Personnel" carried instructions as well as information; this was discontinued in 1949, when the policy stated at the top of this page was adopted; this is a return to the policy as announced in the original foreword.

A major change in contents took place in the middle of 1939, when the "Personnel Changes" section was discontinued. This feature, to which old-timers usually turned first when "Topics and Personnel" arrived at the station, listed all transfers, promotions, retirements, etc., and in the early days of the Bureau was of great interest because we were so small an organization that most of the older personnel knew each other. But by 1939 the Bureau had become large enough to make compiling and printing the list an unwieldy procedure.

The present "Personnel Roster" issued once a year to the field, fills to a certain extent the same purpose and makes it possible to follow one's friends in the Bureau.

Incidentally, illustrations, of which we have made more frequent use lately, are not new in TOPICS; the second issue (August, 1915) contained a drawing of a device to protect the muslin of the wet bulb thermometer from dirt. The device was the invention of Mr. Abe Weisner, whose death, after three years of retirement, was reported in TOPICS for March, 1951.

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The Supervisor's Job

IN our efforts to improve weather service to the public, and yet remain within appropriations, many areas of operations have been studied and reviewed. It is certain that much of our public service improvement will result from improved methods of supervision at field stations. With this in mind, we should like to point out a little of the "philosophy" of supervision which may be helpful to station supervisors.

How does the supervisor differ from the non-supervisor? Almost without exception, we find that the supervisor has been a non-supervisor at one time or another. Somewhere along the line, he must have demonstrated the ability to get the work done through group effort; he must have become a leader. His background as a non-supervisory worker provides the basis for his decisions and for answering the many questions that arise during day-to-day operations. It should be remembered, however, that this technical "qualification" of the supervisor must be considered a means to an end and not the end itself. The supervisor is paid for his unit's production, not because he may be the best producer in the unit.

From the subject matter requirement on the part of supervisors, we go on to that aggregation of related skills and abilities that will vary from job to job. In general, the supervisor should always look both ways, keeping posted on the immediate requirements of his men, determining how well the work is being done, and reporting "up the line" on the status of operations. He should, at all times, supply a sense of direction to the individual efforts of the workers in his unit. A good supervisor plans the work of his group, scheduling activities, assigning higher priorities to certain portions of the work, and keeping a jump ahead of the members of his group. He should train his group continually, both new employees in current techniques, and experienced employees in new and improved techniques.

The supervisor is a vital link in the chain of communications between the worker and the head of the organization. He explains and interprets the management's policies and programs. Conversely, he represents the worker to higher levels of management, transmitting upward the worker's suggestions and complaints. The good supervisor understands and appreciates the need for a sound career development program for his employees. He is fully aware of the value of instilling and maintaining a sense of accomplishment and success in each worker, and constantly lends his assistance by advising on how skills may be improved, what additional experience is desirable, and how to avoid dead-end jobs.

Although the amount of time required to perform the supervisory function varies considerably from job to job and from day to day, the function itself always remains the same. The supervisor must weld a number of individuals into a unit; his is the immediate responsibility for the unity of his unit. ■

ARCTIC POSITIONS AVAILABLE

THE Arctic Operations Project is now considering applications for Arctic positions which must be filled by April 1, 1952, for a minimum of one year's employment. Positions, salaries and grades are as follows:

			Total Salary
3	Executive Officers	GS-9	$ 6,600.00
1	Radiosonde Observer	GS-7	5,705.00
2	Radio-Technician Operators	GS-7	5,705.00

Salaries listed above include the Arctic bonus for completion of one year Arctic service. No deductions are made for food, lodging, or transportation, which are furnished.

The qualifications required of an Executive Officer are as follows:

(1) Ability to supervise employees in isolated weather station activities.
(2) Experience in radiosonde observations.
(3) Maturity of character.
(4) Initiative.
(5) Enthusiasm for an Arctic assignment.

Further information may be obtained by writing to Chief, Arctic Operations Project, U. S. Weather Bureau, Washington 25, D. C.

Secretary Sawyer Honors Cooperative Observers

The presentation. Left to right: Dr. Reichelderfer, Mr. Richards, Secretary Sawyer.

Mr. George W. Richards, cooperative observer at Maple Plain, Minnesota, since January 1, 1892, received from the Secretary of Commerce, Charles Sawyer, and Chief of Weather Bureau, F. W. Reichelderfer, a scroll commemorating his sixty years of service as a voluntary observer. The scroll and a specially bound volume of "The Cooperative Weather Observer" were presented to Mr. Richards in a ceremony in the Secretary's office on December 6, 1951.

Mr. Richards has long been a student of clouds - in fact, the October 1898 issue of the Monthly Weather Review carries an article, "A Form for the Record of Cloud Observations," written by Mr. Richards and Professor Cleveland Abbe. The March 1898 issue of the Review also carried an article by Mr. Richards, "Upper Clouds and Weather Changes."

Three other 60-year observers, unable to come to Washington for the presentation, also received scrolls commemorating their service. They are Henry H. Crisler of Port Gibson, Mississippi, who has served since May 1891; William C. Harris of Dover, New Jersey, who served from March 1885 to May 1945; and Barry C. Hawkins of Rock House, North Carolina, observer since November 1891.

In paying tribute to the cooperative weather observer, Secretary Sawyer issued the following statement:

"The volunteer weather man, exemplified by the four whom we are especially honoring today for longest years of service, represents the highest type of American citizen, who unselfishly devotes his time and exposes himself to the severest of weather in the service of his government, and who is content to do so for the general good he performs.

"The weather observations so gathered in out-of-the-way stations throughout the breadth of the country cumulatively add up to an invaluable body of information of importance to the com-

merce and industry, agriculture and defense of the nation.

"It has been estimated that a cooperative observer with 50 years of service, who has spent 15 minutes per day to take and record observations, answer questions about the weather and make regular reports, has contributed the equal of 570 full eight-hour days to his government.

"This is a remarkable contribution," the Secretary said. "It is patriotism functioning every day of the week, holidays and Sundays not excluded, and it deserves the thanks of all of us."

Secretary Sawyer said the value of the cumulative record was tremendous. "It answers vitally important questions about where to live, what to grow in our fields, where to build roads, factories, and airports, how to protect our farms and towns from floods, and when to plant and harvest." ■

"The Cooperative Observer"

COPIES of "The Cooperative Weather Observer" have been sent to all substation observers and all first-order Weather Bureau offices.

Listed in this book are 1,875 observers who have served, uncompensated, for 10 years or more; 775 of these have given the government more than 20 years; 91, over 40; and 19 have taken observations for over 50 years. All of these observers with more than 20 years' service are represented by a short biographical sketch.

A letter from the Secretary of Commerce accompanied the copy which went to each of the observers with more than forty years' service. The letter reads:

"I would like to express my appreciation for your remarkable record as a Cooperative Weather Observer. Your ..... years of voluntary service and your unselfish devotion to the work of the Weather Bureau are not only commendable but furnish an inspiring example for public service.

"The weather observations which you and others have made through the years are in constant use in many ways. They are and will continue to be important in helping to solve problems concerning the conduct of our industry and commerce, our agriculture, and our national defense.

"In behalf of your government and especially in behalf of the Department of Commerce, I wish to thank you for the important job you have done so well." ■

National Economy and the Weather Bureau

WORLD events have drawn our country into an international struggle involving not only our diplomatic and military establishments, but every part of our economic structure. Defense requirements have raised government expenditures to wartime levels, and available funds will not be sufficient unless all departments curtail their less essential activities and make each dollar do as much work as it can. Only by so doing can we release funds for objects and services needed directly in national defense or in support of our colleague countries abroad. The issues are fundamental to the future of our nation and the welfare of its citizens. They concern every man, woman, and child. Every Weather Bureau employee is doubtless aware of his personal stake in the preservation of a sound national economy, and is therefore interested in doing whatever he can in promoting the most efficient use of resources, facilities and services for national defense and for the betterment of international relations.

In this sense, economy is not a new thing in the Weather Bureau. For many decades small field office staffs, low administrative costs and frugal use of supplies have been traditional in the Bureau. On occasion the Bureau has made the headlines by having declined to seek increased appropriations for specific projects which did not appear to offer an economical use of public funds. During the last two years a searching survey of work loads has shown that most stations are working with minimum staffs. During that period some stations have been closed and at many others staffs were still further curtailed until the essential work in some places is at a critical stage in relation to the capacity of staffs.

It is perhaps natural, therefore, that Bureau employees should ask what further economies are possible without curtailing essential services, and some may wonder why the Bureau should endeavor to cut its costs and operations still farther while other organizations continue programs and practices which appear, to us, relatively wasteful.

In crucial situations such as this, however, such questions are beside the point. Everyone now is expected to work for the common good, and do the most he can in his own field without trying to evaluate what is outside his sphere of exact knowledge and capacity. If any of our present work is non-essential of if there are ways in which the essential services of the Bureau can be performed effectively at lower cost, these instances should be made known and more efficient practices instituted. Comments and suggestions on this subject are requested. Such suggestions, together with recommendations from the Central Office, will be presented in future articles in this series under the heading "National Economy and the Weather Bureau." ■

ATOP ACTIVE VOLCANO

New Observatory in Hawaii

The Weather Bureau has a new mountain observatory, one of the highest complete weather stations in the world. Located near the summit of Mauna Loa, one of Hawaii's still active volcanoes, the station elevation is approximately 13,400 feet. The site is a quarter mile from the edge of Mokuaweoweo crater, one-half mile from the summit (13,680 ft.) and 30 airline miles from sea-level Hilo, Hawaii. It is probably the only place in the world where there is access by land to such an elevation in so short a distance from sea level, and where the climate is totally produced by a tropical marine airmass free of continental influences.

Station Recommended in 1920

The establishment of this observatory is the culmination of efforts begun in 1920 when the first Pan Pacific Science Congress adopted a resolution calling for the location of a weather station at the Mauna Loa summit. Difficulty in gaining access to the summit has prevented action on this resolution until recently. In 1950, joint action sponsored by the Weather Bureau and the Hawaii Dept. of Institutions resulted in such keen interest being focused on the project that the Territorial Legislature appropriated $75,000 to complete a road to the site of the new observatory. In October, 1951, the minimum access road was completed using prison labor and heavy roadbuilding equipment loaned by the Navy for the project.

Gardens of the World

The interest of the Territory in the project has centered around a plan to develop a winter sports park above the snowline (approximately 12,000 ft., December to June), and to make possible the completion of a project known as "The Gardens of the World." The latter would feature various flora, planted along the roadside, including species indigenous to climates ranging from the arctic to the tropics, and from rainforests to steppes, a project which will ultimately be a botanist's fairyland. The 55-mile road from Hilo to the summit begins in a tropical sea level setting and winds tortuously upward through a dense rainforest where the annual rainfall increases to more than 300 inches at the 2500 ft. level, then diminishes slowly above, the timberline being reached near 6000 ft. (the average height of the tradewind inversion). Above the timberline are endless fields of aa and pahoehoe lava in various stages of erosion and deterioration, and the rainfall gradually drops off to an annual amount estimated at less than 10 inches near the summit.

THE COVER

The arrow indicates the highest point on Mauna Loa; the cross is at the site of the new station. Mokuaweoweo crater is at lower left.

Station Will Record Unattended

At the observatory site, a small masonry building has been erected to house recording equipment and to provide overnight facilities for observers or protection from severe winter weather while work is being carried on at the site. Standard first-order station instrumentation has been installed together with special recorders for wind direction and speed, sunshine, and precipitation, which will operate unattended continuously for three months or more. Observers from Hilo WBAS will attend the observatory at the outset, making a trip to the summit several times a month except when heavier snows prevent.

While most of the observatory projects will be concerned with collecting data for fundamental research, future plans call for the installation of automatic weather station equipment which will give Hilo a means of obtaining temperature, winds, and pressure readings from the summit exposures, through a push button radio relay process. This will provide information of considerable value in forecasting the development of Hawaii's kona storms.

Other Agencies to Sponsor Projects

Plans call for installation next year of a water vapor absorption spectrometer, a Dobson ozone recorder, as well as other equipment which will be used by one or more cooperating agencies which are interested in implementing projects at the observatory. Indications are that one university may send one or more research workers to Hawaii to spend full time on projects at the observatory.

Because Mauna Loa is an active volcano, great care was necessary in selecting a site for the observatory, not only to obtain a proper exposure, but to find one least vulnerable to volcanic action. The three most likely sources of lava flows are the summit, the southwest rift, and the northeast rift. The observatory was located on the northwest side of the crater. Here it will not be seriously affected by summit flows which invariably drain off rapidly to

the south, or from flows along the southwest rift.

Escape Road for Eruptions

Flows on the northwest rift originating below the observatory may cut off the access road. This should not prove serious, however, since most flows cool sufficiently to allow a road to be roughed out over them within 60 days. In addition, an escape road is being constructed to provide an exit for any persons who may be caught at the summit during an eruption which cuts the access road.

The Mauna Loa observatory will make possible many researches which could not be accomplished so satisfactorily elsewhere. It is expected that scientific organizations from all over the world will seek facilities to carry out special researches there. ■

Worth Reading

NUMEROUS articles in TOPICS in recent years have touched on the need for leadership at the supervisory level, without going very deeply into just how such leadership could be attained. Supervisors at all levels will find much meat on this subject in a small book that can be found on the shelves of most public libraries.

It is Donald A. Laird's "The Techniques of Handling People," and in 138 pages of text and photographs it delineates, not in abstract theory or "gobbledegook" but in terse, straightforward examples, the principles of leadership and the manner in which leaders who have gotten their knowledge from experience approach their jobs. ■

Publications Distributed

Copies of each of the following publications were distributed throughout the Bureau as widely as the supply permitted. All are available from the Central Office Library.

1. The Effects of Eddy Viscosity, Coriolis Deflection and Temperature Fluctuation on the Sea Breeze as a Function of Time and Height, Willard J. Pierson, Jr., New York University, Meteorological Papers, vol. 1, No. 2, January 1950.

2. Atmospheric Energy Transformations, James E. Miller, New York University, August 1950.

3. Sunshine and Cloudiness at Selected Stations in the United States, Alaska, Hawaii, and Puerto Rico, Technical Paper No. 12, U. S. Weather Bureau, 1951.

4. Mean Monthly and Annual Evaporation from Free Water Surface for the United States, Alaska, Hawaii and West Indies, Technical Paper No. 13, U. S. Weather Bureau, 1951.

5. Tables of Precipitable Water and other factors for a saturated pseudoadiabatic atmosphere, Technical Paper No. 14, U. S. Weather Bureau, 1951.

6. Maximum Station Precipitation for 1, 3, 6, 12, and 24 Hours, Technical Paper No. 15, Part I Utah, Part II Idaho, U. S. Weather Bureau, 1951.

7. Meteorological Analysis of Icing Conditions Encountered in Low-Altitude Stratiform Clouds, Dwight B. Kline and Joseph A. Walker, NACA Technical Note 2306, March 1951.

8. Forecasting in Middle Latitudes, University of Chicago, March 1951.

9. The Transformation of Energy by the Large Scale Eddy Stress in the Atmosphere, Alfred K. Blackadar, New York University, Meteorological Papers, vol. 1, No. 4, September 1950.

10. A Model of a Tropical Cyclone in the Steady State, Homer T. Mantis, New York University, Meteorological Papers, vol. 1, No. 3, May 1950.

11. Mountain Winds and their Effects on Flight, Civil Aeronautics Board, Bureau of Safety Investigation, July 1951.

12. An Appraisal of Cloud Seeding as a Means of Increasing Precipitation, reprinted from Bulletin of the American Meteorological Society, vol. 32, No. 2, February 1951, pp. 39-46.

13. Precipitation, Natural and Otherwise, Harry Wexler, lecture given at Laramie and Houston in June and August 1951.

14. Clear Air Turbulence over Europe, G. S. Hislop, [with discussion], reprinted from Journal of Royal Aeronautical Society, vol. 59, No. 484, April 1951, pp. 185-225.

15. Evaluation of the Technique of Cloud Seeding to Date, Ferguson Hall, paper presented at New York Academy of Sciences meeting, October 23, 1951.

16. Predicting the Runoff from Storm Rainfall, M. A. Kohler and R. K. Linsley, Research Paper No. 34, U. S. Weather Bureau, September 1951. ■

Radiosonde Training Guide Issued

TRAINING Paper No. 8, "Training Guide in Radiosonde Observations," has been revised and reprinted. Regional Offices or field stations conducting or contemplating a raob training program may now requisition copies from the Central Office. This guide is a "must" for all raob trainees. ■

MEET THE DIVISION CHIEFS

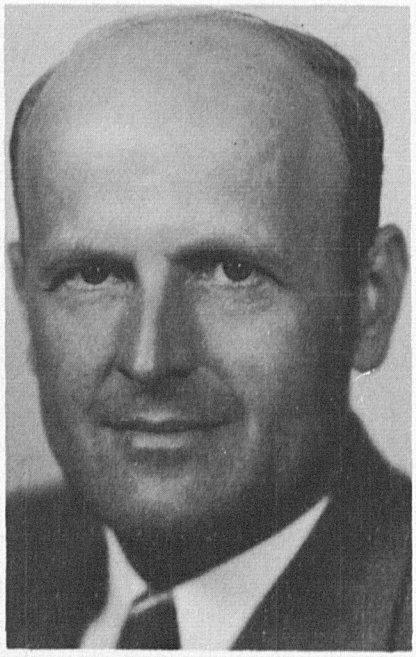
Physical Research

AUTHOR of some 80 scientific papers and holder of 35 issued U. S. patents, Dr. Ross Gunn has contributed to many fields of science, including terrestrial magnetism, atmospheric electricity, geological physics, and cosmic problems. He is a comparative newcomer to the Weather Bureau (coming to us in 1947), although his government career began 24 years ago.

Born in Cleveland, Ohio, May 1897, Dr. Gunn moved to Oberlin, Ohio, while quite young and went through public school and two years of Oberlin College. As a boy, Dr. Gunn began his scientific pioneering by operating one of the first amateur "wireless" stations and during the summers was a radio operator on Great Lakes steamers. He took a degree in Electrical Engineering at the University of Michigan, taught radio courses there during World War I, and was an instructor in Engineering Physics from 1920 to 1922.

In the fall of 1922 he took a job with the Army Air Service as a radio research engineer and carried on pioneer development work at McCook Field, Dayton, in the radio navigation of aircraft. There he played an important part in the development of the radio range system and made a number of the first cross-country instrument flights. In 1923 he accepted an instructorship in the Physics Department at Yale University and stayed there until 1927. Meantime, he earned his Ph.D. in Physics and was married to Gladys J. Rowley. During the last year of his instructorship, he was in charge of the high frequency laboratory of the Physics Department and carried on research in radio engineering problems.

Dr. Gunn found university life a little too staid for his temperament and in 1927 he accepted a job with the Naval Research Laboratory, intending to spend three years there. At the Naval Research Laboratory, he was given successively more and more responsible positions, made a great many inventions that matured into U. S. Patents and contributed much to the Naval research program. Among these



Dr. Ross Gunn

were the chopper amplifier for small electromotive forces, induction electric field meter now available on the market in the form of the vibrating reed electrometer, and a number of aircraft instruments.

Dr. Gunn was continually loaded with responsibilities until, during World War II, he was simultaneously Technical Advisor to the Naval Administration, Superintendent of the Mechanics and Electricity Division, Superintendent of the Aircraft Electrical Research Division, and Technical Director of the Army-Navy Precipitation Static Project. His work on the development of atomic power for the Navy has received public notice. It is a matter of record that he organized and directed the first work on atomic energy in the U. S. Government and was responsible for the Navy's isotope separation program. This work was recognized by a citation presented personally by Secretary of the Navy Forrestal for "exceptionally distinguished service to the U. S. Navy in the field of scientific research and, in particular, by reason of his outstanding contribution in the development of the atomic bomb."

To his co-workers Dr. Gunn appears as an affable, solidly-built man of medium height—a Scot who is pretty sure about the things he has worked on but with an open mind to all new ideas—a fellow with a keen, dry humor who tells you that his four boys make him a "Pop" Gunn and are sons-of-a-Gunn. His successes are unquestionably due to his tenacity of purpose, realistic point of view, and unwillingness to let go until he has probed to the bottom of things. And above all he is characterized by modesty and a strong preference for hard work without any fanfare.

In 1947 Dr. Gunn came to the Weather Bureau, to carry out a program of research on the basic physics of precipitation and its relation to the stability of natural clouds. Under this program the Weather Bureau, in conjunction with the Miami Copper Company, is operating the largest cloud chamber in the world, using a concreted mine shaft at Globe, Arizona.

Last November Dr. Gunn's work and leadership of the Precipitation Static Project was recognized when he was given the 1951 distinguished service award for flight safety by the Flight Safety Foundation. ■

Keeping Up With the Weather

We feel that the questions raised and answered in the following comments on an Employee Suggestion are of general interest and are, therefore, printing it complete. Field comments are invited.

THE suggestion to set up an "analysis watch" to check hourly sequence reports and thereby keep abreast of changing meteorological conditions occurring between regular six-hourly map periods raises some interesting questions. As suggested, there would be three such watch stations covering three main geographical divisions of the country. They would study hourly sequences and prepare for transmission each hour a coded message depicting the latest weather developments.

According to the suggestion, a coded message of this type would very likely give a better overall picture of weather developments to the forecaster than does reading individual sequence reports. However, there seem to be several disadvantages connected with the suggestion which are believed to outweigh any such advantage to the extent that adoption is not recommended.

First, keeping up with the weather (in the area for which the station is responsible) through use of hourly reports is an integral part of the requirement of all personnel connected with forecasting or briefing work. Many of the elements of the hourly report, such as ceiling height, weather, obstructions to vision, etc., in addition to their bearing on fronts or weather systems are in themselves of major importance to the forecaster or briefer. Therefore, the inauguration of one or more "analysis watch" points would not eliminate the need at individual offices for watching carefully the hourly reports.

Second, nearly all forecast centers are now preparing some form of three-hourly weather map which serves part of the purpose of this suggestion in that weather developments are followed on maps with three-hourly regularity at forecast centers. It is generally true that stations other than forecast centers do not have this frequency of map preparation, but neither do they have such large areas of responsibility, and they can therefore maintain the required watch on the weather by studying fewer reports each hour. Also, most forecast centers transmit in standard code form three-hourly analyses under the heading TA at 0508Z and each six hours thereafter. Although primarily for the benefit of the WBAN Analysis Center, some local offices find it helpful to decode these analyses in order to assist in following developments between regular six-hourly map times.

Third, the question of finding time on the teletype circuits each hour for distributing a coded analysis of frontal change presents a formidable obstacle. Since the data would be coded and would not directly relate to aircraft operation, it could hardly be transmitted on Service "A" circuits.

Fourth, establishing several or even one central "analysis watch" point to be effective would in all possibility require freeing one meteorologist on each shift at each point to permit careful and punctual study of all hourly data available. If only one center were established this would require that four of five additional meteorologists be added to the staff since present responsibilities at forecast centers require the full time of all meteorological personnel.

In summary, it seems that while there is merit in the suggestion, it is not practicable to adopt it at present. It aims to accomplish much the same purpose as the "mechanical weather board" which has been considered from time to time as a possible facility for the WBAN Analysis Center. This board would keep an "up-to-the-minute" living picture of the changing weather throughout the United States. The idea has not been developed because of the cost and technical difficulties but some device along the lines of the recent suggestion for an "analysis watch" or the "mechanical weather board" will probably be evolved eventually Thanks are expressed for the recent suggestions. ■

Pibal Error

A recent visitor from a field station commented on the unusual reasons for discontinuing pilot balloon runs given by Australian observers (TOPICS, September 1951, page 166), and told us of his own experience while serving with the Air Force in India during World War II.

He was forced to discontinue a run and report "Tiger approaching observation point."

He has asked us, however, to withhold his name, since the incident has been a source of embarrassment to him; he discovered later that his report had been incorrect. No tiger had, in fact, been approaching. It was a leopard. ■

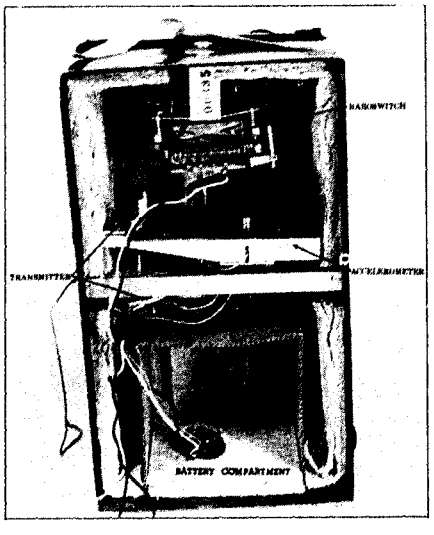
NACA–Weather Bureau Gustsonde Program

DAILY observations with a new instrument, the turbulence telemeter, or "gustsonde," have begun at four Weather Bureau stations and will continue for approximately one year. The instruments (one of which is pictured here), as well as all other expendables, are being furnished by the National Advisory Committee for Aeronautics, which will also evaluate the observational data gathered during the program.

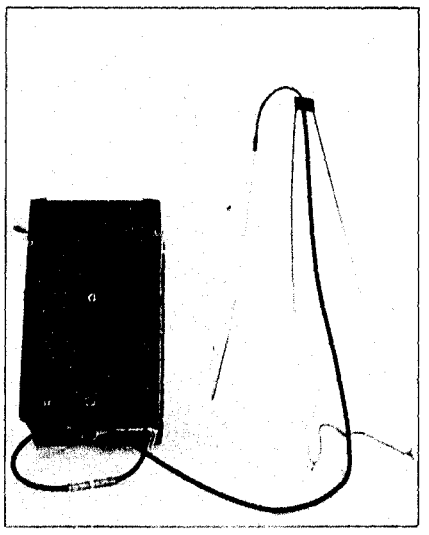
Observations began October 30, 1951, at the Silver Hill Observatory (TOPICS, November 1951) and, in addition, are now being taken at Grand Junction, Colorado; Miami, Florida; and Caribou, Maine. One observation is taken each day at 1400Z.

Unlike the radiosonde, the significant record from the turbulence telemeter is gathered on the descent. The instrument consists of an accelerometer, a baroswitch unit, and a radio transmitter with associated battery, all contained in a weatherproof cardboard box. The transmitter operates on a nominal radio frequency of 148.95 megacycles. Movements of the accelerometer vane, expressed in feet per second per second, are recorded at the ground station. When the 800-gram balloon bursts, a special release magazine discards the balloon fragments, and the instrument descends below a hemispherical parachute specially designed for stability.

Technicians of the Gust Loads Branch of the NACA, located at Langley Field, Virginia, will evaluate the observational data, which will be related statistically to orographic and meteorological causes of high-level turbulence. ■



Interior View of Gustsonde



Gustsonde with Antenna

Errors in Station Forms

ONE of the WRPC's reports that in the 1950 Local Climatological Summaries a number of errors were found which, with a little more care on the part of station personnel, could easily have been avoided. In some cases such errors were not detected and appear in the printed summaries. It is notable that at least one correction was required in every one of the more than 100 summaries published in 1950 at this WRPC.

Submission of tabular data containing obvious inconsistencies not only results in inconvenience and loss of time at the WRPC, but it amounts to a reflection on the station and the man in charge, whose responsibility it is to see that material published under his name is accurate. Thorough checking of the Local Climatological Summary tables should not require more than 30 minutes and the Station Meteorological Summary even less, and such checking will definitely pay dividends through a reduced error-count for the station and increased speed of publication in the WRPC. ■

FACSIMILE PAPER

BY establishing specifications that require meeting of definite contrast standards instead of merely requiring that bidders supply paper "equal to" Timesfax paper, the Materiel Section is making sure that future purchases will provide charts satisfactory for those stations which use the "fax" maps for working charts.

Previously it has been found that some paper which qualifies as "equal to" the Timesfax paper does not produce satisfactory quality in the finished product.

Further insurance that future purchases will meet our needs is a provision that samples must be submitted for testing in the Analysis Center. ■

FIARBC Subcommittee on Hydrology

The purposes and functions of the Federal Inter-Agency River Basin Committee (FIARBC) were presented in the December 1951 TOPICS. The work of the main committee is generally accomplished through various subcommittees and work groups. The major technical subcommittees now active are Hydrology, Benefits and Costs, Sedimentation, and Energy Conversion Procedures. The Weather Bureau plays its principal role in the activities of FIARBC by participation in the regional committees, subcommittees and working groups. The Subcommittee on Hydrology is of particular interest to the Bureau since direct representation and active participation are maintained by Mr. William E. Hiatt, Chief, Hydrologic Services Division, with Mr. Max A. Kohler as alternate. Other members of the Hydrologic Services Division are serving on various work groups of the Subcommittee.

Seven Agencies Represented

The Subcommittee on Hydrology was established by the FIARBC in its 20th meeting on September 27, 1945. It meets regularly in Washington, D. C., and is comprised of representatives of the following departments and independent agencies: Department of Agriculture (Forest Service), Department of Army (Corps of Engineers), Department of Commerce (Weather Bureau), Department of Interior (Geological Survey), Federal Security Agency (Public Health), Federal Power Commission, and Tennessee Valley Authority.

The Subcommittee reviews problems presented by participating agencies pertaining to the collection, analysis and distribution of hydrologic data in which joint action is needed to systematize, coordinate and standardize techniques, procedures and equipment in order to assure exchange of information and effective accomplishment of objectives. It formulates general plans and programs to serve as guides to assist participating agencies in orderly attainment of objectives, and compiles reports on technical subjects of hydrologic nature. Recommendations of the Subcommittee are submitted to the main committee (FIARBC) on hydrologic subjects that are of national importance or beyond the scope of delegated responsibilities.

Accomplishments Listed

The accomplishments of the Subcommittee on Hydrology to date may be summarized as follows:

1. A set of maps covering the United States has been compiled and published showing the location of all existing precipitation stations, stream gaging stations and reservoirs. These River Basin Maps serve many engineering needs in addition to serving the primary purpose of providing an inventory of hydrologic stations.

2. After holding fourteen regional field conferences in 1948, a comprehensive network of precipitation and stream-gaging stations was planned to meet the common needs of all federal agencies. A list of the additional stations needed, with priority ratings, was published by the Subcommittee and forms a basis for a comprehensive plan for expansion of the network of hydrologic stations.

3. A guide bulletin entitled, "Instructions for Compilation of Unit Hydrograph Data," was published to systematize the compilation of unit hydrograph data urgently needed for many engineering determinations involving considerations of streamflow.

4. A bulletin entitled, "Inventory of Published and Unpublished Chemical Analyses of Surface Waters in the Western States," was prepared and distributed by the Subcommittee.

5. The Subcommittee has served as an advisory group to the Interdepartmental Radio Advisory Committee in the assignment of radio frequencies for use in the transmission of hydrologic data, and was instrumental in having certain frequency bands reserved for hydrologic purposes. The Subcommittee reviews all requests for frequency assignments for hydrologic purposes and submits recommendations for approval or disapproval to the Interdepartmental Radio Advisory Committee after appropriate coordination between agencies. The Weather Bureau has been responsible for the coordination of these requests within the Subcommittee.

Current Projects

At the present time the Subcommittee is preparing an Annotated Bibliography on Hydrology for the years 1941 through 1949. The American Geophysical Union, through the voluntary efforts of a committee within the Section of Hydrology, prepared annual bibliographies prior to 1941. During the war years it was not possible to continue these annual issues. Accordingly, federal agencies interested in hydrology are doing the job through the Subcommittee on Hydrology.

Another important project

underway at this time is the correlation of Drainage Area Data. In the near future this work will publish a report for the use of all agencies which will outline suggested plans for coordinating drainage area measurements. This is an attempt to eliminate discrepancies in drainage area measurements which currently exist in the publications of various agencies. ■

RETIREMENTS

Ray A. Dyke

AFTER completing 48 years and 7 months of service with the Bureau, Ray A. Dyke retired October 31, 1951, at the age of 70. For the last eight years Mr. Dyke was Meteorologist in Charge of WBO, Lincoln, Nebraska; before coming to Lincoln he was supervising district forecaster at New Orleans, where he was stationed from 1915 to 1943.

During his service with the Bureau, Mr. Dyke made several contributions to the literature of forecasting, and did extensive work (unpublished) on the climatology of freeze hazards.

Between the time he entered the Bureau (at St. Louis in 1903) and his assignment to New Orleans, he was stationed at a number of Bureau offices, including Galveston, Wilmington, Burlington, Vicksburg, Charleston, and Norfolk.

Mr. Dyke's new address is 1413 Third Avenue
Laurel
Mississippi. ■

Raobs Discontinued

EFFECTIVE December 1, 1951, the radiosonde programs at Toledo, Ohio and Albany, New York were discontinued. Pibals will be taken in lieu of the discontinued rabals. ■

HINTS FOR SERVICE IMPROVEMENT

Blue Lines

● A recent employee's suggestion received at the Central Office describes the use of blue latitude and longitude lines on newspaper weather map bases to facilitate drawing of isobars and fronts over water surfaces. Use of non-photographic blue in preliminary sketching of isobars and fronts over land surfaces was also suggested. This procedure makes it unnecessary to erase the original sketch lines prior to reproduction of the finished chart, as the blue lines do not show up in the completed map. Although this idea as it applies to preparation of local newspaper weather maps concerns only a few local Weather Bureau offices, the suggestion is given here because of its application in other cases where photographs are made from preliminary sketch material of one kind or another. □

Wiping Cloths

● IT has been suggested that stations needing wiping cloths will find that purchase of Item No. 27-C-2742-215 from Federal Supply Service will serve their needs and avoid necessity for the regional offices' purchasing 50-pound bales which must be broken up and repackaged for issue to stations. This will result in a considerable saving of labor.

A package of the item mentioned should be sufficient for the average station's requirements for a year, and sells for approximately $2.39. It has the same wiping characteristics as chamois; it leaves no lint, is moisture absorbent, and may be washed with soap and water and reused. ■

NEW METEOROLOGISTS IN CHARGE

Nome, Alaska

DONALD T. VAN OSDOL, General Service Meteorologist at Great Falls, Montana, is the new Meteorologist in Charge at Nome, Alaska, replacing Earl B. Clark, who has transferred to Little Rock, Arkansas, as professional assistant.

Mr. Van Osdol has been a commissioned member of the Weather Bureau since 1946, when he began work at Medford, Oregon; previous to that time he had served three years as an Airway Observer at Eugene, Oregon, from 1938 to 1941; and three years in the Army Weather Service. He went to Great Falls in 1948 as supervising observer, and became a General Service Meteorologist in 1950. □

Burlington, Vermont

JAMES E. STORK, Field Aide headquartered at Chicago, Illinois, assumed the duties of Meteorologist in Charge at Burlington, Vermont, on November 11, 1951, filling the position left vacant by the retirement of Milton W. Dow (TOPICS, July, 1951).

Mr. Stork has been with the Bureau since 1931, when he began work in the Knoxville office; since then he served at Pittsburgh, Muskegon, and Columbus, Ohio, before going to the Chicago Regional Office. ■

WEATHER BUREAU

TOPICS

FEBRUARY
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Volume 11 Number 2

WEATHER BUREAU TOPICS is published monthly to inform all employees about newsworthy operations and work programs of the Bureau; to give background on instructions; to carry news of new personnel assignments, retirements, deaths, and similar information about employees; and to serve as a medium through which ideas and views may be exchanged to promote efficiency and teamwork in attaining our common goals. While the contents, unless otherwise specified, reflect the Central Office viewpoint, they are not instructions but are presented for information. Opinions, discussions or comments by readers are invited; they should be marked for the attention of the Editor, TOPICS. WEATHER BUREAU TOPICS is distributed for official use only.

Volume 11 Number 2

Bureau Officials Reappointed to Technical Committees

FOUR officials of the U. S. Weather Bureau have been reappointed to technical subcommittees of the National Advisory Committee for Aeronautics for 1952. They are: Dr. F. W. Reichelderfer, Chairman of the Subcommittee on Meteorological Problems, and a member of the Committee on Operating Problems; Dr. Ross Gunn, Subcommittee on Meteorological Problems; Dr. Harry Wexler, Subcommittee on Meteorological Problems; and B. C. Haynes, Subcommittee on Icing Problems.

In making the announcement, Dr. J. C. Hunsaker, NACA Chairman, noted that the 400 aeronautical leaders so honored would be of "material assistance" in formulating the NACA's research programs to provide information required for the design of superior aircraft and missiles.

Appointees serve in a personal and professional capacity without compensation. Recognized for their leadership in a special field, they include engineers from the aircraft industry and the airlines, scientists from universities, and experts from the civil and military agencies of the Government most concerned with aeronautics.

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THE COVER

is neither a picture of a man from Mars nor a member of the Space Patrol but merely an observer at Mt. Washington (see page 26) properly garbed to read the instruments.

Economy in the Weather Bureau

ONE of the regular responsibilities of the Central Office is the evaluation of the Bureau's service and operational programs in an effort to determine where adjustments and curtailments can be made without serious effects on activities essential to the public welfare. During the past few months this responsibility has become increasingly important because of the economy drive. Evaluation of services and curtailment of staff and facilities are extremely difficult because of the ever-increasing demands for all kinds of weather services. In general, demands have always far exceeded the Bureau's capacity to meet them. Nevertheless, additional economies must be effected to reduce the Bureau's overall employment about 115 positions below the level of a year ago.

Reduction in employment is being accomplished gradually in three ways: (1) Reduction in station staffs through rearrangement of workload (e.g., installation of facsimile, etc.), but without major program changes; (2) Reduction in hours of operation at selected stations where nighttime observations essential for aircraft operations can be taken by airline personnel; and (3) By reduction in the number of administrative employees, including those at the Central Office. Reductions have been primarily by leaving vacancies unfilled, and not by forced separations from the service.

In the first category, approximately 30 positions have been dropped from the complement for field stations. Of this number of positions, approximately 25 were occupied, thus necessitating transfers to other active vacancies. In the second category, the hours of operation are being reduced at 25 stations, resulting in complement reduction of 65 positions and a reduction of approximately 35 employees. At the Central Office there has been a decrease of 30 employees during the first six months of this fiscal year, while at the same time approximately 20 positions which would normally be filled have been held vacant. Practically all of these reductions have already been accomplished.

From the foregoing compilation, it will be seen that there will have to be further reduction of approximately 25 employees during the next two months. To accomplish this, consideration is being given to greater use of facsimile equipment; further curtailment of hours of operation at a few field offices; further reduction in employment at the Central Office; development of an automatic weather station which may be used to advantage in mountainous areas; more widespread use of self-briefing displays and automatic telephone equipment; and by generally encouraging supervisory personnel to exercise the continued use of the best possible management techniques.

In order to keep curtailments to a minimum, other costs will be decreased by reducing travel of Field Aides, Electronic Technicians, and officials of the Central Office and Regional Offices, during the remainder of the fiscal year. Furthermore, wherever possible, purchase of supplies and replacement of equipment will be deferred. Even with these economies, the total expended for items other than salaries will slightly exceed that spent last year because of increases in communication and freight rates plus the current trend of higher costs for all commodities.

As mentioned in the first of this series of articles in the January issue of TOPICS, station staffs have been curtailed to the point where there is barely time to perform required observational and other routinely scheduled duties. This places a severe handicap on the station to maintain public service programs, and during critical weather situations the workload far outruns the capacity of station staffs. This means that station personnel must at all times give first consideration to providing the greatest number by dissemination of weather information by radio, press, and automatic telephone devices, rather than to attempt to answer the individual telephone inquiries. The unfailing courtesy of Weather Bureau employees, a characteristic long recognized by many of our strongest supporters, will aid greatly in keeping the good will and understanding of the public when telephones cannot always be answered or office callers cannot always be accommodated promptly. In general, a courteous statement explaining the necessity for the performance of a scheduled duty such as taking an observation will be understood and accepted by persons visiting the office to seek some type of weather information when it is pointed out that "dead-line" work must be performed promptly to meet national communication schedules. (Usually a courteous request to be excused "while I take a weather observation to meet the teletype deadline" will be sufficient.) Every effort should be made to utilize self-briefing displays for pilots and to otherwise arrange the office lay-out so that weather information or forecast material can be reviewed with a minimum of assistance from the employee. ■

Motor-Driven Psychrometer

SINCE the observer can actually watch the wet bulb and take the reading at the lowest point, more accurate and uniform readings are possible with a new, motor-driven psychrometer aspirator, approximately 100 of which have been installed within the past three months at stations using the small standard type instrument shelter.

Some stations have expressed the opinion that the observer's standing in front of the shelter affects the readings.

It is known that, at temperatures above 50° F., the effect of body temperature is definitely negligible; however, this effect increases as the air temperature becomes lower, especially when the air is calm, and at increasingly lower temperatures the observer should not remain near the thermometers any more than is absolutely necessary.

This body effect with low temperatures has always been present; some reports from the field appear to indicate that this effect may be greater with the experimental motor-driven aspirator than with other types of equipment. The Instrument Division is attempting to evaluate the distortion produced by body radiation, and would welcome reports from field stations on their experiences along this line.

Some observers have expressed concern about the motor being placed outside the shelter in the weather and others are concerned about the "lopsided" appearance the motor gives the instrument shelter.

The motor and blower were designed to stand up in the open weather because it is desirable that the heat from the motor be dissipated outside the shelter where it will not affect temperature readings. Only time will tell whether these motors will stand up indefinitely in the open weather. If they do not, some changes may be necessary.

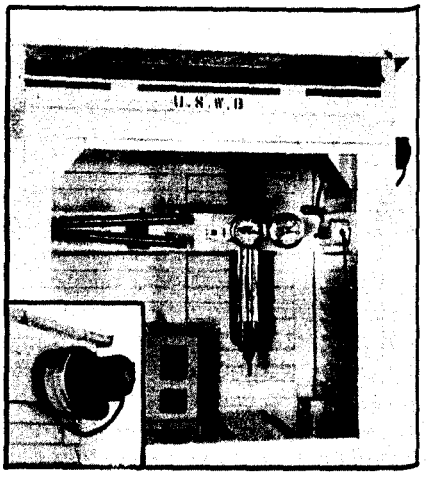
Insofar as the "lopsided" appearance is concerned, the necessity of preventing any heat dissipation inside the shelter was considered paramount to the esthetic appearance.

Some stations had trouble with the fiber duct becoming unfastened either in shipment or when making the installation, due to the hard cement used by the contractor. This situation will be corrected on future deliveries by specifying the type of cement to be used and possibly by changing the type of material used for the duct.

Hooks are furnished with the aspirator kit for hanging the thermometers; however, there is no objection to using screws to fasten the instruments more rigidly to the support to avoid swinging in the wind.

One or two stations have indicated that their motor-driven aspirator has caused radio interference. The Instrument Division would be interested to know whether any others have noticed this condition since they desire to install filters if necessary.

Because it is so easy to watch the temperature rise and fall with this new equipment, it may be possible to sometimes notice the temperature either rise or fall slightly immediately after the motor is turned on. This is because the thermometer was not registering the true temperature of a sample of free air—only the temperature of the stagnant air inside the shelter.



As funds are available, it is hoped that more stations can be equipped with this type of equipment. Similar equipment will be designed in the near future for use in the larger type shelters.

The dial type instruments shown in the illustration are experimental bimetallic maximum thermometers which are being tested at about 25 stations throughout the country. There is every reason to believe that this new type of thermometer will be more suitable for some types of stations because of difficulties that are experienced with the liquid type of thermometers. ■

Forms Needed

The Central Office Procurement and Supply Section needs pre-cut stencils of two varieties:

Monthly Meteorological Summary No. 14710

Monthly Meteorological Summary No. 14577

Use of these stencils was discontinued in the continental United States a year ago, but the section hopes that some stations may have a supply still on hand. Such stations are urged to send their supply immediately to the Procurement and Supply Section.

ON THE GREAT LAKES

Lengthy Navigation Season in '51

With the thought that the information might prove of interest to field officials, the following excerpts are taken from the summary of 1951 Weather Bureau activities on the Great Lakes as prepared for inclusion in the Annual Report of the Lake Carriers' Association.

The OFFICIAL 1951 navigation season on the Great Lakes was unusually long, extending from March 21 to December 14. This compares with an opening date of April 2 in 1950 and a closing date of December 18. The season as a whole was noteworthy for its lack of severe storms as evidenced by the fact that no whole gale warnings were required during the entire navigation season. The Detroit Weather Bureau Office continued to serve as a collection center for ice information and issued a pre-report on February 26 indicating an opening date of from 10 days to 2 weeks earlier than in 1950. This optimistic prediction was issued and verified in spite of severe winter weather which resulted in ice thicknesses considerably in excess of those reported the previous winter.

The deepest storm of the season was one having a center pressure of 28.82 inches over western Lake Superior on November 14. This disturbance developed on the 12th in the Central Plains region, moved northeastward through the Upper Mississippi Valley to reach western Lake Superior on the 14th, apparently executed a loop in its path over western Lake Superior, then weakened and moved east-northeastward into Canada. Extremely cold weather for so early in the season (-2° at Duluth on November 2) required steaming of ore prior to loading and slowed ore shipments to a trickle in northern ports early in November. On November 8, there were 84 ore boats (an all-time record) in the Duluth-Superior harbor awaiting cargoes. This unseasonably cold November weather was the chief factor in failure to establish all-time record ore shipments on the Lakes in 1951. ■

RECORDS CENTER

RAVU Moves to Asheville

As part of the plan for setting up a National Weather Records Center (TOPICS, November, 1951), the Central Office Radiosonde Verification Unit moved to Asheville, North Carolina, on January 23, 1952.

From time to time, in the past, the RAVU has obtained and furnished to stations clarifications of raob instructions on problems of infrequent occurrence. Now that direct contact with persons in the Central Office to whom such matters must be referred no longer exists, the RAVU has been instructed to forward such questions which reach it, without acknowledgment, to the Central Office. Stations can get quicker action and save a needless operation at the RAVU by sending their questions on raob procedure direct to the Central Office.

Losey Award to SR&F Head

On January 28, 1952, Ivan R. Tannehill, Chief of Synoptic Reports and Forecasts Division, received the Robert M. Losey award from the Institute of Aeronautical Sciences "in recognition of outstanding contributions to the science of meteorology as applied to aeronautics." The award was presented at the Honors Night Dinner of the Institute in the Ballroom of the Astor Hotel in New York.

The award, established in 1940, honors the memory of Capt. Robert Moffat Losey, a member of the Institute and a meteorological officer of the Army Air Corps who was killed at Dombas, Norway, April 21, 1940, while serving as an official observer for the U. S. Army. He was the first officer in the service of the United States to die in World War II.

Mr. Tannehill's citation mentioned his services to synoptic meteorology over a long period of years, his work as Chief of the Bureau's Division of Synoptic Reports and Forecasts, and as President of the International Synoptic Weather Commission, in the interest of aeronautical meteorology and international networks and exchanges, and referred to his published papers, bulletins, and books on meteorological subjects. The award included an honorarium of $200. ■

FAWS-Aviation Forecasting Combinations

TWO more stations have combined their FAWS and Aviation Forecast Activities in accordance with the plan outlined in TOPICS for December, 1951 (page 219). They are: Seattle, Washington, January 3, 1952; and Fort Worth, Texas, January 14, 1952. ■

The Passing of the INSAC

Every Thursday noon in Washington, a group of CAA and WB employees, organized as the "Monument Toastmasters Club," lunch together and exchange views on various topics - some serious and some not so serious. As always, the WB absorbs its share of gibes in these exchanges. Traditionally, it never retaliates in kind; but here, with tongue-in-cheek, a Central Office employee turns the tables.

DEATH comes in many ways. It comes silently to the old man in his bed, violently to a child in the street. But sometimes, as it has to the INSAC, it comes as a mere metamorphosis, as the weary INSAC inhabitant checks his last tape, turns in his last roll of surplus teletype paper to a grief-stricken Weather Bureau observer, and passes on to a higher heaven in TOWAC.

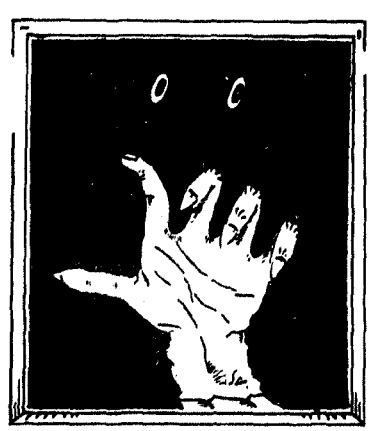
We have fallen on evil days. No gloomier outlook ever faced the surviving Weather Bureau observer who remains to mourn the loss and do the work. Let skeptics claim that the latter is the primary consideration in all this suffering; they who are alive and remain know full well that an administrative coup has torn from their bosom one of the most fascinating species of humanity ever encountered—in an occupation that encounters them all.

It has been said that unless you have seen Niagara, you have never seen a waterfall; unless you have been in Texas, you have never encountered hot air. Equally true, unless you have slipped a weather observation at 4 o'clock in the morning through a little hole in the wall, through which only a pair of grasping hands and beady eyes could be seen, you have never really understood an INSAC inhabitant.

The old INSAC inhabitant fell into several stereotyped behavior patterns. For each of these types, we in the Weather Bureau mourn the loss in a very personal way:

1. There was the school of "You punch the tape too—you got to stay awake to take the .... observation anyway." This was a relatively short-lived species, which died the first night the Weather Bureau employee broke the tape and put his report on "by hand" at flank speed (5 impulses per minute).

2. There was the ex-sailor species, a large and extremely voluble species, which developed a fist for the bug in the merchant marine. At the same time, it acquired a sailor's tastes.... This species thrived especially on the mid shift. At 0200 its hollow eyes took on a sort of fluorescent glow, accentuated by the dark bags beneath them, as this specimen began to feed on the memory of past glories. The voice was harsh and rasping at best, like the grating of an untuned and long-neglected bull fiddle; and it deteriorated as his shift progressed to a final coarse whisper that could scarcely be distinguished from the static on his radio.



3. Then there was the ulcer class—the chronic worriers. This specimen warmed to its task by worrying, side-by-side with the Weather Bureau observer on a dark and stormy night, on what the ceiling really was. It came into its own during a thunderstorm, worrying whether it could hear its call letters being intoned through absolutely impenetrable static, knowing full well that there wasn't an aircraft within 200 miles. And it had its moment of glory sitting rigidly on the edge of its chair, with a hand on the teletype "send" switch, staring at the rapidly accumulating sequence collection, and worrying so hard about missing its proper place in the collection that the crucial moment came and went in stony silence, followed by a burst of blasphemy that would warm the cockles of a mule-skinner's heart.

4. And then there was the roving species, which had some difficulty placing most other things on the teletype, but could slip a bid on the wire for a transfer to another station without flicking an eyelash. The chief characteristics of this species were its difficulty in recalling at crucial moments where it was, and what its call letters were. It habitually startled local pilots by bursting on the Bismarck radio with the crisp and self-assured announcement, "This is Miami radio," followed by a telling pause during which the local pilot marveled at the range of his new receiver, and "it" took a few bearings. It had been everywhere, seen everything, and could do anything (although it had already done it before). But in nothing was it

quite as effective as throwing a few suitcases and 8-10 dependents in the back of the car and starting out for another new station.

These are the kinds of fond and tender memories that the man who has worked in the office next door has cherished for the INSAC inhabitant down through the years. They are rooted in genuine affection. They are memories that cannot be erased by a mere administrative coup, or a new name for an activity. But when the object of one's affections finally moves far away into an azure-colored tower, and leaves one alone with a few empty rolls of teletype paper, a bank of hollow teletypes and an aching heart for a pair of beady eyes, a hairy grasping hand, and a raspy snarl, all framed through a 12-inch hole in the wall, it is indeed apparent that THE PASSING OF THE INSAC has been the most unkind cut of all. ■

EMPLOYEES' INTERCOM

Q. SOME of the airlines operating through this field distributed small Christmas gifts as tokens of appreciation for the services they received during the year. Is it proper for a member of the Weather Bureau force to accept such a token.

A. We know of no clearer statement of the policy of the Bureau and the Department of Commerce than that contained in page 24 of the U.S. Department of Commerce Employee Handbook, a copy of which has been furnished every employee. It says, "Employees shall not accept any gift, loan, gratuitous service, or other things of value from any person or firm with which they may have official relations." As far as we can see, this leaves no loophole. ■

Editorial Pat on the Back

WE have noted over the past several years a very heartening trend toward frequent expression of public appreciation of Weather Bureau services. Field offices send us copies of letters which they receive and a good many editorials or other comments come to our attention. Although we are not able to reproduce all of these, we believe that the following editorial from the Wyoming State Tribune, Cheyenne, is a fair example. While it specifically mentions only the Cheyenne office we are glad to say that a good many other offices have been similarly complimented.

The editorial ends on the note that the public has come to rely heavily on weather forecasting. This is indeed true and the demands for weather service continue to swamp our facilities. This is both a stimulating and a sobering thought on which to start the new year. Stimulating because it means that the good job we are doing is appreciated and sobering because it means that we continue to have an increasing public responsibility in the matter of accurate forecasts and warnings.

NOTE OF APPRECIATION

"As the year wanes this is a good time to hand an editorial bouquet to a public-service organization we could not do without—the Cheyenne office of the U. S. Weather Bureau.

"Here is a group of publicly-employed scientists—we believe that weather observing on the professional scale is a science—which works diligently, 365 days in every year, to prepare and to dispense vital information.

"We of the press have daily contact with the bureau. That contact is never a chore; it is a pleasant experience because of the competence, the good humor, the graciousness of Chief Meteorologist A. R. Lowery and all the members of his staff.

"This organization does much more than provide the newspapers with weather information. Its reporting system is expansive and most thoro, and it also includes the regular, several-times daily appearance of Bureau forecasters on weather forecasting over Radio Station KFBC. These are outstanding programs; they surely must have huge listening audiences.

"THE TRIBUNE knows, of course, that its daily weather table has reader interest unexcelled by any other feature or department of the newspaper. That is demonstrated quite promptly whenever an error, or omission, occurs. So the credit for that table does not by any means belong exclusively to the publishing agent. It should be publically stated that the table would not be publishable without the cooperation of Mr. Lowery, et al.

"In this modest way we want the bureau to know that we appreciate their help, and that we admire their good nature and cooperative spirit. In this we know that we also speak for the public, which has come to rely so heavily on weather forecasting." ■

NEW NAME
Procurement and Supply

TO bring its name more in line with those of other government units engaged in similar duties, the name of the Materiel Section of the Bureau has been changed to "Procurement and Supply Section." Concurrently the Materiel Units of the regional offices became the "Procurement and Supply" Units.

The regional offices and Central Office divisions have been officially informed of the change, which does not affect the organization or functions of the units.

MEET THE DIVISION CHIEFS

Hydrologic Services

ONE of the best things that ever happened to the Weather Bureau was the circumstance that injected into its bloodstream the stimuli—in men and method—of the gospel of achievement called engineering. The portion of our work most clearly marked by this influence and benefit is the branch that handles our responsibilities in hydrology — the Hydrologic Services Division, whose Chief we meet this month: Mr. William Ellis Hiatt, alias Bud.

Born in Indiana in 1910 and raised and educated in his home state, Bud Hiatt is a Hoosier to his fingertips. His quaker heritage, his schoolteacher father who turned farmer, and the influences of the decent earth on which he first walked barefoot all helped in the making of the man he has become — a good American, a swell guy, and a first class Hydrologic Engineer.

Mrs. Hiatt tells us also that he is rather more than merely satisfactory to have around the house, and something in the way she says this makes it final. It often happens that the best thing about a man is his wife, and Mrs. Helen Hiatt is a good example of it. Formerly of Frankfort, Indiana, she is as much a Hoosier as he is. Ex-student of the University of Indiana, and graduate of Purdue, she met Bud at Purdue and began her married life with him in 1935 in Indianapolis. They have two children — Bill, Jr., aged 12, and Anne, aged 7.

Bud took his BS degree in Civil Engineering at Purdue in 1932 and his MS (major, Hydraulics) the following year. From 1933 to 1936 he worked with the U. S. Geological Survey in Indianapolis as an Indiana State Engineer, and from 1936 to 1939 as a consulting engineer with Greely and Hansen of Chicago. In 1939 and 1940 he was Assistant Hydraulic Engineer with the Federal Power Commission, where in the course of an investigation of the economic feasibility of flood control and potential power establishments, he became acquainted with Mr. Merrill Bernard.

William E. Hiatt

Mr. Bernard had a remarkably good eye for men, and from 1940 to 1942 Bud Hiatt served as assistant Hydrologic Engineer for the Weather Bureau at Macon, Ga., and Iowa City, Iowa. For six months during 1942 he returned to Greely and Hansen to assist them in urgent defense projects in Virginia and West Virginia, but late in 1942 he was with the Weather Bureau again as Assistant Regional Engineer at Chicago. Later (1943) he became Regional Engineer at Chicago and served in that capacity until his transfer to Washington as Eastern Area Hydrologic Engineer in 1949. In January 1951 he became Assistant Chief for Hydrology in the C&HS Division, and in October 1951, when the hydrologic functions of the Bureau were assembled and distinguished under the title "Hydrologic Services Division", he was appointed Chief of that Division. For the Weather Bureau this was a logical and well-deserved appointment; for Bud it was the culminating action in a tough string of months in which the loss of two especially important official associates—Ray K. Linsley and Merrill Bernard—had placed an unusually heavy burden on the Hiatt shoulders. Bud not only carried the burden very ably: he gained five pounds doing it.

He is eminently qualified for his job, by training, experience, temperament, and character. He holds, solidly, the respect of his colleagues in other agencies, has represented the Weather Bureau on the President's Water Resources Policy Commission, and has done an outstanding job in clarifying the place and importance of the Weather Bureau in the nation's water resources development program. Further evidence of his responsibility is clear in his participation in the work of the FIARBC Subcommittee on Hydrology, and other committees actively engaged in the Government's work with the complex and highly important problems of national water supply and conservation. His affiliations include membership in the District of Columbia branch of the American Meteorological Society and in the American Geophysical Union, where since 1950 he has served on the Membership Committee and the Committee on Precipitation. He is also a member of the American Society of Civil Engineers in which, both for his work on the Program Committee and his participation as a hydrologist who knows and can talk

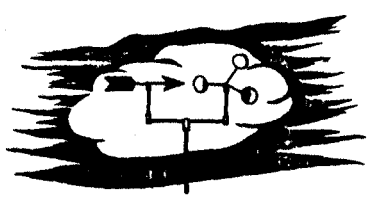
about his business, his papers and and discussions have marked him as a member equal to the challenge and importance of the Society's purposes.

These things, like the general look of his official performance, bespeak an able man; but they don't bespeak a complete one. So, like most healthy brain workers, Bud eases his office strains with hobbies and a moderate exercise of muscles. An expert woodworker, he gets as much fun out of shopping for new tools as he does from building a piano; and the results of his interest in still photography and home movies are already a notable achievement of their kind. In addition, he has an active interest in Civil Defense and the Parent Teachers Association; keeps his body chemistry oozing properly with enough football, tennis, and baseball practice to weary 12-year old son Bill; and is reputed to be the best Monday morning quarterback in the Central Office. Being a Hoosier, he is also a genuine basketball enthusiast and as a big league baseball fan he is equal to the best of them.

Finally:

"The man that hath no music in himself,
Nor is not moved with concord of sweet sounds,
Is fit for treasons, stratagems, and spoils . . .
Let no such man be trusted."

Bud's fitness for successful stratagems is open for discussion, but he is definitely not fit for treasons and spoils, and there can be no question in anybody's mind that he deserves to be trusted. But, just to make sure, he sings in his church choir. ■



Second Advanced Forecasters' Course

DURING the last three months of 1951, a second group of Weather Bureau meteorologists were detailed to attend the Advanced Forecasters' Course at Chicago. Samuel M. Bromberg, Robert O. Reinhold, and Arnold L. Sugg, all of the WBO, Chicago; Jesse R. Gulick, WBAS, Kansas City; Kenneth S. Norquest, WBAS, Washington; and Sidney Teweles, Jr., Short Range Forecast Development Section, Washington, were the six men selected from the Weather Bureau. Three Air Force officers and two Navy officers completed the group of eleven "contract" students who not only attended the regular lecture and laboratory sessions but also worked on individual projects evaluating forecasting rules and aids. A limited number of qualified university graduate students were permitted to attend the regular sessions. Classes were conducted in space provided by the Chicago Weather Bureau Office.

Dr. Herbert Riehl of the University was in charge of instruction. One-hour lectures on modern meteorological topics were presented on three mornings each week. During the remainder of the five long morning sessions, members of the class practiced new methods of analysis, constructed 48-hour prognostic surface and 500-mb. charts, made temperature and precipitation forecasts, and participated in map discussions. These discussions were led by Dr. Riehl during the first three weeks of the course until his methods became familiar to the class. Thereafter, each student was responsible for a number of discussions. The Weather Bureau district forecaster attended these class discussions immediately after completing his morning forecasts and presented the official forecast and the reasoning behind it just before the discussion was thrown open to the class.

After a hurried lunch, the contract students returned to the classroom to work on their special projects. These projects dealt with such varied topics as: (a) steering and changes of intensity of highs, lows, and pressure change centers; (b) forecasting of the 300-mb. chart using special extrapolation methods and a formula for the velocity of an isotach; (c) forecasting of precipitation patterns from the streamlines and vorticity distribution at 300 mb.; (d) association of areas of maximum velocity in the jet stream with cyclogenesis and other lower-level phenomena; (e) quantitative determination of the position of the long waves; (f) determination of regions of dynamic instability; (g) southward penetration of cold fronts.

Throughout the course, Dr. Riehl stressed the desirability of immediate testing of newly developed theories and of "engineering" methods of applying those which stand up under examination. He also emphasized the value of quantitative rather than qualitative rules and relationships in meteorology. He deplored, many times, the preoccupation in meteorology with causes when laws relating one event with another are all that are required in forecasting.

The success of the course was due largely to the cooperation between the University of Chicago and the Chicago Weather Bureau Office. The staff of the District Forecast Center earned the gratitude of all concerned by their cheerful performance of the many extra duties required to provide maps and other material for the class. ■

Facsimile Network Grows

USE by Weather Bureau stations of data transmitted on the National Facsimile Network is steadily on the increase. Circular Letter 17-51 gave background information on the introduction of facsimile and listed nine stations at which equipment was in operation at that time. TOPICS, September, 1951 (page 170) told of the new transmission schedule in effect and mentioned twelve additional locations where equipment had recently been installed. Since that time more stations have written in to request facsimile equipment. At offices where a concurrent reduction in authorized complement was possible, facsimile equipment was ordered. Along with this has been the utilization of facsimile whenever possible to reduce the time spent in hand preparation of charts under the combination of FAWS and Aviation Forecast Units (TOPICS, December, 1951, page 219). A total of 34 Weather Bureau stations now have drops on the National Network or are ticketed for such installation. The stations, together with dates of installation and type of equipment in use, are listed on this page. Equipment is supplied according to several plans as follows: (A) one recorder; (B) second recorder for use as spare or with AS&T unit; (C) automatic start and transfer unit to effect automatic phasing and starting of recorders. Maintenance of facsimile equipment is performed by manufacturers' local representatives during normal business hours.

At 0000Z, January 17, 1952, a revised transmission schedule on the National Network went into effect. This schedule made several adjustments in the transmission time of certain upper level charts; and omitted the 700 mb. and 400 mb. 18-hour prognostic charts, the 400 mb. 36-hour prognostic chart; and eliminated duplicate transmission of the 700 mb. 36-hour prognostic chart.

Up to the present time, it has been necessary to reduce the number of authorized positions at stations where facsimile is installed as a partial offset for the cost. Several comments have been included in recent letters to the Central Office to the effect that at stations where a considerable map program is required the saving due to facsimile is greater than the productive time of one employee. To assist additional stations in evaluating the usefulness of facsimile in their service operations, a trial plan has recently been approved at several places. This consists of installing facsimile equipment for a trial period of

Station	Date Installed or ordered	Equipment
WBO, New York, N.Y.	5/4/48	A, B
WBAS, Newark, N.J.	7/1/48	A
WBAS, St. Louis, Mo.	3/11/50	A
WBO, Chicago, Ill.	5/12/50	A, B, C
FAWS, St. Louis, Mo.	5/27/50	A
WBAS, Nashville, Tenn.	2/16/51	A
WBAS, Omaha, Nebr.	4/2/51	A, B
WBAS, Wichita, Kans.	4/3/51	A, B, C
WBAS, Des Moines, Iowa	4/9/51	A, B, C
WBAS, Detroit, Mich.	4/12/51	A, B
WBAS, Atlanta, Ga.	6/4/51	A, B, C
WBAS, Washington, D. C.	8/15/51	A, B, C
WBAS, Birmingham, Ala.	10/12/51	A, B, C
WBAS, Fort Worth, Tex.	10/12/51	A, B, C
WBAS, Fresno, Calif.	10/12/51	A, B, C
WBAS, Great Falls, Mont.	10/12/51	A, B, C
WBAS, Seattle (Seattle-Tacoma)	10/12/51	A, B, C
WBAS, Minneapolis, Minn.	10/16/51	A, B, C
WBAS, Columbia, Mo.	10/19/51	A
WBAS, Toledo, Ohio	10/26/51	A, B, C
WBAS, San Diego, Calif.	11/17/51	A, B, C
WBAS, Bishop, Calif. (temporary)	11/26/51	A, B, C
WBAS, Ypsilanti, Mich.	12/10/51	A
WBAS, Rapid City, S. Dak.	12/12/51	A
WBAS, Salt Lake City, Utah	12/13/51	A, B, C
WBAS, Tulsa, Okla.	1/2/52 (ordered)	A, B, C
WBAS, Albuquerque, N. Mex.	1/18/52 (ordered)	A, B, C
WBAS, El Paso, Tex.	1/18/52 (ordered)	A, B, C
WBAS, San Antonio, Tex.	1/18/52 (ordered)	A, B, C
WBAS, Boston, Mass.	1/18/52 (ordered)	A, B, C
WBAS, Miami, Fla.	1/29/52 (ordered)	A, B, C
WBAS, Pittsburgh, Pa.	1/29/52 (ordered)	A, B, C
WBAS, New York, N.Y.	To be ordered	-------
WBAS, Topeka, Kansas	To be ordered	A, B, C

about six months whenever an appropriate personnel vacancy occurs. During this period funds saved due to the vacancy are used to pay for the facsimile equipment. Following the trial period the Meteorologist in Charge recommends either retention of the equipment and permanent dropping of the position or discontinuance of facsimile equipment and filling of the vacant position.

At present, facsimile equipment is in short supply and new installations probably cannot be made before July 1, 1952; however, any station interested in further details regarding facsimile should write the Central Office. ■

Another Highway Weather Service

THE ALBUQUERQUE, New Mexico office provides another type of highway weather advisory service. At about 9:00 A.M. each day, the local office of the New Mexico State Police is furnished with a special forecast covering U. S. Highway 66 west through Arizona and east through Oklahoma, and U. S. Highway 85 south to El Paso and north through Colorado. The State Police receive frequent requests from travelers as to the best or safest routes out of Albuquerque. Many of these inquiries relate to expected weather conditions along the highways. The State Police reciprocate by furnishing to the Albuquerque Weather Bureau Office information as to highway conditions, which are included in radio broadcasts from that office and are also available for answering telephone inquiries. Specific highway weather advisories are included in three daily radio broadcasts made directly from the Weather Bureau office. The Motor Court Association and the local Chamber of Commerce have cooperated in informing tourists how and when they can pick up weather broadcasts over their car radios. Although road conditions are sometimes included in these broadcasts, the emphasis is primarily on weather. The State Police are always given credit for furnishing the information on road conditions in order to avoid any implication that the Weather Bureau is responsible for that portion of the broadcast. The State Police and the court and service station operators have expressed much enthusiasm over this new service. ■

Weather for Late Drivers

The WBO at Phoenix, Arizona, advises that a new type of service program was recently inaugurated whereby certain weather information is broadcast between midnight and 6:00 a.m. over a local radio station. We feel that knowledge of this program may be helpful to other field offices and are quoting a portion of the letter from Phoenix which describes the new program.

RADIO Station KOY recently inaugurated a policy of broadcasting throughout twenty-four hours of each day. It is the only radio station in this area that broadcasts between midnight and six o'clock at the present time. The new program was inaugurated during the past two weeks, which is called "The Gear Jammers" program. This is a disk-jockey type of program, but is interspersed with various types of information that would be of particular interest to the truck driving fraternity, as well as motorists traveling during night hours.

The Weather Bureau is cooperating in this program to the extent of furnishing hourly weather and temperature data for a selected group of stations. The disk-jockey works in these weather reports between records, together with road condition reports obtained from the State Highway Department, with special advisories or messages that are relayed from time to time between the truckers and the station.

This program has become very popular during its relatively short existence. Radio commentators and newspaper columnists handling radio material are highly enthusiastic about the program. Full credit is, of course, given to the United States Weather Bureau during each broadcast which contains weather information. Present plans by the radio announcer who is carrying this entire program as a packaged unit call for a similar program distributed over approximately nineteen stations covering the western half of the United States. ■

Instruments Are Expensive

BECAUSE of the present critical fiscal situation, it has been necessary to restrict normal procurement of instrumental equipment. Due to this predicament, stocks of most instrumental equipment items are running below acceptable operating levels. Consequently, it is imperative that requests for all instrumental items be held to a minimum in order that present stocks will last for the remainder of the fiscal year.

The cooperation of all personnel will be necessary in caring for instrumental equipment so that the needs for replacement can be minimized. Many items of equipment which are returned for repair indicate that they have not received adequate care.

Since some of us possibly do not know the replacement cost of equipment, a few examples are tabulated on this page in order that everyone may have a better appreciation of the equipment value.

New Equipment

Because funds for instrumental equipment have been extremely limited, installation of new equipment must be integrated with our replacement program. Some of the newer items we are attempting to furnish are also shown in the table.

These items are being obtained as rapidly as funds will permit and are being issued where the needs of the service are most urgent. Since priority lists have been established for most of this equipment, it will not be necessary to submit stores requisitions. However, if there are extenuating circumstances which make the need for a particular item highly desirable at an early date, a letter of justification should be forwarded to Central Office in order that the requirement may be evaluated.

Sunshine Switches

Because of the poor quality of recently obtained Marvin type mercury switches, it has been necessary to reject a high percentage of the instruments delivered and many of those accepted have become defective within a relatively short period.

It has become so costly to maintain sunshine records with this type of switch that we have discontinued the purchase of the Marvin switches and are substituting the new photoelectric switches described in the June 1951 TOPICS.

We hope to provide new switches at the rate of about fifty a year. However, it may be that some stations will be without a sunshine switch for a period of time, until this conversion program can be fully completed.

In view of these circumstances, it is urged that stations using the Marvin sunshine switch make every possible effort to keep their record complete with present equipment until it is possible to provide one of the new switches and associated relays and elapsed time indicator.

Motor-Driven Aspirators

Over a hundred stations using medium standard shelters (cotton region type) were equipped with

COST OF INSTRUMENTS

Standard

Item	Original Cost	Average Reconditioning Cost
Pyrheliometer bulbs (Eppley)	160.00	*
Theodolites	900.00	80.00
Tipping bucket rain gage	165.00	30.00
Weighing and recording precip. gage	138.00	50.00
Direct reading wind system	360.00	60.00
Standard anemometer	118.00	32.00
Airway type anemometer	27.00	15.00
Helium regulator	21.00	*
Zig Zag magnet assembly (triple register)	145.00	26.00
Microbarograph	145.00	25.00
Hygrothermograph	118.00	25.00
Thermograph	114.00	25.00

New

Photoelectric sunshine switches (See June 1951 TOPICS)		150.00
Motor-driven aspirators (See page 16)		44.00
New type maximum and minimum thermometers	(set)	32.00
Improved precipitation gage		60.00
Remote all-weather psychrometric equipment		300.00
Direct-reading wind equipment		360.00

*Repair usually not practicable

experimental motor-driven aspirators during 1951. (See page 16, this issue.) Additional units will be obtained as funds become available incorporating desirable changes in design based on field experience. Similar equipment will be designed for use in the larger shelter during the coming year.

Thermometers

Experimental bi-metallic dial type maximum and minimum thermometers are currently being tested in the field. One instrument is used to obtain maximum reading and another for minimum temperatures; however, forty experimental instruments with maximum and minimum pointers on the same dial have just been received in the Instrument Division. If these instruments pass inspection, they will be issued for field tests.

Because of so much difficulty with present spirit-filled thermometers, some type of instrument similar to the experimental bi-metallic dial units may eventually be adopted at certain types of weather stations. A more detailed article on these thermometers will be published in a future issue of TOPICS.

Precipitation Gages

Efforts are currently being made to improve both the weighing and recording and the tipping-bucket type gages.

The Instrument Division laboratory has modified two weighing and recording gages to include expanded scales and an enlarged inspection aperture to facilitate their use in determining 6-hourly amounts of precipitation. We hope to furnish new springs and material for enlarged openings to Regional Offices in the near future in order that they may modify additional gages.

Heated tipping-bucket precipitation gages are being used experimentally at Helena, Montana; Albany, N. Y.; Caribou, Me.; and Silver Hill, Md.; to determine if this gage can be used successfully the year around at stations where power is available. As an extra feature, the Caribou, Me. and Silver Hill, Md. gages are connected to electrically operated Veeder-Root counters.

If the heated tipping-bucket gage can be made to operate satisfactorily under field conditions, they might eventually be used at CAA stations using the Veeder-Root counter so it would not be necessary for personnel to leave communications equipment even at 6-hourly observations.

Remote All-weather Psychrometer

Because of the urgent need for remote reading psychrometric equipment which will operate at below freezing temperatures, the Instrument Division has just completed an experimental design of a "remote automatic all-weather psychrometer". This equipment consists of two thermohms, a telethermoscope, one of the new motor-driven aspirators, and an automatic wetting device with built-in heater which moistens one of the thermohms used as a wet bulb. This equipment can be remoted several hundred feet and when the observer in the office presses a switch, the automatic mechanism in the shelter goes into operation. After the wet bulb is moistened and the fan starts, a buzzer signals the observer to take his wet- and dry-bulb readings with the telethermoscope.

For field testing purposes a contract has been awarded to produce two of these units using the laboratory prototype as a model. If this equipment works as well as preliminary tests indicate, additional units will be obtained for use at (1) stations where a suitable exposure is not available near the office, and (2) at CAA stations where it is not possible to leave communication equipment to take psychrometric readings outside.

Direct-Reading Wind Equipment

At long last we believe the newest type direct-reading wind equipment (F420 series) is the best obtainable at a price which the Weather Bureau can afford. Incidentally, all this type of equipment ordered since the beginning of 1951 is guaranteed against faulty design, material and workmanship for a period of two years after installation but not to exceed three years after delivery by the manufacturer.

This equipment is now on the Federal Supply Schedule on the basis of joint preparation of specifications by the Weather Bureau and CAA. This is an outstanding accomplishment since all such equipment purchased by either agency can be connected as a single system. However, several years may elapse before equipment can be completely correlated by the two agencies.

As rapidly as possible, units of the F420 and F420A equipment are being modified so all of the F420 series wind systems will be electrically and physically interchangeable. In other words, various units of any series F420 equipment can be used with any other set as soon as the conversions have been completed.

Fifty sets of F430 systems were originally purchased in 1949 and we will attempt to keep this equipment operating as long as practicable; however, this type of equipment is slowly being shifted to southern stations where it will operate with less difficulty.

One hundred sets of F431 (Windial) equipment which were obtained in 1947 are not entirely satisfactory for Weather Bureau use; however, because funds are not available to replace this equip-

ment, it is being rebuilt under an agreement with the manufacturer and will be used for some time.

The priority list contains over 100 stations that do not have any kind of direct-reading equipment; it will be some time before the F430 and F431 systems can be taken out of service.

A few sets of Gurley wind equipment are still in use. However, they are being retired as fast as possible.

The contemplated change of reporting wind speeds in knots rather than miles per hour, effective July 1, 1952, will require only a small adjustment in the wind speed transmitter of the F420 series equipment. The F430 wind systems will be converted to knots by the replacement of two resistors in the indicator panel. Instructions will be issued in the near future so field aides and technicians can make this change in the field. Correction tables will be necessary for the F431 equipment since it is impracticable to change the dial to read knots. ■

WORK SAVED

Cooperation on Winter Sports Bulletin

THE IMPORTANCE of local officials' maintaining a constant review of station programs has recently come to our attention in connection with the winter sports program. One Meteorologist in Charge, in investigating winter sports reporting facilities in his service area, learned that an organization of business interests had ample funds and personnel to provide the public with a complete reporting service, while the Weather Bureau usually finds it necessary to confine the number of winter sports reports to those representative areas where public demand justifies a special service.

Since the organization was not only willing, but anxious, to furnish winter sports observations to the public, the Meteorologist in Charge was able to arrange for a program in which the Weather Bureau's participation was confined to providing the public with winter sports forecasts. As a result, time previously spent at the local office in collecting reports and disseminating winter sports bulletins is now available for other station activities.

The Weather Bureau has certain responsibilities that cannot be delegated, such as the issuance of forecasts and warnings affecting public safety and welfare, and the collection of basic weather observations for this purpose. However, the winter sports reports are intended primarily to describe skiing conditions, and it is appropriate to secure the cooperation of interested groups in providing this type of public service. ■

MT. WASHINGTON

Observations Under Contract

SINCE 1935 the Weather Bureau has assigned personnel to the Mt. Washington Observatory, New Hampshire, to carry on the weather observational program, including the collection and transmission of observations regarding snow conditions for winter sports and other activities in which the Bureau was particularly interested.

During January 1952, the duties heretofore performed by Weather Bureau personnel were taken over by the Observatory on a contract basis. The contract under which the Mt. Washington Observatory has undertaken certain functions for the Weather Bureau, effective January 1, 1952, provides that Observatory personnel take four primary synoptic (6-hourly) observations and four intermediate (3-hourly) observations daily, reporting these by radio transmission to the Weather Bureau Airport Station, Portland, Maine. At the latter station the reports are placed on the teletype circuit for distribution. In addition, reports of snow conditions at Mt. Washington and at nearby winter sport centers in New Hampshire are collected and transmitted in similar fashion. The Weather Bureau furnishes the equipment for the observations involved in the program. Forecasts for the Mt. Washington area are prepared at the Weather Bureau Forecast Center, East Boston, Massachusetts, and are transmitted via Blue Hill Observatory to the Mt. Washington Observatory for use at nearby sport centers.

An informational article on Mt. Washington will be found on map-back of February 3, 1947. It is interesting to note that observations were made on the mountain by the Signal Corps as early as 1870. They were continued on a year-round basis until 1877, when observations during the winter were discontinued but summer observations were continued for another five years until 1882. After a lapse of nearly 50 years, activities were resumed in the fall of 1932 by the Mt. Washington Observatory Corporation. ■

HINTS FOR SERVICE IMPROVEMENT

To Prevent Jamming

DURING certain weather conditions, static electricity accumulating on teletypewriter paper causes it to stick to the cover of the machine as it passes over the top and down the back, sometimes preventing the paper from "feeding" correctly and resulting in "jamming" and loss of data. At offices where the paper can be torn off regularly the trouble is not usually serious, but it may be very annoying where the only person on duty must be out of the office for extended periods.

Several schemes have been tried to eliminate the effects of static electricity on the teletypewriter paper, but as far as is known here only two of these are practicable. They are passed along for optional use at those stations which have been faced with the problem.

The first plan, widely used at military offices with considerable success, is to attach a short piece of rope tinsel to the cover of the machine so that it will rub against the paper just above the printing line and thus draw off the charge and neutralize the paper.

Another plan, proposed by a Weather Bureau employee, is to insert a piece of cardboard or oilboard under the metal strip forming the "lip" of the paper feed slot and have it extend backward to a few inches beyond the back of the printer, as shown in the drawing. This allows the teletype paper to drop down behind the machine without coming in contact with the cover. □

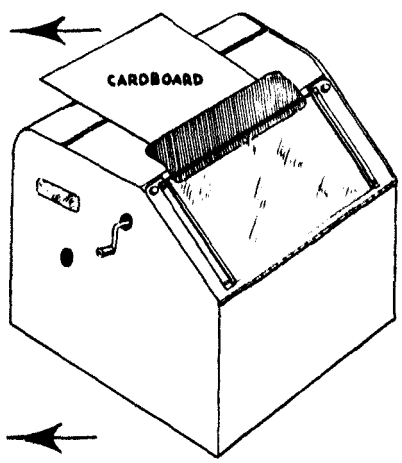
Wax Catcher

AT Pendleton, Oregon, the problem of handling the wax scraped from the roll of the ceilometer recorder, which normally falls inside the recorder or on the top of the observer's console, has been met by making a tray to fit under the recorder roll. For the benefit of other stations that may desire to try the same method, the dimensions of the Pendleton tray follow: 13-3/4 inches long, 5 inches deep, with 1/2 inch sides and a 1-1/4 inch curved front. No back is necessary.

Very light sheet metal or plastic are suggested to those who wish to make such a tray.

Moveable Telephones

A METHOD has been brought to our attention whereby



an extension telephone may be eliminated at some offices while at other offices one or more telephone positions may be added without increasing the number of extensions. This is done by installing telephone outlet jacks at two or more of the part-time working positions and making use of a telephone which can be plugged in at any of these outlet jacks.

At Buffalo, New York, where this system has been tried, outlet jacks were installed in the office of the Meteorologist in Charge and at the observer's console. While several employees were on duty in the daytime, no telephone was needed at the observer's console; however, at night when only one person, an observer briefer, was on duty, his work at the console was frequently interrupted by telephone calls which required him to leave his work and go to some other point. Now the telephone which is not needed in the office of the Meteorologist in Charge at night is placed at the observer's console, and a much more efficient arrangement is effected.

The permanent installation of a bell which will ring whether the telephone instrument is plugged in or not is required on each jack-plug arrangement line. The instrument used may be the conventional type telephone or an operator's headset which has the advantage of leaving both hands free. The new type 52A operator's headsets are very light and do not restrict head movement. There is no recurring cost for the jack and plug arrangement as there is for an extension.

It is suggested that stations review their telephone facilities and determine whether an extension can be eliminated by this method or whether an existing telephone can be efficiently utilized at more than one working position. Field stations should, of course, contact their respective regional offices before making any changes. □

Transmittal Slip

A RECENT employee suggestion proposes broader use of the Transmittal Slip, Form CD-14, supplies of which are already available at regional offices and many stations. As the name indicates, CD-14 was designed to facilitate transmission of material. Although obviously not suited for use when forwarding papers or reports to anyone outside of the Department of Commerce

nor when it is necessary for the transmittal document to carry additional information, it makes unnecessary letters which merely state, "Attached is a report for your information." Careful scrutiny will disclose that, in a good many cases, the attachment itself is self-explanatory and even the CD-14 is superfluous. ■

Teamwork Appreciated

OCCASIONALLY we receive from field offices copies of letters of appreciation for weather services. One such recent letter received at Kansas City shows the usefulness of the direct radio broadcasts in one family's life. Being addressed to Kansas City, this letter naturally deals with their direct broadcast program but it is typical of local reaction to direct broadcasts at many other offices throughout the country. We also feel that these words of appreciation can be shared by all Bureau employees since without teamwork between the many field offices in taking and transmitting observations and forecasts the program at Kansas City would be less effective. (In quoting the following letter, therefore, we should like to add our appreciation to that expressed in the letter, with the conviction that the fine teamwork displayed in 1951 will be continued.)

"You are the folks that I break my neck to hear on every broadcast! I plan my work, trips and social life by what you say. I have written down all your names and you have become such an important help that my family and I feel like you all are personal friends.

"So we decided that in '52 we would like to express our appreciation for this invaluable service and wish you all a 'Happy New Year'." ■

NEW METEOROLOGISTS IN CHARGE

Lincoln, Nebraska

WELBY R. STEVENS, formerly Supervising District Forecaster at WBO New Orleans, took over the duties of MIC at Lincoln, Nebraska on December 9, 1951.

Mr. Stevens entered the Weather Bureau in 1923 at Montgomery, Alabama, where he spent two years as an observer before coming to Washington, D. C. From 1925 to 1935 he served in the Central Office, where he worked for some time as a student forecaster with such outstanding forecasters as C. L. Mitchell and R. H. Weightman, and in 1935 went to New Orleans as a District Forecaster.

In addition to serving as Meteorologist in Charge of the two stations at Lincoln, Mr. Stevens expects that, freed of the pressing, day-to-day responsibility of the position of district forecasting, he can apply his extensive experience in hurricane forecasting to studies aimed at improvements in that field. □

Winnemucca, Nevada

JOHN P. JUNKINS, who recently became the Meteorologist in Charge at Winnemucca, Nevada, came to the newly created position from the Facilities and Observations Unit of the Salt Lake City Regional Office.

Mr. Junkins began his weather career in the Navy in 1941, and served nearly five years as an Aerographer's Mate before leaving the service and joining the Weather Bureau at Portland, Oregon in 1946. He also served at Seattle, and transferred to Salt Lake when the regional office was established there. ■

RETIREMENTS

Ebert L. Franklin

WHEN Ebert L. Franklin retired on December 31, 1951, he was one of the procurement officers in the Central Office Procurement and Supply Section. Mr. Franklin, a native Washingtonian, started work for the Weather Bureau in 1911 as a messenger, and, during the ensuing years, served as a clerk in the Printing Section, the Supplies Unit, and the Personnel Management Division, spending the last few years in the Materiel Section, which recently became the Procurement and Supply Section.

His Bureau service was interrupted during World War I by a little over a year and a half as a civilian employee of the War Department and by two years of military service. He plans to fill his retirement years with Masonic activities, fishing, and the production of handiwork in the workshop at his home, RFD 1, McLean, Virginia. □

Ernest Magruder

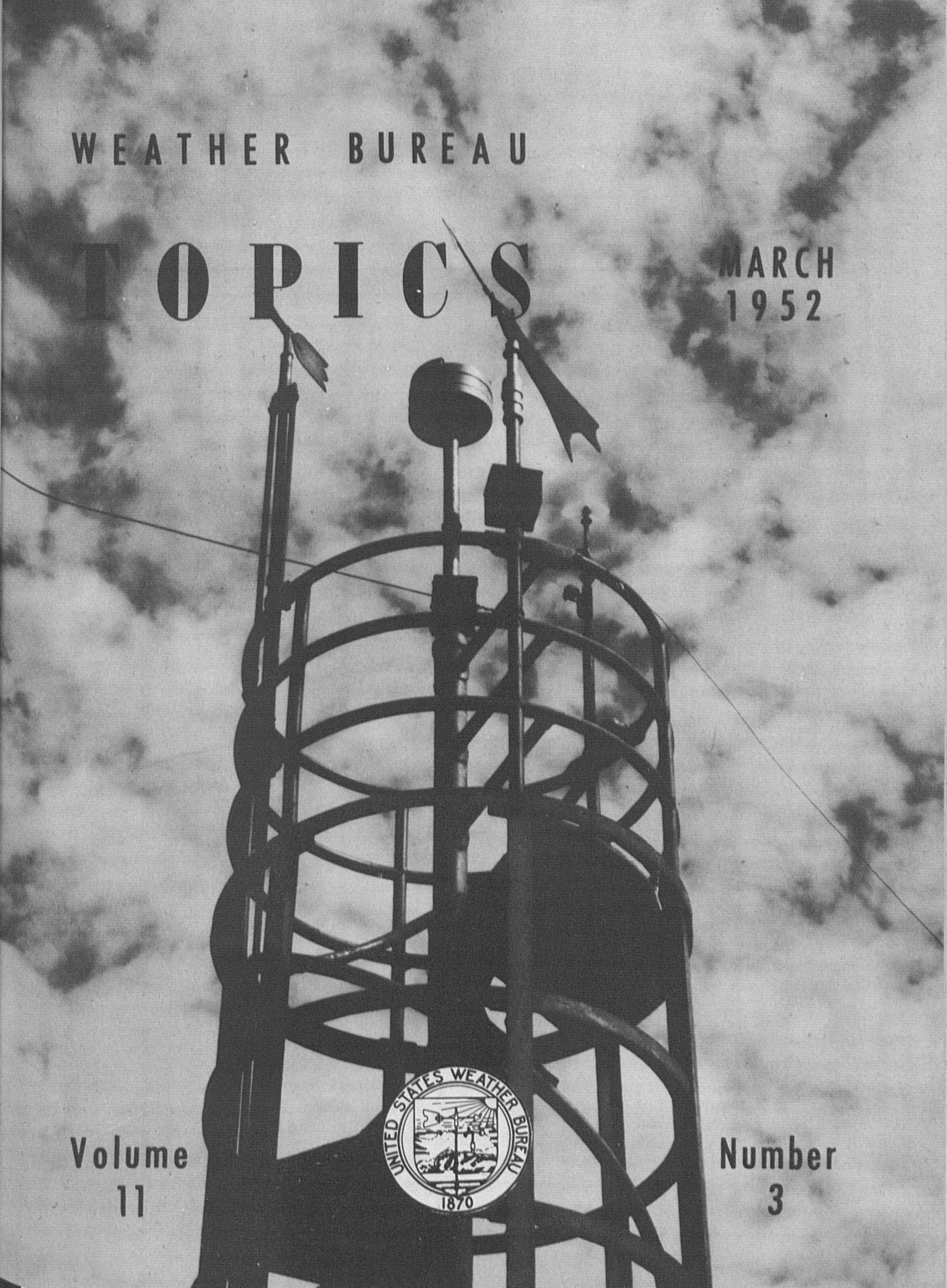
ERNEST MAGRUDER, one of the mainstays of the custodial force at the Central Office, retired on December 31, 1951. "Mac," known by sight to almost everyone in the Central Office, had been with the Weather Bureau for over 29 years, and had been in government service for more than 41 years.

Mr. Magruder was born and grew up in Washington, and will live at 1269 Twenty-third street, N. W. (about two blocks from the Central Office) between fishing trips. ■

WEATHER BUREAU

TOPICS

MARCH
1952



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WEATHER BUREAU TOPICS is published monthly to inform all employees about newsworthy operations and work programs of the Bureau; to give background on instructions; to carry news of new personnel assignments, retirements, deaths, and similar information about employees; and to serve as a medium through which ideas and views may be exchanged to promote efficiency and teamwork in attaining our common goals. While the contents, unless otherwise specified, reflect the Central Office viewpoint, they are not instructions but are presented for information. Opinions, discussions or comments by readers are invited; they should be marked for the attention of the Editor, TOPICS. WEATHER BUREAU TOPICS is distributed for official use only.

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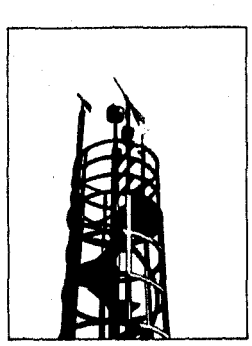
Too Many Contractions?

IT is frequently impractical to adopt new contractions for use on national teletypewriter or intrabureau wire messages. Here is why.

Easily recognized contractions of frequently used phrases, when used on national teletypewriter circuits and in inter-office messages, serve a very desirable purpose inasmuch as they materially reduce the amount of teletypewriter time and paper required for the transmission of forecasts, weather summaries, administrative messages, etc. A considerable number of such contractions have been authorized (Chapter I-F-11, Weather Bureau Manual) and it is now felt that the list, having grown steadily for some time, has reached a point of diminishing returns where further additions will tend to delay rather than assist in the handling of messages.

The task of converting words to equivalent contractions is quite time-consuming to those not thoroughly familiar with the contractions authorized for use. Also, the decoding of traffic containing numerous abbreviations can be quite burdensome. We feel, therefore, that additional contractions should be authorized only if it can be shown that a very substantial saving of money or teletypewriter time will result.



THE COVER

The photograph of the instruments on the tower atop the Administration Building of the Weather Bureau in Washington, D. C., was taken by L. E. Johnson of the Photo Lab of the Printing Section. The anemometer cups were moving too fast to register except as a blur.

An Approach to Economy

EVENTUALLY, the Federal budget must be balanced. All Government agencies have been called upon to cooperate in reducing Federal expenditures. This is a difficult requirement for an organization like the Weather Bureau where public safety and welfare are directly affected and where reasonable demands for more specific storm warnings and other information of weather and climate for public uses are bound to increase. It is a difficult problem also because the Weather Bureau has always operated in an economical manner with little room for a process of "tightening the belt" except with serious curtailment of essential meteorological services.

One way in which the Bureau can meet some of the increasing demands for public weather service without comparable increase in appropriations is through improvements brought out by the Employee Suggestion Program.

The Employee Suggestion Program was inaugurated in the Bureau by Circular Letter 86-47. It seeks active participation by all employees in the program of promoting operating efficiency and improving employee relations. Through these and other methods it aims to accomplish overall economies in the work of the Bureau. Since 1947 several related programs such as the Honor Awards Program, Superior Accomplishment-Salary Step Increases and Efficiency Awards have been added. These have been explained in Circular Letters issued during recent years.

Bureau Complimented

The Secretary of Commerce has complimented the Weather Bureau for its fine record of employee participation in the Employee Suggestion Program. This program offers not only an opportunity for cash rewards to employees who give thought to the ways in which their work is performed and who offer practical suggestions for improvement, but also, and this is perhaps more important to the individual, it affords a feeling of satisfaction for having contributed something constructive and worthwhile towards the improvement of Government performance.

$52,000 Saved

During the calendar year 1951 almost 500 employee suggestions were received, of which nearly 80 were adopted. One suggestion proposed better utilization of Atlantic Weather Patrol personnel by reassigning them to duty in Atlantic Coast ports; another proposed reduction of communication charges in an area where original channels have become obsolete. For the former suggestion, Mr. Joseph L. Kamber received a $100 award; for the latter, Mr. David I. Wise received $40.00. In the period since 1947 the Bureau has made savings totalling almost $52,000 and has issued in return for these savings, cash awards approximating $3,200. In addition to the tangible savings there have been many other benefits from the Employee Suggestion System. Many suggestions effect no monetary savings but are reflected in an increase of service to the public through the focusing of attention on more important duties and curtailment of the less important.

As part of this emphasis on more important things, the Central Office has encouraged full use of press, radio and other general means for dissemination of weather information to the public with less time given to individual inquiries. The automatic telephone announcing system in use in some of the larger cities for repeating the Bureau's forecasts has been very helpful in getting this information to the individual whenever he desires without taking the time of Weather Bureau personnel to answer individual phone calls. It is obviously impossible for the Bureau to answer all possible calls from individuals. Station officials have been encouraged to reduce the number of listed telephone lines as a means of curtailing individual requests for the regular published forecast.

Comments Appreciated

Items of interest in relation to this subject have been published in TOPICS from time to time under the heading "Hints for Service Improvement." The Central Office always welcomes comments and suggestions from field personnel concerning better operating methods and these suggestions are always given careful review by the Employee Suggestion Committee. Naturally, not all suggestions can be adopted—often there are insurmountable practical difficulties which are not apparent to the one who makes the suggestion. But constructive ideas for improvements in administration, operating methods and services to the public are always appreciated; and if your first suggestion is not adopted, remember that some of the best so far received have been the result of a third or fourth try! ■

Regional Committees of FIARBC

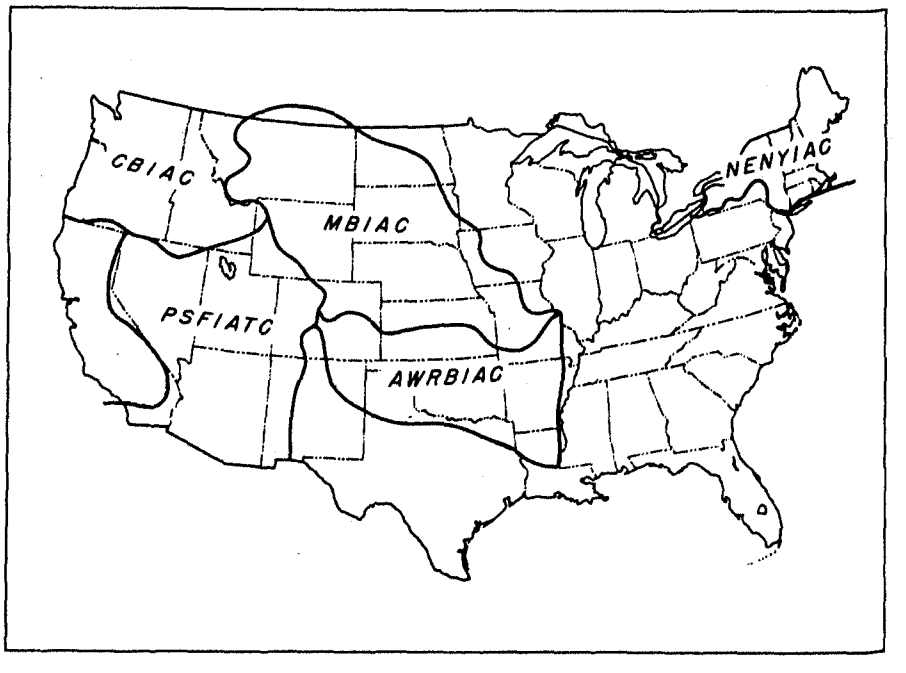
THE REGIONAL committees of the Federal Inter-Agency River Basin Committee (FIARBC) are established to implement the policies and purposes of the Federal committee by providing a means through which the field representatives of the participating Federal agencies and the states involved may effectively coordinate water-resources development activities. There are now five such committees: the Missouri Basin Inter-Agency Committee (MBIAC), the Columbia Basin Inter-Agency Committee (CBIAC), the Pacific Southwest Federal Inter-Agency Technical Committee (PSFIATC), the Arkansas-White-Red Basin Inter-Agency Committee (AWRBIAC), and the New England-New York Inter-Agency Committee (NENYIAC). The areas covered are shown in the accompanying map.

Membership consists of the field representatives of the Departments of Army (Corps of Engineers), Interior, Agriculture, and Commerce, the Federal Power Commission, and the Federal Security Agency. CBIAC also includes representation from the Bonneville Power Administration. Except in PSFIATC, whose present activities are more technical than developmental, the membership also includes Governors of the various states involved.

THE magnitude of the regional committee's undertaking is indicated in the authority for AWRBIAC given in Title II of the Flood Control Act of 1950: "... with a view to developing comprehensive, integrated plans of improvement for navigation; flood control; domestic and municipal water supplies; reclamation and irrigation; development and utilization of hydroelectric power; conservation of soil, forest and fish and wildlife resources; and other beneficial development and utilization of water resources including such consideration of recreation uses, salinity and sediment control, and pollution abatement as may be provided for under Federal policies ..." The need for coordination to assure complete coverage, to assure utilization of common basic information, and to avoid duplication of work is self-evident. The following are examples of coordination with which the Weather Bureau is directly concerned. Work on flood-control planning requires that arrangements be made to avoid duplication of flood-damage surveys and to use instead the same basic data on past floods. Possible solutions to flood problems should include consideration of the effect of land treatment, minor structures, flood forecasting, flood plain zoning, etc. Reporting networks should be organized to meet all needs but without duplication of facilities.

AS in the FIARBC, various work groups and subcommittees are established by the regional committees in order to achieve the necessary coordination at the working level. In addition, most committees hold regular monthly meetings, rotated from state to state and always open to public and press. Representatives of local interests and the public at large thus have an opportunity to learn about the over-all basin development program and its effect upon their community. Programs of the various agencies, survey reports, and proposed plans are presented at these public meetings. The result is a democratic type of educational process in which the specialist becomes more civic minded and the layman more at home among the technical planners for his future.

On occasion the Weather Bureau representative acts for the Department in the over-all committee, but the Weather



Bureau's principal activity is in the various subcommittees and work groups. The greatest demand on us has naturally been in the basic-data field. We have at all times the obligation to make known to all groups the hydrologic and climatological services performed by the Weather Bureau, but there are also specific compilations required and for the latter we have had to enlist the assistance of both field and Central Office personnel. For AWRBIAC, we have compiled a Climatological Data Inventory listing the names, locations and periods of record for all types of meteorological stations, past and present. We are now preparing a similar inventory for NENYIAC. Climatic summaries, isohyetal maps, evaporation and evapo-transpiration maps are other items required in the same category.

THE topographically adjusted isohyetal map, as developed in Weather Bureau Technical Paper No. 4, has received especially favorable recognition and we are working on such a map for NENYIAC. This is a step far beyond the collection and tabulation of data and a responsibility which the Weather Bureau should shoulder. Another item in the analytical development of basic data is illustrated in our contribution, for MBIAC, of a report on "Hydroclimatic Data as Index to Water Supply," included in a subcommittee report on adequacy of flow. Water supply was shown to bear a close relation to precipitation in the area, and past data were used to estimate the frequency of future deficiencies in precipitation and therefore in water supply. This type of analysis is obviously fundamental to water-resources planning.

In inter-agency discussions and planning the Weather Bureau has not felt that its designation as a "basic-data" agency tells the complete story, although the name serves adequately in separating the Bureau from the group of "construction" agencies. Some of our analytical functions are illustrated in the preceding paragraph. In addition, we assist in the planning of the reporting network that will eventually make available to all agencies sufficient synoptic reports of hydrologic and meteorological data for flood forecasting and the operation of water-use and control structures. This has been a very urgent problem in CBIAC. We have obtained general agreement to the policy that, while these networks are supported by funds from all using agencies, they should be managed by the Weather Bureau, as is the national hydroclimatic network.

ANOTHER principle for which we are seeking and obtaining recognition is that flood forecasting—a Weather Bureau responsibility by statute—is a form of flood control or flood management. This involves more than stress on the need for flood forecasts in the operation of flood-control structures or multiple-purpose structures. It is based on the definition of flood control as the elimination or reduction of damage by floods. It is obvious that preparation of temporary works such as sand-bag barricades, the removal of objects to a safe location, and evacuation of residents depend on river forecasts. Further, there are many localities where physical conditions or costs, or both, make the installation of flood-control works infeasible; there, flood forecasting is the only control possible.

Many field officials have already been called upon to participate in meetings or assignments arising from our cooperation in these regional committees, and more will be called upon to do so. Some of those who have participated more frequently are: E.S. Ellison, WBO Portland; A.J. Polos, RFC Portland; V.W. Rupp, Western Area Hydrologic Engineer, Sacramento; W.T. Wilson, Physicist, San Francisco; Verne Alexander, North Central Area Hydrologic Engineer, Kansas City; R.J. MacConnell, South Central Area Hydrologic Engineer, Fort Worth; P.R. Jones, RFC Tulsa; E.C. Johnson, WBO Albany; W.E. Maughan, WBO Oklahoma City; Marvin D. Magnuson, WBO, Huron; and A.W. Cook, WBAS Denver.

Hours of Operation Reduced

IN the article "Economy in the Weather Bureau" (TOPICS, February 1952) it was mentioned that hours of operation of a number of stations were being reduced to enable the Bureau to bring its employment within a figure that could be supported by current appropriations. As of March 1, 1952, the following stations have reduced hours to the times shown; an approximately equal number of other stations is still under consideration for similar reductions. Times given are local standard.

Florence, S.C.	0730-0030
New Haven, Conn.	0700-1700
Petersburg, W.Va.	0800-2000
Spartanburg, S.C.	0600-2200
Clayton, N.Mex.	0500-1300 and 1600-2400
Raton, N.Mex.	0200-1800
Rome, Ga.	0600-2200
Victoria, Tex.	0500-2130
Dubuque, Iowa	0500-2100
Marquette, Mich.	0600-2315
Terre Haute, Ind.	0530-2130
Beaumont, Calif.	0600-2200
Blue Canyon, Calif.	0600-2200
Flagstaff, Ariz.	0700-2330
Meacham, Ore.	0600-2200

The MIC's Responsibility

Weather Bureau activities and interests vary so widely from place to place and from time to time that station staffing patterns and MIC responsibilities are far from uniform. There is no such thing as a typical or standard office. On the other hand, certain basic jobs are common to many stations and certain responsibilities are common to all MIC's. One of these is discussed below.

IT is obvious that no one can be an expert in all WB jobs—rawinsondes, pibals, surface observations, forecasts, briefing pilots, radio broadcasts, etc. At the same time, there must be someone at each station who can see that these jobs are done properly. This man is the Meteorologist in Charge.

As a general statement, we say, "The MIC should spend his time doing the most important jobs on the station." Like all general statements, the value of this one is limited. Again we can generalize and say, "The MIC is directly responsible for seeing that his station remains 'on top of the weather' so that the Bureau's fundamental jobs are done properly." But how does the MIC meet his basic responsibility?

How Is It Done?

First, he does certain jobs himself.

Second, he delegates the authority and responsibility for other jobs to assistants who are now qualified.

Third, he maintains a training or guidance program which will help his assistants become better qualified for their present jobs, and which will also help them become better qualified for new and more important jobs.

In this article, we wish to stress the third of these, because the future of the employee and, indeed, the very future of the Weather Bureau depends upon how successfully the MIC performs this part of his job. It is essential that each MIC take a broad view of his station and of the Bureau's programs as a whole. Many of his assistants of today will be the MIC's, forecasters, research specialists, etc. of tomorrow.

Often the first contact a prospective candidate for employment has with the Bureau is the initial interview with an MIC. It is obvious that every MIC should be sufficiently interested in such candidates to devote enough time to the interviews to be reasonably certain that the applicants have proper qualifications for the positions they are seeking. He should be as careful in interviewing candidates for jobs in other offices as he would be if the job were in his own office. The MIC might well ask himself, "Would I want this man in my office?" Also, "What is the potential ability of this applicant? How far will he progress in five years? 15 years?"

Indoctrination Program

Once a new employee is assigned to his station, the MIC is responsible for seeing that this new man gets off to a good start. There should be a definite indoctrination program; the history of the Weather Bureau, its organization, programs and aims should be described. At the beginning, emphasis would have to be on the duties assigned to him. Later, the new employee should be encouraged to start learning about all of the jobs on the station. As he learns, he should be given opportunities to work at these other jobs.

In many ways the MIC will need a similar familiarization program for employees transferred from other WBO's. In addition, the MIC and his staff have an opportunity to learn from this man who has been working in other offices. The MIC should encourage him to suggest new or better ways of doing various jobs around the station, emphasizing that his suggestions will be given serious consideration. When the suggested ideas are not suitable for local use, the reasons for not adopting them should be explained.

Suggestions Should be Encouraged

Not only the newly appointed or transferred employee but all employees should be encouraged to offer suggestions. If the idea results in economy, or if it might be useful to some other station, the suggestion should be submitted to the Central Office. If an employee's suggestion helps improve efficiency, the employee should receive recognition. Local weather studies and other types of research should be actively encouraged by the MIC; he should give as much assistance as possible to the extension of such projects.

A device used at many stations to help in career development and to improve station operations is the periodic or occasional meeting of staff members. Some large forecast offices hold daily map discussions. A number of smaller stations might gain if there were a fixed period each day for weather discussions. Staff meetings should be held from time to time as they pre-

sent an opportunity to discuss general Bureau policies and local station procedures. Small stations probably should hold staff meetings fairly often so that everyone can participate in discussions of new observing and forecasting techniques, of publications of interest to weather personnel, and of ways of improving station operations. While larger stations should hold occasional staff meetings, work group meetings may present a better opportunity to discuss such questions and the MIC should take an active part in organizing meetings within the various work units at the station.

AMS Meetings Worth While

Work schedules frequently make such meetings difficult to arrange, but even though the schedule limits their number and the attendance at individual meetings, it should not be allowed to prevent all meetings. Scheduling meetings at shift-change times will frequently allow greater attendance. The MIC and all employees should also attend, as often as possible, meetings of the AMS and other organizations in fields related to weather.

Limited appropriations have always made it difficult for the WB to maintain a fully adequate training and guidance program. Despite this difficulty, many useful training and educational aids have been prepared and distributed. Several correspondence courses in meteorology and related subjects have been given. A large number of employees are working on the Briefing Course now. A number of special training manuals have been prepared. The MIC is expected to know of these aids, to encourage their use and to assist employees as much as possible. In addition, every MIC should call to the attention of the Central Office any weaknesses in such aids and should offer suggestions for improving them.

Help in Increasing Education

The Bureau has regularly encouraged employees to improve their qualifications by attending on-campus classes or taking university correspondence courses. Many MIC's have been of considerable help to employees; special work schedules have been arranged and other things done to enable employees to attend school. It is as important as ever that we continue to encourage this type of work—every MIC should recognize the value of academic training to the employee, and, where practicable and without creating hardship on other employees, approve such special work schedules.

Interchange of duties is still another way to increase the ability of employees and help them qualify for promotions. The Bureau encourages such interchanges within reasonable limits. Although job descriptions will not permit full and completely free interchange, they do give the MIC considerable freedom. Interests and abilities of the employees will obviously limit interchanges, but the most important limiting factor is the public; experimentation and training cannot be allowed to affect seriously the quality of our service to the public. As far as possible, within these limits, assignments of duties should be made so that they broaden the experience and ability of all staff members, including the MIC. These assignments and interchanges of duties are parts of the problem of delegation of authority and responsibility which is a major problem for MIC's.

Difficulties Realized

The Central Office is fully aware of and concerned about the serious staffing situation at field stations. Station workloads in many cases continue to increase, but our ability to provide commensurate staff is severely handicapped. This makes it even more difficult for the MIC to carry on a training program. At the same time, the importance of the training increases. The MIC must do all he can to overcome these handicaps; he should as far as possible help employees become better qualified for their present jobs and also take thought to help them become better qualified for new and more important jobs. While the burden of leadership in these matters falls on the MIC, every employee should realize that accomplishment along these lines is a cooperative matter, and that generous assistance to each other is the foundation for self-advancement. ■

Storm Warning Network Proves Value

A RECENT report from Shreveport, Louisiana, mentions that "For the second time in eight days the storm network has made possible the issuance of warnings." On one of the days, a network observer reported moderate hail, and a pilot reported severe turbulence at 9,000 feet to the southwest of Shreveport. The synoptic situation was favorable for severe local storms, and warnings were issued three hours before a tornado occurred twelve miles from Shreveport. Five persons were injured, with buildings and power lines being badly damaged, but no lives were lost.

The Chief has extended congratulations to all in the Shreveport area who are making it possible to issue advance public warnings of unexpected severe storms. ■

Tornado and Squall-line Project Continued

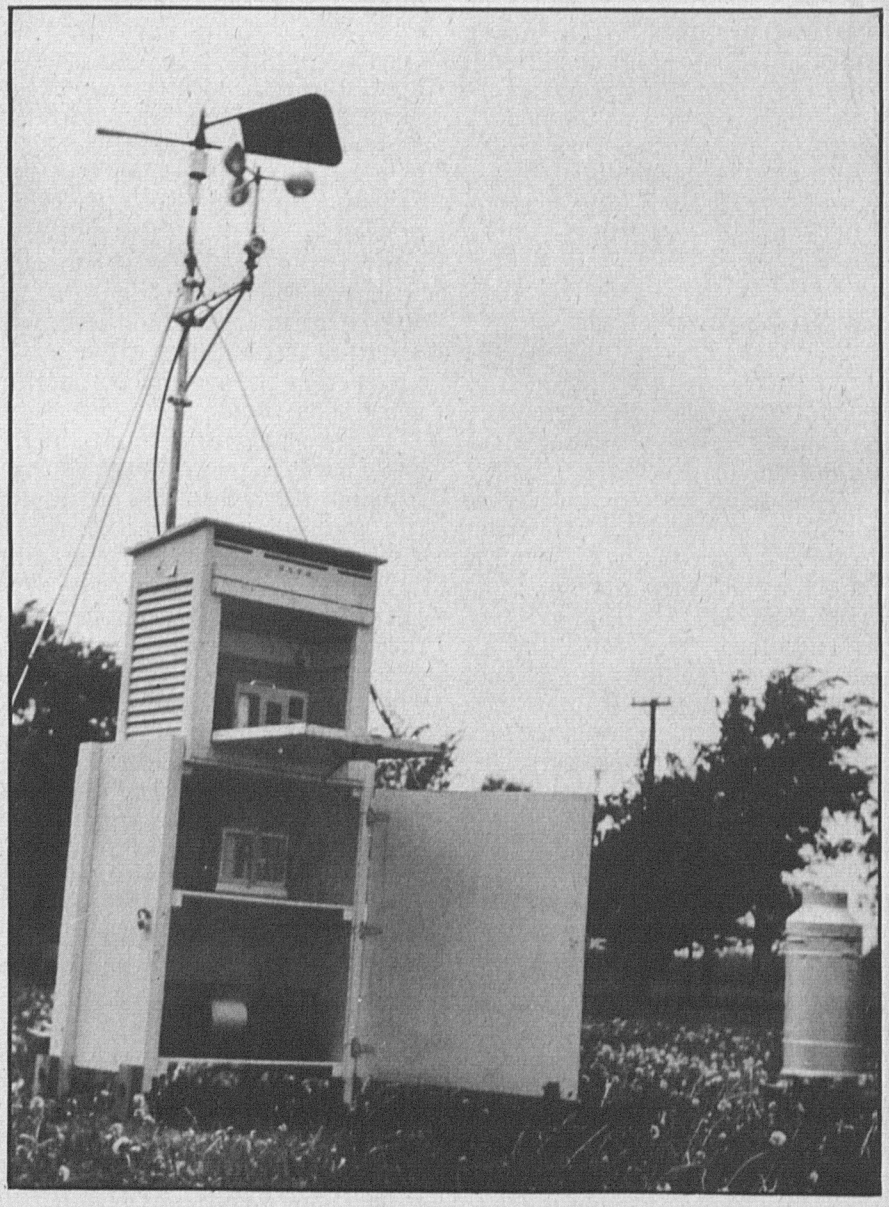
The TORNADO and Squall-line Research Project in the Kansas-Oklahoma area is continuing during the current season, February through August, 1952. As an additional feature this year, the Air Weather Service is setting up a number of special rawinsonde stations in the area.

The Weather Bureau will again have a dense network of surface recording stations centered in the eastern half of Kansas and extending outward in all directions. These stations, which include many regular Bureau offices, will serve in the main to detect the passage of "pressure jumps" and other microdisturbances, and will make use of 12-hour microbarographs. At a number of the stations complete recordings of wind, temperature, relative humidity, and rainfall will also be made.

The upper-air stations at Dodge City, North Platte, Omaha, Oklahoma City, Little Rock and Columbia, will again make special soundings during critical conditions when alerted by Mr. J. R. Lloyd, MIC, Kansas City. The Air Weather Service, through its Tinker AFB headquarters, is establishing special rawinsonde stations at Fort Sill, Enid and Gage, Oklahoma; and at Amarillo, Lubbock and Waco, Texas, which will operate from February through June 15. At that time these stations are scheduled to be moved northward into Kansas and eastern Colorado. It is planned that a station will also be established in central Kansas in the heart of the Weather Bureau surface network.

Radar photographs will be taken at the Bureau stations at Norfolk, Nebraska, and Wichita, Kansas, and at the AWS stations at Oklahoma City, Enid, Fort Leavenworth and Omaha.

Analysis of data for pressure jumps will be made, as before, in the Scientific Services Division at the Central Office under the direction of Mr. Morris Tepper, and general synoptic analysis will be carried out simultaneously in the Shortrange Forecast Development Section, under the direction of Mr. Roger A. Allen and Dr. Frederick G. Shuman.



One of the special recording stations being used in the Tornado and Squall-line Project to record wind, pressure, relative humidity, temperature and rainfall. The station is manned by one of the many cooperative observers enlisted in the Project and records are mailed weekly to the Project headquarters in Kansas City.

Research will continue at the Kansas City Forecast Center under the direction of Mr. Lloyd. The Air Weather Service at Tinker AFB will attempt further refinements of the "Fawbush-Miller" forecasting system.

Mr. Dansy T. Williams will continue as field manager of the Weather Bureau network, with headquarters at Regional Office Kansas City. ■

Issuance of Tornado Warnings

ALL Weather Bureau employees should be familiar with the contents of Circular Letter No. 52-50, dated July 12, 1950, which provides for warnings of tornadoes in official weather forecasts issued by the Bureau whenever the facts make verification of the forecast reasonably certain. At the same time, it is recognized that there must be discretion of the use of the word tornado in order to avoid undue alarm and perhaps panic when such forecasts are issued to the public. It is obviously important to avoid "scare headlines" which would create panic and might cause more numerous casualties than the tornado itself. When specific tornado warnings are issued either on the basis of the synoptic situation or from local storm warning network reports, the wording should be in advisory form and should, if possible, indicate the localized nature. Press and radio should be requested not to issue the warnings in form that would frighten the populace.

The difficulty of forecasting tornadoes with reasonable certainty as to time and place of occurrence is well known among meteorologists, but the general public may not be aware of this fact. In most cases district forecasters have preferred to indicate the possibility of tornadoes by including in the forecast reference to severe or destructive local storms, perhaps assuming that it made little difference to the public whether the disturbance is a tornado or a destructive squall when the winds in such instances reach destructive force. However, in recent years, the public appears to have become more interested in knowing specifically about the occurrence of tornadoes, and forecasters are therefore encouraged to specify tornadoes in the forecasts when occurrence is reasonably certain. It may be noted that the instructions in Circular Letter 52-50 replaced the earlier instructions contained in the old station regulations which lapsed when the Bureau was transferred to the Department of Commerce in 1940.

Several research projects have been directed toward development of better methods for arriving at specific forecasts of tornadoes. In another article in this issue of TOPICS, there is an account of the study of "pressure jump" phenomena, which may bring out certain criteria for forecasting the time and place of occurrence of tornadoes. Forecasters here and in the field have made special studies of tornado conditions; and the District Forecast Center at Kansas City, in particular, under the direction of Mr. J. R. Lloyd, has been working on development of a tornado warning service for that forecast district. This project is regarded as a pilot project, which if successful would be extended to other districts as rapidly as practicable. The well known work of Fawbush and Miller of the USAF Base at Tinker Field has focused attention on the possibilities of tornado forecasting. Further information on this subject will be issued in the future through regular administrative channels. ■

Meritorious Service Awards

FOUR Weather Bureau employees and one former employee received silver medals in recognition of meritorious service in the Department of Commerce annual presentation ceremony on February 19, 1952. These awards (for a complete description see WB Manual, Paragraph I-D-3102) are presented annually to employees whose services have been of unusual value to the Department. The awards this year were presented to:

Harry E. Altman, Meteorologist, SR&F Division, Washington, for his contributions to better management of the Fire-Weather and Winter Sports programs; Joseph L. Kamber, Meteorological Aid, Atlantic Weather Project, Boston (now Placement Officer, Washington), for his contributions to the success of both the AWP and the Arctic Project; Mark J. Schroeder, Meteorologist, Chicago, for his extremely competent performance of the various administrative and forecasting duties as Fire-Weather Official; Miss Helen E. Senter, Clerk-Stenographer, Albany, N.Y., for her extreme competency in carrying out her official duties over a long period of time, and her willingness to go beyond her actual responsibilities in rendering assistance to the public; and Hermann B. Wobus, Meteorologist, WBAN Analysis Center, Washington (now with the Navy Department), for the development and successful application of new ideas and techniques to weather analysis and forecasting. ■

WHAT'S IN A NAME?

The "Phonetic" Alphabet Goes International

THE JOKES about "Roger Wilco" will soon have to be revised, and in the revision they will probably take on a romantic flavor, because Roger has become Romeo.

Most Bureau employees are familiar with the so-called "phonetic" names adopted by the armed forces during the last war to avoid error when things had to be spelled over telephone or radio, or when a single letter had to be transmitted over circuits and garbling would not be noticed; and many a communications man, if asked to recite the alphabet, would automatically start out "Able, Baker, Charlie."

But this alphabet was adopted by English speaking people for use by English speaking people, and contained many words which either are not known to users of other languages or are pronounced differently: Roger, for instance, is "Ro-zhay" to a Frenchman. And there is a definite need, with all the international travel and communications today, for a list that can be used by anyone anywhere.

So a new list of words has been drawn up by a phonetic expert, in which only the letter "V" is still represented by its old name, "Victor." To American ears the new words will sound a bit exotic, or at least romantic—both Romeo and Juliett (the double "t" is there so that Europeans will pronounce it the same as English speaking users) are included, as well as "foxtrot" and "tango." The new alphabet might be considered more democratic, also; both "king" and "queen" have been eliminated.

The new alphabet went into effect March 1 for the U. S. Coast Guard and will be used by ocean station vessels for radiotelephonic communications; they will use the old system upon request, however, until October 1. Other agencies, both national and international, are expected to adopt the new system as it becomes more familiar.

Both the old and new "alphabets" are listed here for comparison:

Old		New
Able	A	Alfa
Baker	B	Bravo
Charlie	C	Coca
Dog	D	Delta
Easy	E	Echo
Fox	F	Foxtrot
George	G	Golf
How	H	Hotel
Item	I	India
Jig	J	Juliett
King	K	Kilo
Love	L	Lima
Mike	M	Metro
Nan	N	Nectar
Oboe	O	Oscar
Peter	P	Papa
Queen	Q	Quebec
Roger	R	Romeo
Sugar	S	Sierra
Tare	T	Tango
Uncle	U	Union
Victor	V	Victor
William	W	Whiskey
X-ray	X	Extra
Yoke	Y	Yankee
Zebra	Z	Zulu

FLOOD DISASTER FUND

Flora Submits Final Report

BELOW is a letter received from Mr. Snowden D. Flora, retired MIC at Topeka, Kansas, and trustee of the Flood Disaster Fund for Weather Bureau Employees at Topeka, Kansas, as a final report on the fund (TOPICS, July, August and September, 1951). Mr. Flora mentions in his last paragraph a detailed tabulation of receipts and disbursements; this report, of course, contains no mention of the time and energy expended with no compensation except the knowledge of a worthy job well done by Mr. Flora and V.V. Phillips, MIC at Wichita, which made the Bureau's assistance possible. We know we speak for the whole Bureau when we express our appreciation for this above-and-beyond-the-call-of-duty-service.

"A total of $6,148.73 was contributed to the Flood Disaster Fund for Weather Bureau Employees at Topeka, Kans., whose homes were so badly damaged by the great flood last July. Contributions were received from 312 offices of the Weather Bureau located in every state and in Alaska, Puerto Rico, Hawaii, and Wake Island, contributions from the latter far away office being especially generous. A number of contributions were also received from retired employees of the Bureau and from other persons familiar with its work and needs.

"The money was a God-send to the families of the four employees who had been left with their homes ruined, no funds for repair or replacement, and no other houses in the city available for rent. Their total losses approximated $10,000. Their homes have now been repaired and they are more grateful than words can express for the generous assistance of their co-workers.

"The funds were distributed on the basis of the relative losses of each family. The only expenses incurred in the operation were for postage, $16, and a few instances of bank exchange on checks, totaling less than a dollar. A detailed tabulation of all money received and disbursements made has been filed with the officials in charge, Wichita and Topeka."

Should I Do That?

Much has been said and written about "job sheets" since the first "reclassification survey" and with the later programs carried out by the Weather Bureau, but Central Office and regional office travellers find that one of the most frequently asked of all questions is: "Should I be doing that? It's not in my job sheet."

ACTUALLY, your job sheet has the same relation to your job that a map of the United States has to the country; it is a chart, a guide to the duties that make up the position. It no more is the position than the map is the United States, and further, as it is the shape of the United States that determines the shape of the map—it is what the employee does and how he does it that determines the job description, and not the other way around.

Both the map and the job description should correspond as closely as possible to what they describe, and when they do they are of considerable use: you can plan a trip or lay out an observing network with the map, and your proper title and salary can be established from your job description.

Now, countries and jobs change. New towns, railroads, highways make a map obsolete, and a flood may temporarily make the road information on it useless. Likewise, a new service demand, a change in scheduling of observations may change the distribution of work at your station, or the same flood may mean that certain duties not in your job description must be done by you or not at all.

When emergencies arise, the answer to the "Should I do that," question is plain. We know of no cases, in fact, where the question has arisen under such circumstances. But where the duties which are not in the job sheet are of a more lasting nature, we must consider the question more deeply.

If the position is altered materially, a new job description is needed; it is mandatory under the Classification Act that the Position Description describe the "facts in the case."

The position description is seldom so detailed, however, that minor changes in duties require a "rewrite." This is merely a recognition of the fact that all positions are fluid; for this reason most job descriptions describe the areas in which your duties fall, the level of your responsibility and the sphere of your authority. And it describes what, at the administrative level, has been decided should be done by the occupant of your job. In this sense the position description can be considered a "mandate" (TOPICS, May 1951); it tells you the minimum expected if you are to do your part in carrying out the Bureau's mission—and, incidentally, to justify your title and salary. It was never intended, however, to be a strait jacket which would keep a station from operating or prevent an employee from developing.

Doing work on other levels than the one at which your job is graded will not affect your job's level unless it interferes with the duties on which the grade is based; and in an operation such as the Bureau's, versatility is a valuable thing. It is handy, if you are a forecaster, to be able to take an observation or plot a map in a pinch, but even more important to your advancement, if you are an observer no one will ever know your capabilities above that job unless you grasp the opportunity, when it occurs, to show that you have the ability to perform more advanced work.

And in the Weather Bureau, as well as in almost any other organization, you usually have to work for a while at a higher grade level before you can have your title and salary boosted. We want the best qualified men for advancement, but how can we tell that you are one of them if you have never done the work? ■

Small Fry Can Learn by Mail

A FEW Weather Bureau positions are in areas outside the Continental United States where no English speaking educational facilities are available in the vicinity for the employee's children. To fulfill the needs of these people and others, such as families of military and diplomatic personnel, accredited institutions offer home instruction courses comprising a complete course of study by correspondence for children of elementary school age. A list of these schools is kept on hand in the Training Section of the Central Office and can be had on request. ■

Quick Rebound

ON February 15, MAL No. 27-52 was mailed to regional offices for distribution to all first-order stations; presumably it was received at the regional offices Monday the 18th. By the end of the short working week, a few replies had come in, but on the following Monday and Tuesday (Feb. 25th and 26th) a total of 233 replies were received.

Considering the difference in mailing time involved, and the intervening holiday, we just don't believe it. ■

Bi-Metallic Thermometers

The WEATHER BUREAU has experienced more difficulty with the spirit-in-glass type of thermometer than with any other. This type of thermometer has three inherent shortcomings: frequent column separation, column distillation, and wetting or adhering of the liquid to the sides of the bore. These difficulties have been under study for some time and we have had many discussions with leading thermometer manufacturers and with thermometer experts at the National Bureau of Standards. While the difficulties seem to occur more frequently now than in the past, this is probably partly because of greater thermometer consciousness on the part of Weather Bureau officials and partly because of the use of color in the liquid which was added 10 or 12 years ago. In other words, liquid in the expansion chamber or column separation is now quite obvious because of the color. We know that with the clear liquid, fluid representing several degrees was often present in the expansion chamber but went unnoticed for long periods of time. The addition of the color made this condition more obvious.

All thermometers, including the spirit-in-glass type, are tested in the Instrument Division laboratory for compliance with purchase specifications before they are accepted from the manufacturer. Specifications for the spirit thermometer require accuracies of plus or minus 0.4°F. above zero; plus or minus 1°F. between 0 and -30°F.; and plus or minus 1.5°F. below -30°F. Aside from the problem of distillation, minimum thermometers may not show this degree of accuracy in actual use in the field since by necessity they must be tested in a liquid bath in a vertical position, having first been allowed to drain for several hours. In use, they are held in the maximum-minimum support in a nearly horizontal position. As the temperature falls with the thermometer in this position, the liquid does not drain as readily as it does with the tube in the vertical position and, since alcohol wets the glass, there is a residual amount of liquid in the bore of the tube which may show as an error in the temperature reading. While this difficulty does not always occur in sufficient magnitude to cause trouble, the thermometer is always subject to error on this score. And finally, since spirit vapor must be present above the liquid in the bore, when a small part of the column becomes detached it does not readily rejoin the larger column, being held off by the intervening vapor. For these reasons the minimum spirit thermometer is not inherently as accurate as the mercury-in-glass type. Records in the Instrument Division indicate that the spirit-in-glass thermometers purchased today are not inferior to the ones purchased many years ago; the difficulties mentioned here have always been present, but are now both easier to see and more often looked for.

Because of the unsatisfactory performance of this thermometer, the Instrument Division has been investigating the possibility of utilizing some other type of minimum registering thermometer, such as the bi-metallic, Bourdon expansion type, Six'es type, etc. Of all these various types, one bi-metallic maximum-minimum seems to hold more promise than any of the others. This thermometer is completely encased and therefore its sensitive element is not subject to corrosion or contamination from dust, dirt or insects. Its element is sealed in a stainless steel tube and therefore can be immersed in a liquid bath for calibration purposes, which is a decided advantage over other types of bi-metallic thermometers considered. This thermometer is relatively insensitive to vibration and has an accuracy in the order of plus or minus 1°F.

Though we have been reading our thermometers to tenths of degrees for years, it now appears from many reports being received from the field that the present minimum thermometers are not accurate enough to make such close readings significant. For this reason we suspect that the bi-metallic dial instruments may give more accurate over-all maximum and minimum readings even though they cannot be read closer than one-half degree.

Twenty-five sets of these experimental bi-metallic thermometers are now in use at various field stations, and if their performance comes near expectations, their use throughout the service may be expanded for certain types of stations. Though their initial cost is somewhat higher than the liquid thermometer, they may not cost as much over a period of time because of less frequent replacement.

In addition, 40 experimental bi-metallic thermometers of the same type with the maximum and minimum pointers on the same dial have just been received from the manufacturer. If these instruments pass inspection, they also will be issued to various stations for field trials. ■

DEATHS

Edwin B. Gittings

EDWIN B. GITTINGS, whose retirement after 45 years of service was reported in TOPICS, June, 1950, died February 29, 1952. He was 71 on January 3.

At the time of his retirement Mr. Gittings was OIC of the Weather Bureau Office at Denver, where he had served for 36 years. He was a native of Colorado, and had spent most of his life in that state.

He was district forecaster at Denver for several years. □

James L. Mack

MR. JAMES L. MACK, MIC at WBAS, Minneapolis, Minnesota, died of a heart attack on February 2, 1952, at the age of 46. Mr. Mack entered the Bureau as a Junior Observer in 1929 at St. Paul, Minnesota. He served at Pembina, N. D.; Reno, Nevada; the Central Office; and Billings, Montana before transferring to Minneapolis in 1942. Although Mr. Mack was well enough to pursue his duties these last few years, he never did fully recover from a coronary thrombosis he suffered in October of 1947. He is survived by his widow, Mrs. Marian V. Mack. □

Benjamin Parry

BENJAMIN PARRY, sixty-seven, who retired on December 31, 1948, as Meteorologist in Charge of the New York City office, died on February 12, 1952. Thirty of his forty-five years of service were spent at the New York office at 17 Battery Place, where he was closely associated with Dr. James H. Kimball whom he succeeded as Official in Charge in 1943.

His contacts with leaders in the Maritime Association and experience in Marine meteorology gave him a well deserved reputation in that field, as was evidenced by the reception and dinner given him at the time of his retirement (TOPICS, Feb., '49).

When New York City's Mayor Impellitteri heard of his death, he made the following statement:

"Benjamin Parry completely understood how important his work was to his fellow men. Because of this, he gave that work all his great ability. He will be missed by the people of the City of New York and the whole nation, but the traditions he established in the Weather Bureau will be his memorial." □

William H. Tracy

TWO months before reaching the mandatory retirement age of 70, William H. Tracy, Section Director, Boston, Massachusetts, died on January 29, 1952, of coronary thrombosis. Mr. Tracy started his service in the Bureau on January 1, 1899 in Nantucket, Massachusetts, where he served until 1908. His various posts of duty in the Bureau included Mt. Weather; New Haven, Conn.; the Central Office; Sandy Hook, N.J.; Grand Rapids, Mich.; Syracuse, N.Y.; Buffalo, N.Y.; and Boston, Mass. to which station he transferred in 1945. The New England Climatological Section Center received many compliments on the manner in which the office, under Mr. Tracy's direction, served the public. His descriptive summaries of the monthly weather at Boston helped foster the Bureau's excellent local relations with press and public. ■

DATA CONSOLIDATED

Nautical Almanac No Longer Needed

The publication "Astronomical Phenomena" of the Nautical Almanac Office will be enlarged, beginning with the edition for 1953, to include tables formerly contained in the American Nautical Almanac. In the future stations will receive "Astronomical Phenomena" only, since all data for which stations formerly needed both publications will now be found in the one. ■

NEW METEOROLOGISTS IN CHARGE

Minneapolis, Minnesota

PHILIP W. KENWORTHY, now Supervising District Forecaster at Boston, Mass., will succeed Mr. James L. Mack, deceased, as MIC at the Minneapolis WBAS. Mr. Kenworthy is 45 years old, entered the Weather Bureau in 1930 at Boston and all of his service, with the exception of a one-year assignment at Mt. Washington, N. H., and about 3 years (1937-40) at the Central Office, has been at that station. Since 1940 he has been assigned to Aviation and District Forecasting at Boston and became Supervising District Forecaster in June 1947. □

Beaumont, California

MR. C. BENJAMIN CARNAHAN, now Observer in Charge at Blue Canyon, Calif., has accepted transfer to Beaumont as MIC. Entering the Bureau in 1941, he served at Pocatello, Oakland Airport, Ogden, Los Angeles (Radiosonde Instructor and Supervisor) before going to Blue Canyon.

Gifts to Library Appreciated

FROM time to time the Library receives interesting and valuable publications and manuscripts from one of our field stations, and wants to take this opportunity to express our thanks publicly to those who send us such gifts.

The Library always welcomes gifts or information about publications and other material relating to our fields of interest. Sometimes it receives items which duplicate material it already has or which are entirely outside the subject fields of the Weather Bureau Library; they are appreciated, however, since we are able, through our exchange system, to make such items available to other institutions which can use them. However, the Library is especially grateful for manuscript records, diaries, out of the way items, and publications from local and little known publishers, which contain meteorological records and climatological data.

Ordinary, regular publications we are likely to hear about through published bibliographies, but items such as those indicated would not come to notice if our friends in the field did not keep us informed. So when the field stations hear about such local records we hope they will secure them for the Library if possible or advise what is available and where it may be found so that we may arrange for photo-duplication. This need for items of local meteorological interest is mentioned in the hope that there may be others in the field who will have opportunities to obtain material for the Library. ■

An Unusual Trip

There is still adventure in the life of a weatherman as the routine travel report quoted below testifies. It was prepared by the Meteorologist in Charge, Muskegon, Michigan, incident to a trip in his Storm Warning Display District. While the happenings themselves are of interest it is the restrained narration of them which is such a fine example of the manner in which the majority of Weather Bureau employees carry out their responsibilities, accepting long hours and hardships as a matter of course.

AS background to the direct quotations below, Mr. Donald L. Mark left Muskegon on November 28 and made stops at four Coast Guard stations enroute before arrival at the point where he was to board a Coast Guard boat to Lansing Shoals. Arriving at Naubinway, Michigan, the scheduled departure point, late in the evening of November 28 and after experiencing some difficulty in locating a place to spend the night, Mr. Mark was up bright and early the next morning to be on the lookout for the Coast Guard boat. After waiting until late in the afternoon he was informed that the boat would not arrive until the next day. Finally boarding the boat on November 30 Mr. Mark went on to report –

"The first three hours on the boat were spent holding position near a harbor light off Naubinway while the light was serviced for the winter. The trip to Lansing Shoals light took two hours. As the wind was increasing, the officer in charge of the Coast Guard boat decided to stay all night at the lighthouse as there wasn't enough shelter for the boat. The boat waited while I serviced the wind equipment."

After repairing the anemometer and going over instructions with the lighthouse observing personnel, Mr. Mark resumes, "After a discussion of observational problems with Chief Morey and his assistants we left the lighthouse headed for Beaver Island. Waves were 8-12 feet high by the time we started for Beaver Island with a 35 m.p.h. wind. It was dark before we reached the first shoals and islands, and the pilot couldn't find a very critical light buoy. (It turned out later that a Coast Guard cutter had picked up that buoy the same day.) Because the water was so shallow over the shoals in the area, the pilot turned around and decided to take the long way around where the channels were better marked. By the new course we were due in Beaver Island by 2300E. Fog closed in about 2200E and by 2300E no one knew where we were. No one answered our radio calls. I got seasick. For the rest of the trip I remained sick and the pilot and crew tried to find our location. Radio contact with Beaver Island was finally established, but didn't help. Our location was finally determined by soundings and we crept into port at St. James at 0500E on December 1.

"No transportation off Beaver Island was available the 1st and 2nd although I tried to get off by chartered plane both days. The weather was too foggy on the island the 29th and on the mainland the 30th. The ferryboat service to Charlevoix was suspended until the morning of December 3. I stayed at the Coast Guard Station

on Beaver Island the nights of the 29th and 30th."

It is in his summation that Mr. Mark gives authorship to a masterpiece of understatement - "This trip turned out to be quite an adventure. The night in the nearly open lifeboat in a storm was certainly not pleasant." ■

Photographing Blues

FREQUENTLY, the Central Office receives copies of tabulations, charts, curves, etc., related to special projects or papers, neatly done in manuscript form—but in blue ink. Very often it is desirable to make extra copies of these tabulations or charts—sometimes for Central Office reviewing officials, and sometimes for public service purposes or for other reasons. One of our several photographic processes is usually the most effective way of making these copies; but in most of these processes blue ink does not photograph at all, and in others it is difficult to capture the blue color on the negative without the use of special filters. It would be well, therefore, if all personnel submitting tabulations, charts, graphs, curves, etc., would keep this fact in mind and use black ink wherever possible in such manuscript preparations. If no black ink is available, red ink or red pencil photograph nicely.

126,269,899

Automatic Phone Forecasts in 1951

City	Annual Total	Monthly Average	High Day	Daily Average
Baltimore	6,779,606	564,967	55,400 (Dec. 17)	18,574
Boston	2,839,622	236,635	54,680 (Jan. 31)	7,780
Chicago	19,828,228	1,652,352	292,082 (Jan. 29)	54,324
Cleveland	10,232,572	852,714	157,835 (Dec. 16)	28,034
Detroit	22,541,920	1,878,493	208,399 (Jan. 30)	61,759
Milwaukee	12,006,152	1,000,513	125,867 (Jan. 30)	32,894
New York	23,533,771	1,961,148	242,078 (Jan. 31)	64,476
Philadelphia	5,835,102	486,258	94,108 (Dec. 18)	15,987
Washington	22,672,926	1,889,410	245,824 (Dec. 18)	62,117
Total	126,269,899			

IN the nine cities where recorded forecasts are made available by the phone companies to persons who dial a certain number (usually WEather 1212), over 126 million calls were recorded to those numbers in 1951. This is in the neighborhood of 240 calls per minute for the full year.

If each call lasted thirty seconds, this means that more than the full time of 504 employees on 154 phone lines would have been needed to answer them individually.

It is estimated that the tax return to the government on these calls is almost one million dollars.

During the year, Chicago set a new all-time high for one day for any of the nine cities: 292,082 calls on January 29, 1951. Cleveland and Washington each set a new record for one day in their own areas; Cleveland with 157,835 calls on December 16, and Washington with 245,824 calls on December 18. ■

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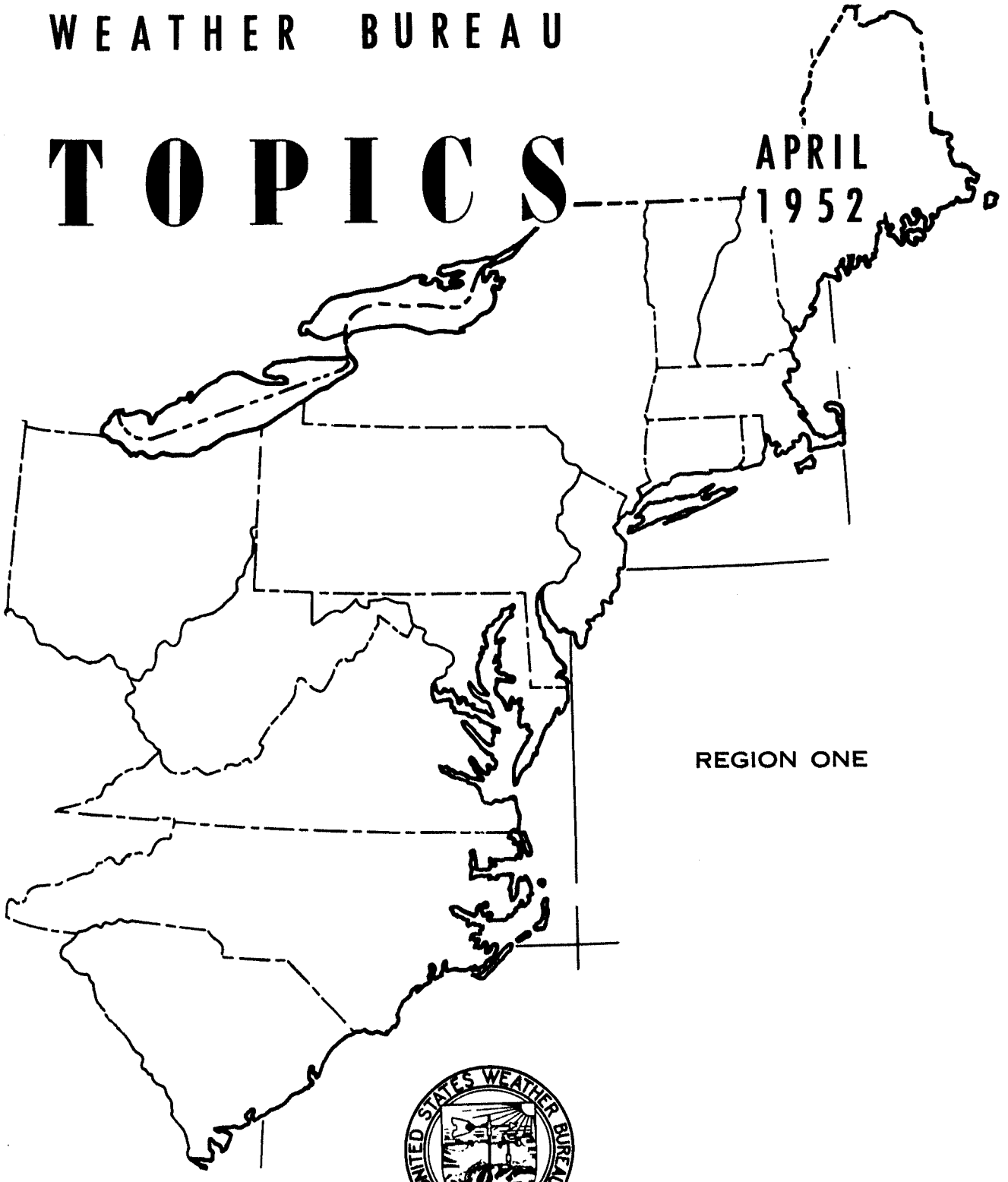
WEATHER BUREAU

TOPICS

APRIL
1952



REGION ONE

Volume 11 Number 4

WEATHER BUREAU TOPICS is published monthly to inform all employees about newsworthy operations and work programs of the Bureau; to give background on instructions; to carry news of new personnel assignments, retirements, deaths, and similar information about employees; and to serve as a medium through which ideas and views may be exchanged to promote efficiency and teamwork in attaining our common goals. While the contents, unless otherwise specified, reflect the Central Office viewpoint, they are not instructions but are presented for information. Opinions, discussions or comments by readers are invited; they should be marked for the attention of the Editor, TOPICS. WEATHER BUREAU TOPICS is distributed for official use only.

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DID YOU KNOW

● *That* Region I comprises some 359,903 land square miles and 12,069 inland water square miles, or a total of 371,972 square miles?

● *That* the total population of the 16 States comprising Region I (1950 Census) is 61,588,887, or over 40% of the total population of the United States?

● *That* of the 10 biggest cities in the United States, 5 are located in Region I? These are: New York, NY. (1st); Philadelphia, Pa. (3rd); Baltimore, Md. (6th); Cleveland, Ohio (7th) and Boston, Mass. (10th); the District of Columbia (9th) unfortunately cannot be included in Region I.

● *That* extremes in temperatures in Region I, which occurred in the same year, were 113° at Gallipolis, Ohio on July 21, 1934 and -52° at Stillwater Reservoir, New York, on February 9, 1934?

● *That* there are 84 first order stations in Region I manned by 693 commissioned personnel (exclusive of the 75 assigned to the Atlantic Weather Project)?

● *That* all types of second order stations in Region I total 133?

● *That* the two highest points east of the Rockies are in the Northern and Southern parts of the Region? Mt. Mitchell, NC. is 6,684 ft. above sea level and Mt. Washington, NH. is 6,288 ft. above sea level.

● *That* winds of hurricane velocity occur in Region I on an average of one out of every three days? (That's at Mt. Washington, NH.)

● *That* Mt. Washington also holds the world's record for absolute extreme recorded wind velocity with a maximum five minute average of 188 miles per hour and a gust of 231 miles per hour?

● *That* of the original 25 stations manned on November 1, 1870, the birthday of the Weather Bureau, 10 of the stations are in Region I, (without counting Washington, DC, even though surrounded by Region I), and all of them are still first order Weather Bureau stations? Twenty of the twenty-five stations actually rendered tri-daily telegraphic observations at 0700E, 1600E and 2300E, beginning with the first day, which were collected at Chicago and charted under the direction of Professor Increase A. Lapham, Assistant to the Chief Signal Officer.

More on Tornado Warnings

DURING March 1952 the Weather Bureau, in response to public demand, primarily from Oklahoma, placed more emphasis on the possibilities of occurrence of destructive local storms and tornadoes in forecasts and bulletins issued to the public. Recognizing the present technical limitations which prevent accuracy in predicting the exact time and place of occurrence of tornadoes, it is planned to evaluate the results of these forecasts during the current tornado season in order to determine the extent of their practical value to the public in their present form. On the whole, the response appears to be favorable, although editorials have appeared in some parts of the country expressing the view that tornado warnings are of little practical value until the time and place where they will occur can be given more definitely. Recent publicity has been concerned principally with the forecasting of tornadoes from synoptic charts as distinguished from tornado warnings based on local reports of actual occurrence within a network. The principal question regarding issuance of general tornado forecasts comes from the fact that even the best synoptic weather forecasting techniques do not enable the forecaster to determine the place of occurrence within limits closer than approximately 10,000 square miles, and in many cases the occurrence of even a single tornado cannot be predicted more closely than distances of 200-300 miles which means areas of 40,000 square miles or more. When this is compared with the area affected by the average tornado it is seen that the localities in each case which are not touched by the tornado but which are alerted because of the impossibility of forecasting just where the tornado will actually occur, outnumber the locality where the tornado occurs by more than 100 to 1 and often 1,000 to 1. Although the public is glad to take precautions to avoid loss of life even if many trips to the storm cellar turn out to be unnecessary, nobody knows how many times or how long this can go on before the public will come to disregard warnings which appear to them to be unnecessary insofar as individual experience is concerned.

In view of the public interest in this subject, the following additional background information is given. No group can be more impressed by the urgent need for tornado warnings and the difficult problems involved in forecasting them than the meteorologists of the Weather Bureau who have been studying the causes of formation of tornadoes, their destruction to life and property and their vagaries almost from the beginning of the national weather service in the United States. Tornadoes are the most violent and destructive of local storms. They cause greater loss of life in this country each year than any other kind of storm and greater damage to property than any other local storm except hail storms.

Years ago the Weather Bureau found that the tornado warning service for the public could best be developed along two general lines. First, research in the techniques for forecasting tornadoes several hours or perhaps a day in advance in order to develop the most accurate forecasting methods for this purpose. Second, organization of local storm reporting networks through which residents could be warned as soon as tornadoes or other local destructive storms are reported. The latter method has the disadvantage of affording relatively little advance warning, sometimes only a few minutes and at best only an hour or two, but it has the great advantage of warnings that are definite as to time and place of occurrence. This enables the local Weather Bureau meteorologist to limit the warning to those involved without alarming thousands who will not be affected by the tornado.

Seeing the local reporting network as the most immediate solution and the one affording the most definite warnings, the Weather Bureau in 1942 and 1943 organized local storm warning networks around many of the principal cities. In subsequent years, these networks were further developed and new networks organized in other localities as rapidly as practicable. More than 26 of these local networks are now in operation and the Weather Bureau regards them as the most positive means so far possible for warning the public in time to give residents opportunity to take precautions against loss of life.

At the same time, research in the forecasting of tornadoes has been in progress by meteorologists in several places. In 1943 studies by Showalter and Fulks of the Weather Bureau brought out certain basic principles which are now used in forecasting tornadoes and which have been applied and amplified by Fawbush and Miller of the Air Force in their work since 1948. The studies of Fawbush and Miller at Tinker Field have concentrated on shorter period forecasts with more definite limits in area but their forecasts still have the spread mentioned in a preceding paragraph.

In the effort to develop the best possible service for forecasting and warning the public when tornadoes are to be expected, the Bureau two years ago increased its research and forecasting work primarily around the District Forecast Center at Kansas City under Mr. J. R. Lloyd who had made previous studies of tornadoes and tornado forecasting. Basic research has been carried on in the Central Office by Tepper, Schuman and others. In order to exchange views and keep all concerned in touch with technical developments in tornado forecasting there has been close contact between the centers at Kansas City and Tinker Field. Since early March the WBAN Center in Washington has increased its attention to analysis of tornado conditions. In every tornado situation the WBAN analyses are discussed by telephone with the district forecast centers concerned in order to bring together the most expert judgment on the significance of the synoptic situation in the making. Through the link between the Kansas City center and the Air Force center at Tinker Field, provision is made for taking into account the findings of all tornado forecasters engaged in the study of any particular situation.

The practical value of tornado warnings to the public is more or less directly proportional to the accuracy and definiteness of the forecast. A warning in general terms involving areas equivalent to several states can do little more than alert the people to keep a sharp lookout for further warnings and threatening storms that may develop into tornadoes. General forecasts of this kind cannot be the signal for everyone in the area to go to their storm cellars. These final precautions are usually practicable only when the warnings have been narrowed down to the hour and locality where tornadoes will occur. A good combination of the methods of synoptic weather forecasting with the use of local reporting networks provides the best warnings and these are the methods in use by the Bureau. The district forecast centers, which have always carried responsibility for forecasting destructive local storms as well as general storms, are the source of tornado forecasts ranging from a few hours up to 18 hours in advance. Local Weather Bureau meteorologists who have long been responsible for disseminating local warnings whenever conditions called for them, continue to carry the authority and responsibility for disseminating to the local public the general tornado forecasts for the area and the specific tornado warnings based on local network reports. ■

Plaque Commemorates Professor Abbe

A BRONZE plaque in honor of Professor Cleveland Abbe was installed in U. S. Weather Bureau Offices at Cincinnati, Ohio, on February 27, 1952. It was dedicated with simple ceremonies by the Meteorologist in Charge, A. W. Walstrom, and his staff. The inscription read as follows:

CLEVELAND ABBE

In memory of his contributions to the science of meteorology and weather forecasting and to the development of the National Weather Service in the U. S. Signal Corps and later in the U. S. Weather Bureau. ■

TO REDUCE WORKLOAD

New Annual Estimate Procedure Tried

THIS year, in order to further reduce administrative workload at field stations, the Central Office will test a procedure to relieve stations of preparing Annual Station Estimates. In the past, station expenditures have been charged partly to Regional Office accounts and partly to Central Office accounts. Now the accounts have been decentralized sufficiently so that practically all ordinary station expenses are reflected in Regional Office accounts. Also, a classification system has been introduced which permits the Regional Office to analyze requirements according to the type of expenditure.

Hence, although Regional Offices may find it necessary to contact individual stations regarding particular items, it is thought they will be able to furnish reliable estimates based for the most part on fiscal and supply records at hand and a first-hand knowledge of the relative priority of station requirements.

If results of this test are satisfactory, it is planned to adopt the new procedure permanently and thereby reduce workload significantly, at the stations, Regional Offices, and the Central Office. ■

Pacific Stations Relocated

ON March 20, 1952, the following changes in Pacific Ocean Station positions were made:

(1) Station "N" moved from 33°N 135°W to 32°30'N 135°W.

(2) Station "U" moved from 28°N 145°W to 27°40'N 145°W.

These slight changes in position were made to place the ocean stations more nearly on the air track between Honolulu and West Coast points. ■

Winter Sports

MOST of the Weather Bureau district forecast offices prepare forecasts designed especially for use by the winter sports interests. Such forecasts have been issued for a number of years. They are added to snow condition reports received from popular skiing areas and are issued to the news services in much the same way that state forecasts are transmitted.

In New England, most of the prominent winter sports localities are in Vermont, New Hampshire, eastern and northern Maine, and in the Berkshire area of Massachusetts. The winter sports forecasts are patterned to give localized detail for such areas, emphasizing aspects of the weather most important to winter sports activities, including public safety. Sometimes the snow condition itself dictates which features shall be stressed in the forecasts.

The most important element forecast in this particular program is the temperature. "Freezing" and "thawing" temperatures are so described. Frequently, reference to the general range of temperature above or below the freezing (and thawing) point is given in the body of the forecast, viz: "temperature remaining well under freezing," or "temperature falling by tomorrow morning close to zero." If a new fall of snow has occurred, the continuation of sub-freezing temperatures becomes important to maintain the full effectiveness of the new snow. Whether the temperature is going to be five or twenty degrees below freezing is relatively unimportant, and for that reason specific temperatures in the forecast are usually omitted.

The enjoyment of winter sports on into the spring season has become popular, and skiing is particularly good upon a type of snow present after a few hours of thawing temperature. This daily period of thawing in the spring months is something the forecaster looks for and tries to inject the forecast when a combination of sunny skies and mild weather can be expected during the month of March or April.

Strong winds are a source of discomfort during the coldest weather. Their occurrence, therefore, is ordinarily mentioned along with the direction to be expected. Winds of less than 20 miles are not considered important and, as a rule, are not mentioned.

The timing and the type of precipitation expected over an area are included in the winter sports forecasts much the same as in State or local forecasts. Specific mention of snowfall amounts is usually avoided unless it is included in the corresponding State forecast and in connection with a storm already in progress.

One bad season can appreciably affect the business of clothing and sports gear manufacturers, retail outlets, hotels, restaurants, railroad and bus companies. A warm winter (or too severe a winter) also curtails the relaxation and recreation of thousands of outdoor enthusiasts. Winter sports activities in New England are truly "big business" and as such, the localized forecasts and the snow reports are a vital factor in the overall economics of the area.

[Editor's Note: The demand for winter sports information in New England is such that twice-daily forecasts and observations are furnished the public. Winter sports service of similar character is also provided for certain areas outside of New England, notably the Adirondack and Pocono Mountain regions, the Lake States, and the mountains of the West.] ■

A SECRET WEAPON?

Birds and Ceilometers

THE FISH and Wildlife Service recently brought to our attention several incidents in which large numbers of migrating birds were killed in the vicinity of our ceilometers. Although the full explanation of these deaths is not known, the attraction of the birds to the ceilometer beam seems to be an important contributing factor. The incidents apparently occur only at night, and during migration seasons. We suggest that stations be alert to detect any mass attraction of birds to the ceilometer, and to temporarily shut off the ceilometer at such times, using the standby ceiling light until the birds disperse.

The names of ceilometer stations have been furnished to the Fish and Wildlife Service. This agency is in touch with ornithologists in the vicinity, and is requesting them to inform local weather stations when migrations are in process in the area in order that stations may be alert to detect similar incidents and deactivate the ceilometer if necessary before a large number of deaths occur. It is not intended, of course, that the ceilometers be deactivated if weather conditions are such that continuous operation is necessary for the safety of aircraft.

Any such occurrence in the future should be reported to the Central Office. ■

MEET THE REGIONAL DIRECTOR

Paul H. Kutschenreuter

MR. PAUL H. KUTSCHENREUTER, known as "Kay" or "Kutsch" to his many friends, was born in San Antonio, Texas on April 25, 1909. Although he has been Regional Director of Region One only since September, 1950, Mr. Kutschenreuter has visited every first-order Weather Bureau station in the region and, with few exceptions, has talked individually with every Weather Bureau employee in Region One.

He entered the Weather Bureau at Houston, Texas, February 8, 1926, transferring to Montgomery, Alabama in 1928 and to Central Office Instrument Laboratory in 1929. During that year he paused long enough in his cross country assignment to send to Texas, as any Texan would, for THE girl of his high school days. Despite the crash of '29, Mrs. Kutschenreuter traveled to foreign soil (out of Texas) to start a new life with him on a salary that today would make one shudder and even in 1929 was good for at least a "shud" or two.

Little did she realize at the time that she was also beginning a transcontinental shuttle trying to keep up with her husband's frequent reassignments. In 1930, they returned to Houston, Texas, back home for both of them, where Mr. Kutschenreuter was assigned to take charge of the airport station. The seven years in Houston were the longest period they have been able to settle in one locality, as 1937 found them again on the move due to an Airway Forecasting assignment at Fort Worth, Texas.

In 1939 "Kutsch" was again enroute to a new assignment at Billings, Montana, with an enroute detail to the Salt Lake City Aviation Forecast Center. At Billings he took charge of forecasting at the newly organized Aviation Forecast Center which later, after two months detail to the Chicago District Forecast Center, was expanded to include a District Forecast Office.

Three years afterward, in 1942, he had "temporary detail" to Central Office for three months that stretched into a year as Senior Analyst in the new Analysis Center. Next, to Miami in 1943 in charge of the Airport Station with the responsibility for furnishing aviation forecasts to the Caribbean area, and at one time, for state district forecasts covering most of Florida.

In 1947 the Kutschenreuter family, by now including Paul 11, Thomas 7, and Charles 8 months, journeyed to Boston where he was placed in charge of the Weather Bureau organization in metropolitan Boston. This varied set-up included the airport station, with aviation and district forecasting units, the city office, with the Section Center and administrative functions connected with the Atlantic Weather Patrol and the Arctic Project.

In September of 1950, Mr. Kutschenreuter reported to the New York Regional Office on permanent assignment as Regional Director to relieve Mr. Lloyd Brotzman, who held the fort pending selection of Mr. Moxom's successor. (Mr. Walter J. Moxom had decided to trade his position as the first Regional Director of Region One for the enviable status of country squire on the eastern shore of Maryland.)

Despite the roving, Mr. Kutschenreuter has made opportunity to engage in an amazing number and variety of activities. During his earlier years in the Bureau, he acquired his formal education at Houston Junior College and Rice Institute, majoring in mathematics and physics. He also attended George Washington University during one of his Central Office assignments. He has also managed to include, either between stations or on detail from his official station, such Weather Bureau training conferences as the Air Mass Class in Washington and Dr. Bjerkne's seminar in Seattle in 1940 on Air-mass and Frontal Analysis over the Pacific. Mr. Kutschenreuter was also selected as the United States alternate delegate to the PICAO Caribbean Regional Conference held in Washington in 1946.

Perhaps his varied experience in both Administrative and Technical phases of Weather Bureau operations accounts for one of the impressions he has made on his fellow workers. With a deceptive appearance of leisurely pace, he will listen quietly to all the involved ramifications of some problem and with a few well chosen words reduce the situation to its simplest terms, so that the answer seems to become obvious.

Although he has been Regional Director but a year and a half, the well-known grapevine has telegraphed a few incidents, or should we say escapades, of his former experiences. Back in his early Houston daze (pardon) days, in the capacity of Minor Observer with special authority to take observations, he completely missed the 0630C synoptic for which he had been scheduled some three weeks previously. Reporting for duty at 0803C, the OIC inquired as to his tardiness. Thinking himself three minutes late, Mr. Kay went into a long explanation (double-talk in today's vernacular) of late busses, jammed traffic (in 1927 ??), etc., only to be completely flabbergasted when asked about the 0630C synoptic

observation. He felt that his future in the Weather Bureau was finished, as of that moment.

During his Miami assignment he requested authority from Central Office to accompany a military flight connected with taking over meteorological equipment at some deactivated military stations in the Caribbean that were later to be transferred to the local governments. Official permission was delayed in arriving and Mr. Kay took off with the flight. Immediately after departure the station received a dispatch from the Central Office authorizing the trip, but containing detailed instructions relative to passport, innoculations, applications to State Department, etc. However, it was then too late to fix up the complexities of international travel. Due to a bold front and careful conversation, the impression somehow got around in all countries visited that he was a member of the military party. Consequently the services of the State Department or an Act of Congress was not required to get him back into the country. (State Department please do not note!)

Despite all the official activities, "Mr. Kay" has time for active participation in church activities and to get himself involved in an extraordinary number of hobbies. He has so many that no one can be considered his main hobby. His basement wood-working shop turns out an ambitious number of articles produced from old crates or anything else handy. His television set and home radios are never out of service (if he is in town) for want of a service man. His talents run to repair and restoration of antique clocks and ancient furniture which Mrs. Kutschenreuter's discerning eye uncovers from time to time. Next week-end might find him involved with Paul, Jr., or "Pete" as he is better known, in model airplane building or, if the weather is favorable, even on a picnic along one of the southern Long Island beaches. In short, he is a family man who thoroughly enjoys his family, his home and his friends. While he still opines that "Texas is these United States," he will concede it's a fair chunk of country between Billings, Miami and Boston. ■

"Mr. Kay" in his sanctum

Public Service Units

RECENTLY a Field Aide was detailed for about six weeks to one of the forecast centers where the reorganized FAWS-Aviation program had been placed in effect. This office also is a District Forecast Center. Part of the Field Aide's report deals with the operation of the Public Service Unit that has been set up and may be of interest to other forecast centers as well as the majority of field offices. He says:

"It seems to me – in general – that the establishing of such a service unit is one of the best things that can happen to a forecast office. It provides a group which becomes specialized in the field of direct public contact, utilizes their forecasting ability in a great deal of important adaptive forecasting, and at the same time releases the aviation and district forecasters for more concentrated effort on the basic material. This new section very closely approximates the service work at a smaller field station. The personnel of this unit should feel the same responsibility as a field official does in his community. Yet, they also identify themselves more closely with the forecast center; and thus is struck, theoretically at least, an ideal compromise for the effectiveness of public service." ●

Brief History of an IAFS Unit

IN 1939 two Weather Bureau Meteorologists were detailed to the Pan American Airways Meteorological Office at Baltimore, Maryland to assist in providing meteorological service for the newly established flight operations to Foynes, Ireland. Flights prior to this date were limited to the route Baltimore-Bermuda-Horta-Lisbon. The first leg of the route Baltimore-Bermuda was operated jointly by Imperial Airways and PAA, the remaining portion of the route was flown by PAA. In 1940 the two Weather Bureau Meteorologists were transferred to La Guardia Field, N. Y., to join the forecast staff moved there from Newark, N. J., not long before.

The Aviation Forecast Unit undertook to absorb the additional work of preparing Atlantic analyses and flight forecasts. War had already broken out in Europe and foreign ship reports as well as European land station reports disappeared from our charts. Maintenance of a rigid continuity in sequence of analysis was extremely difficult and extrapolation methods constituted the basis for forecast preparation. Upper air information was limited to two Coast Guard Station ships in the southern section of the North Atlantic. Upper air analysis was attempted by computing pressures for different height levels using the available surface reports and assuming moist adiabatic conditions in the lower levels and applying mean virtual temperature corrections to the air streams involved.

With our entry into the War in 1941, foreign weather reports began to trickle in. Security measures were strictly enforced. The forecast office became a meteorological arsenal complete with locks, bolts, and round the clock guards. Overnight, codes and plain language were replaced by ciphers. Ciphers for codes and ciphers for ciphers, ciphers in words and ciphers in letters.

It was in 1942 that American Export Airlines joined the operators flying the North Atlantic. During the same year a consolidated forecast unit was established in the Weather Bureau Office, composed of selected forecasters from Pan American, American Export and the Weather Bureau. Airline personnel were designated as Government Agents and worked as an integral part of

the Forecast Unit under direct supervision of the Weather Bureau. The frequency of flights and routes increased appreciably, civil operations were replaced by ATC (Air Transport Command) and NATS (Naval Air Transport Service). The forecast area increased until it covered the entire North Atlantic. Forecasts were issued for flights operating out of the East Coast as well as for those departing foreign countries for the East Coast. Communications in many instances were slow; for example, forecasts for flights departing Bathurst (Gambia, West Africa) Westbound, had to be transmitted at least forty-eight hours in advance in order to insure their arrival prior to departure of the aircraft.

In 1942 La Guardia received its official international status as a "Main Meteorological Office" at the TASSO (Trans Atlantic Safety Service Organization) Conference held in Ottawa that year.

With the termination of the war in 1945, the Airlines began to withdraw their personnel. In order to prevent deterioration in services rendered, the withdrawal of airline employees was gradual and was coordinated with replacements by Weather Bureau personnel.

The TASSO Organization was replaced in 1945 by PICAO (Provisional International Civil Aviation Organization) and it, in turn, by ICAO (International Civil Aviation Organization) now currently in effect. Except for minor modifications, the North Atlantic routes created during the war were retained under civil operations. Flight operations out of New York increased from an average of six flights per week in 1940, by two operators, to approximately three hundred flights per week at the present time, by about 25 operators. During the same period, operating flight levels changed from a maximum of seven thousand feet to thirty thousand feet and instead of a plain language route and terminal forecast, crews now receive documentation consisting of cross-sections to thirty thousand feet, wind forecasts for a minimum of three levels, prognostic upper air charts for two flight levels, the latest synoptic and prognostic surface charts and forecasts for terminals and alternates. In addition, amendments to forecasts are issued as required and flight meteorological watch for any particular flight is maintained on request.

The lumbering flying-boats, operating at levels below seven thousand feet, have all been replaced by high speed aircraft with operating levels up to thirty thousand feet. Where at one time delays due to weather enroute or sea conditions at destinations

were commonly of the order of twenty-four hours or more, present aircraft are rarely, if ever, seriously affected by weather enroute. The distribution of terminals and alternates permits rerouting of aircraft with reduction in delays comparable to those enjoyed by domestic operations.

Improvements in operating equipment, radio aids and more efficient operational and navigation procedures brought forth new problems and imposed additional demands on meteorology. We are now on the threshhold of civil aircraft jet operations. Its advent, with its step into the stratosphere, will introduce additional new problems in forecast service and operational requirements, which promise to be even more interesting than those associated with the change from low speed, low level flying-boats of the early Trans Atlantic planes to the present high speed, high level land planes. ■

Newspaper Weather Maps

The PREPARATION of newspaper weather maps constitutes an important public service feature of the Weather Bureau Office, New York, N. Y. The mechanics involved in their preparation and dissemination may be of interest to Weather Bureau people generally, and particularly to those stations where local newspapers are publishing the maps received by wire-photo service.

Some years ago, the New York City office prepared these maps completely, including the art work, so that they could be used immediately by the newspapers and press associations for reproducing. During the last war the newspaper maps were discontinued for security reasons. Upon resumption after the war, and up to the present time, the newspaper services have been supplied with large, rough pencil copies of the maps, and they do the finishing work necessary for publication.

Copies of maps are furnished individual local newspapers and also to wire services. Data are made available to "Fotocast" for preparation of its own specialized type of map. The same base map is used for preparing the rough draft for all charts used by local newspapers but the actual presentation in the various New York papers is a little different in each case. Each newspaper has its own particular feature on some phase of the weather map. Weather Bureau charts are prepared from the 0630E and the 1830E data, using a few map reports, MA and facsimile surface charts. The date and time is always entered on the pencil copies of the map so that it will be properly identified. While we have had reports of this data not appearing on the maps in out-of-town newspapers, investigation has usually indicated that the data had been deleted in processing at the local newspaper office.

The Associated Press map copy is prepared twice daily from the same data as used for the local newspapers. In addition, state forecasts are graphically portrayed as the basis for the small forecast maps of temperatures and precipitation which appear on the AP map in the lower left-hand corner. This AP presentation was the result of a survey made a little over a year ago when that organization was beseiged with requests for a change in the style of the weather map to include a forecast map. The acceptance of the present type of AP map proved its popularity and is now used by more newspapers than ever before.

The data supplied to "Fotocast" is the 30-hour prognostic chart with supplementary charts of cloudiness and expected temperature and precipitation as given in the state forecasts for all parts of the country. Those forecasts, which are not received normally on Service "C" at New York City, are relayed from Washington to provide complete coverage. All sketching and art work in connection with the preparation of the "Fotocast" map is done by people from that organization. However, the completed map is brought to the Weather Bureau Office for a check on over-all accuracy prior to its dissemination.

Fortunately, by providing only sketch maps and making carbon copies, a number of newspapers can be furnished basic material for the printing of a weather map. Otherwise, sufficient time would not be available for all outlets now served. As it is, the service is available to all of the local newspapers and press associations with but little more time demand on the office than was required some years ago to furnish a single newspaper with a finished map. ■

Slips That Pass

(From CLIMATOLOGICAL DATA -- National Summary, September, 1951, page 282)

"A SINGLE hailstone caused crop and property damage of $1,500,000 in Colorado Springs and vicinity on the 4th...."

Comments MIC H. C. Steffan of the San Francisco WRPC, by memo to the Climatological Services Division: "Golly!" ■

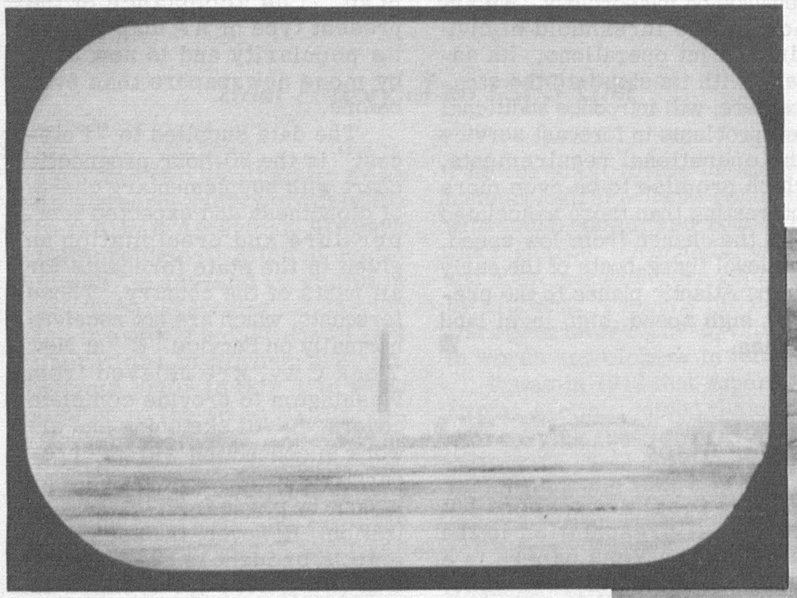
A WEATHER BUREAU FIRST

Tests Begun "Observer"

UNDER a cooperative agreement with the Air Navigation Development Board, in effect since October 1951, the Weather Bureau has been investigating a number of aspects of weather observation devices and techniques pertinent to visibility and cloud height determinations during the occurrence of low ceilings and low visibilities.

The project is cooperative, involving personnel of the Surface Instruments Engineering Section of the Instrument Division and the Technical Investigations Section of the Division of Station Facilities and Meteorological Observations, with general coordination rendered by Mr. B. C. Haynes, Chief, Observations Section.

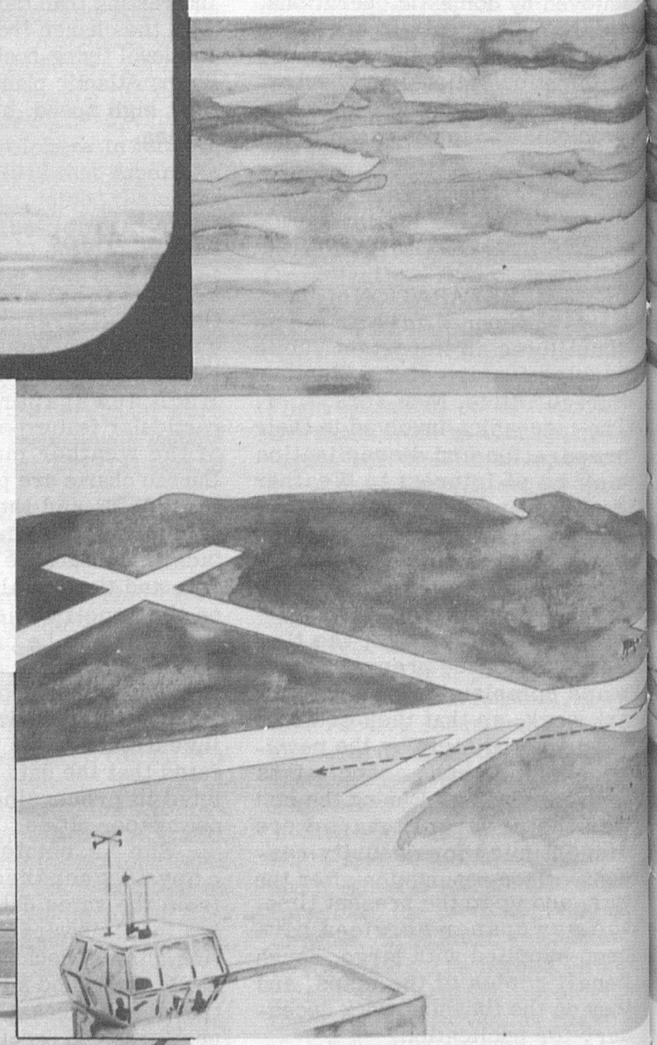
In the course of searching for

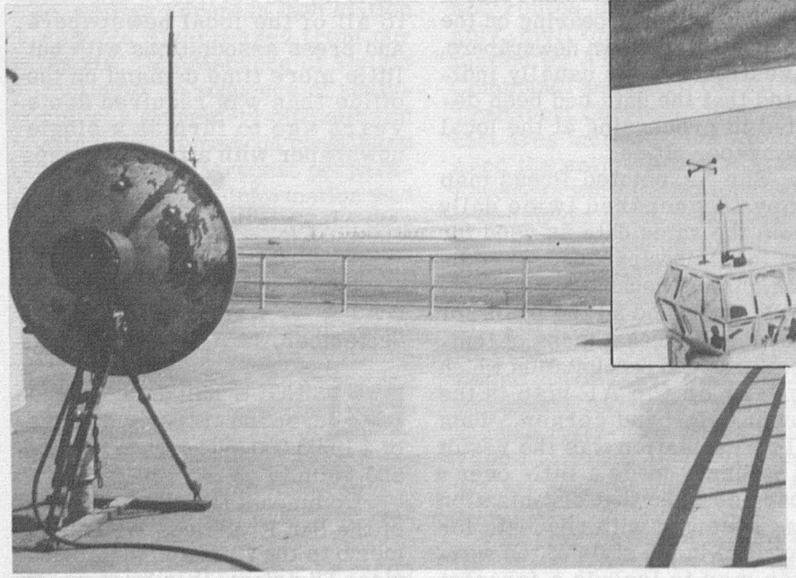


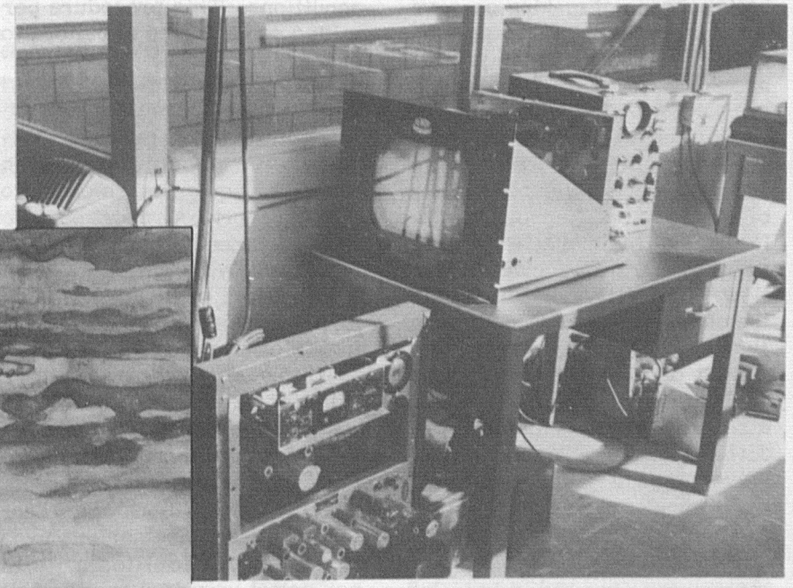
(Above) Photo of TV monitor screen shown at extreme right while camera is pointed along ILS runway at Washington National Airport.

(Center) Artist's sketch (not to scale) of set-up of WB-ANDB project at WNA where TV "Observer" is being tested.

(Below) Aerial on roof of Administration Building, WNA, looking toward mobile TV unit.







(Above) Monitor screen in Mirador at WNA.

(Center) Key to drawing: TV=Mobile unit and observation point; Ce=Ceiling light; Cmm=Ceilometer at middle marker; Vtd=Transmissometer at touchdown; Vmm=Transmissometer at middle marker.

(Below) Mobile TV unit at end-of-runway observation point.

better means of making observations remotely, many persons have given thought to the problem and some have conceived the idea of using television for this purpose and suggested its application. At a hearing held on February 5, 1952, by a special subcommittee of the House of Representatives Interstate Commerce Committee on recent aircraft accidents in the New York City area, and under the chairmanship of Congressman Beckworth, Mr. Haynes suggested the use of television in connection with the problem of landing of aircraft under low visibility conditions. The Air Navigation Development Board agreed to support a test of the proposal, and the Weather Bureau made a contract with DuMont Television Station WTTG for the purpose.

Experimental installations of standard television broadcast equipment were made at the approach end of the ILS Runway at Washington National Airport on eight occasions between March 12 and April 10, 1952. A 7000 megacycle Microwave radio transmitter beamed the signals to a receiver mounted on the Administration Building 3000 feet away. Monitors to present television pictures of the outdoor scenes viewed by the end-of-the-runway camera were installed in the Weather Bureau Observatory and in the Control Tower, located in the Building. Another monitor was placed in a mobile truck shelter at the end of the runway.

After adjusting the equipment to yield the "best" picture, the experiment mainly consisted in an observer detecting and/or recognizing objects or lights at or near the threshold of visibility as determined in the Observatory monitor, while an observer at the end of the runway using the same targets made determinations of the visibility both by observing the monitor screen and by observing out-of-doors under field conditions. This procedure permitted some degree of calibration of the TV system.

Within the interval of study there occurred but few periods of visibility below two miles when it was practicable to have the television equipment in operation at the airport. A report based on the experiment is being prepared; unfortunately, however, no conditions of fog, dust, smoke, snow, or heavy rain were available for inclusion in the study.

Tentatively, within the limitations of experience to date and with the equipment tested, it appears that under daylight conditions the results are encouraging; while under conditions of darkness there appear to be serious problems and difficulties with the equipment used in detecting point sources of light in the television monitor when the sources are at the threshold of detection as judged by an observer standing beside the camera.

The system used requires three television technicians for operation and is very costly. Considerable engineering development work would be necessary to permit remote operation of the camera unattended.

As Mr. Haynes suggested, TV as a medium may have numerous applications such as the observing of instrument panels, general out-door conditions, etc.

Future plans with the medium will depend on findings from experience to date, new developments, and available funds. ■

More Stations Reduce Hours

DURING the month of March, 1952, hours of operation were reduced to those shown below at five stations:

Columbus, Ga.	0400-2045
Melbourne, Fla.	0600-2200
Meridian, Miss.	0600-2300
Norfolk, Nebr.	0600-2300
Mt. Shasta, Calif.	0400-2045

Forecasts in Terms of Probabilities

ON March 10, 1952, a group of Central Office personnel, led by the Scientific Services Division, met for a round table discussion of the desirability of couching forecasts in terms of probability.

At the beginning of the discussion it was pointed out that this idea is not new; Cleve Hallenbeck in 1920 wrote in the Monthly Weather Review that he was issuing rain forecasts in such terms, and C. F. Tolman wrote in 1921 that the Weather Bureau was considering issuing forecasts in probabilities. Also noted was the fact that, when the public asks "What are the chances of rain?" the question can only be answered in terms of likelihood or probability.

A somewhat technical discussion of probability, expectancy, and calculated risk followed, most of it centering around the advisability of issuing forecasts in probability terms. Several examples of forecasts already being so issued were cited, among them quantitative precipitation forecasts for the Los Angeles area, which are made by an objective method in a form which gives probabilities of the complete range of possible precipitation values. Shower forecasts in some of the southeastern states also are made in terms which can be interpreted as probabilities. One speaker made the point that the public undoubtedly knows that there is a greater chance of freezing when the prediction is for 34° than when 39° is forecast.

The general, but by no means unanimous, opinion seemed to be that, for specialized users who understand them, probability forecasts are helpful, but that they might be confusing to the general public. ■

The First River Forecast Center

The historic conference, September 23, 1946, at which the first RFC was born. Left to right, Henry Rockwood, William E. Hiatt, George R. Marth, Merrill Bernard, Roy E. Lundquist, J. Cecil Alter, Ray K. Linsley, and Max Kohler. Photo by courtesy Cincinnati Times-Star.

ON September 5, 1946, the Central Office announced in the press that the Weather Bureau was going to have twins. The "increase" was to be in the C&HS Division and the two "children" were to be called River Forecast Centers. The first was born at Cincinnati, Ohio on September 23, 1946 during a special conference including Central Office representatives, river district officials from the Ohio River Valley, Regional Engineers and two of the staff of the newly born "Cincinnati RFC" and others. The second twin RFC was born a few weeks later at Kansas City, Missouri.

The inauguration of the River Forecast Center program was the realization of a dream come true, particularly for Merrill Bernard, whose drive and inspiration carried the development through almost insurmountable problems, both technical and organizational.

This program in the Bureau represents the latest and most important forward step in the development of an adequate river and flood forecasting service. The River Forecast Centers are staffed with trained hydrologists who also have a background knowledge of meteorology. All the facilities of the National weather service and the latest hydrologic techniques, many of which were developed by Weather Bureau hydrologists, support these river centers in the preparation of integrated forecasts for the Ohio and Missouri as well as for other drainage basins in the country as the program expands.

The Cincinnati River Forecast Center covers an area of responsibility embracing eight river districts in the Ohio River Valley. The area comprises 136,840 square miles of drainage basin extending for 789 river miles from just below Wheeling, W. Va., to Fords Ferry, Ky., with all

intervening tributaries. In the great Mississippi River system, the Ohio Basin constitutes only 16% of the total drainage area but it contributes 43% of the average annual flow to the Mississippi River. The greatest flood was in January-February, 1937, when approximately 500 million dollars damage occurred.

To be effective, the forecasting program had to be ready to function within the very short period of one year's time. Forecasting procedures were adapted from basic design methods under direction of the Procedure Development Section of the Hydrologic Branch, C&HS Division. New schemes and charts had to be invented to correlate and process the great mass of data and records. The year 1947 produced only a few floods on the tributaries and gave the RFC a chance to work up the procedures in time for the next flood season.

Actual forecasting responsibility was first undertaken in November, 1947, serving the Indianapolis River District. Operations expanded rapidly thereafter. The first Ohio River flood that was to test the new procedures occurred in February, 1948 under complicated conditions of frozen rivers, snow and ice on the watershed, and heavy rain attending a period of rapid melting of snow and ice. The forecasts were accurate and timely but many operational "fences" had to be mended to bring the procedures into better coordination and to speed up the processes.

When the severe flood of April, 1948, developed suddenly, the Cincinnati RFC was ready. This was a major test and the new program worked well in every respect. River stage and crest forecasts were issued in connection with flood warnings with greater accuracy and timeliness than had ever been achieved under similar conditions in the past. The more timely warnings on the main rivers were made possible by forecasting the runoff directly from measured rainfall and compiling crest forecasts well in advance of actual crests on the tributaries. It was not necessary, as in the past, to wait for crests to occur upstream before issuing flood crest estimates downstream. It was generally conceded after the floods were over that the improved forecasting and flood warning service played its part in substantially reducing losses in these two floods. This record has been maintained continuously in several severe floods since the first major tests.

The experience of the Cincinnati River Forecast Center indicates that several important objectives have been achieved: (1) headwater advisory forecasts in advance of rainfall for tributary points were the first of such aids to river districts; (2) forecasting directly from rainfall for each of the 115 unit sub-basins that might be affected provided a method for giving earlier warnings to every point downstream; and (3) a more detailed and extended forecasting service program was attained. This provided better and more complete information for operational needs of various interests in connection with water supply, navigation, reservoir control, emergency protection measures, removal of property, evacuating persons to safety, rerouting of traffic, and the eventual return to normal as the rivers fell to lower stages after the crest.

Possibly one of the most important general advances made in the new RFC program has been the strengthening of the flood warning service independently of personal skill and experience. This has been demonstrated in recent years by a continued high standard of river forecasting service rendered both at the RFC level and the River District level under the impacts of frequent changes in personnel. The river forecaster no longer "takes with him" the know-how gained from long years of experience leaving something of a vacuum to be filled by his successor. Operations are now established in thoroughly tested procedures based on many years of record, and on sound hydrologic principles reflected in standard graphs and formulated forecasting techniques. So the RFC just keeps rolling along with Old Man River, whether it be in low or high water. ■

Storm Warning Service Appreciated

A LETTER of appreciation has been received by WBAS, Wichita, Kansas, from the National Gypsum Company which operates the Kansas Ordnance Plant at Parsons.

The letter reads in part: "We wish to acknowledge and extend to you our appreciation for your storm warning reports. These warnings are certainly helpful to us, inasmuch as we can get our operations in a safe condition before the storms reach this area."

Wichita personnel were active in helping the Ordnance Plant officials establish a severe local storm warning network in the Parsons area. In addition, Wichita has arranged to provide the Ordnance Plant with forecasts of impending local disturbances involving lightning and winds.

Colonel P. N. Wickens, Commander at the Parsons Plant, has also expressed his gratification and personal appreciation for the assistance provided by Meteorologist in Charge Victor Phillips, and his staff at Wichita. ■

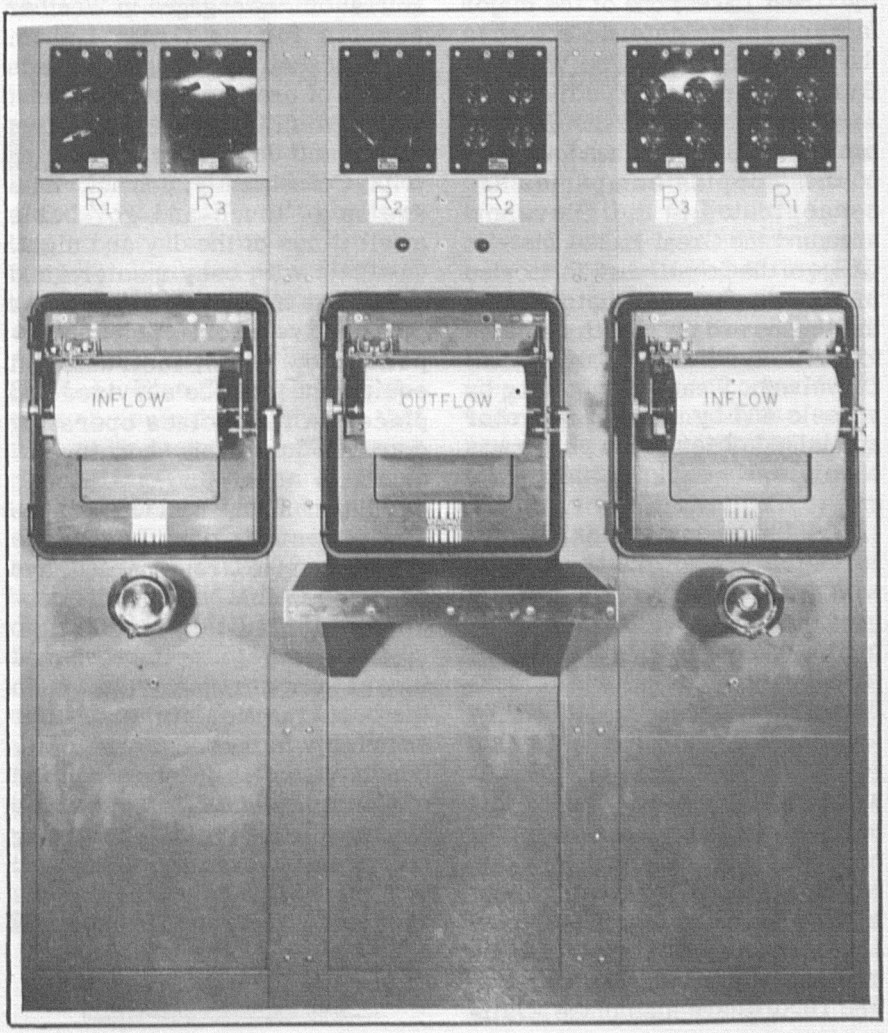
Electronic Flood Routing Analogue

AN electronic flood routing analogue has now been installed in each of seven River Forecast Centers. The apparatus automatically produces the hydrograph for the lower end of any selected river reach while the operator traces with a stylus—on the input unit of the electrical hookup—the hydrograph of the expected inflow at the upper end of the reach. Thus, the predicted timing, peak, duration and slope of the flood hydrograph for the downstream point become known in a few minutes and specific warning can be broadcast to all threatened communities in time to permit evacuation and protective measures. Generally speaking, the analogue will also do more accurate routing than can be done by manual methods. It gives a complete graph, rather than a few points for drawing a curve, and the graph shows definitely the peak that might be missed in sketching a curve through points computed manually. The machine is the work of three Weather Bureau employees, Ray K. Linsley, Laurence W. Foskett, and Max A. Kohler, who have been officially honored for their achievement (TOPICS, March 1949).

Basically, the new device analyzes flood waves by electrical analogy. The analogy between the flow of current in an electrical circuit and the flow of water in a permeable medium has long been recognized and has been used in analyses of flownets under dams and in drainage systems. The analogy between electrical flow and water flow may be exploited much further in the solution of streamflow routing problems. In addition to providing a simple, fast, and accurate method for routing flood waves, it obviates the need for development of flow-storage relations, a time-consuming preliminary to most routing procedures.

To produce the outflow hydrograph for any selected river reach, it is necessary to have only two factors, in addition to the inflow hydrograph. These are constants determined from past floods for each river reach, one being a storage factor with the dimension of time, and the other a weighting factor representing the relative importance of inflow in controlling storage in the reach. The analogue procedure is, thus, to adjust resistances in accord with the proper values for these constants and then to vary the inflow current in correspondence with the inflow hydrograph. The outflow current then simulates the outflow hydrograph. The current model, illustrated, has two inflow positions, which allows simultaneous processing of both the inflow from the upper end of the reach and the local inflow from runoff within the reach.

The advantages of the electronic routing analogue are not confined to forecasting. It can also be used to determine the required constants by trial, rather than by statistical analysis. If a run is



made with estimated values, comparison of the observed and computed hydrographs will show the adjustments necessary to obtain better agreement. A test of the adopted values on other hydrographs for the same reach will provide final confirmation of the constants or data upon which to base a selection of the best average values for the reach.

A technical paper on the analogue appeared in the Engineering News-Record of December 9, 1948. A limited number of reprints for distribution are available in the Central Office. Copies of a more recent paper (presented at the Jackson, Miss., meeting of the ASCE, October 1950, and to be published in the Proceedings) are also available. ■

Weather Service on the Great Lakes

THE Cleveland Weather Bureau Office is in direct contact with the shipping industry on the Great Lakes, one of the major factors in the defense effort in the United States. The Weather Bureau service expedites and safeguards this vital transportation operation. Since the headquarters of the shipping companies are concentrated in the Cleveland area and the Great Lakes District Office of the Coast Guard is located in Cleveland, it was natural that the liaison and observations duties for this service be assigned to Cleveland. Weather reporting by vessels and by numerous harbor and island observation points has been greatly expanded since the great Armistice Day storm in 1940. Ships engaged in the observational program are equipped with wind instruments, with special provision for integrating the boat's motion and apparent wind in order to determine the true wind direction and speed.

The navigation season last year extended from late March until mid-December. During this interval, 18,000 vessel weather reports were received by radio and teletype in Cleveland. These were assembled into bulletins and immediately radioed for the information of all marine interests. The reports are also made available, via teletypewriter, to the District Forecast Office in Chicago and to various other Weather Bureau offices engaged in Weather service for the Great Lakes.

A vessel unloading thousands of tons of ore at a lake port must accomplish this in three to five hours and depart on the return trip. Consequently, contact visits are on a "touch-and-go" basis at all times of the day and night. Contacts with busy masters and mates are necessary to keep this cooperative effort alive and dependable. Also, instrumental equipment must be serviced and placed in first-class operating condition during this short in-port period.

Major marine accidents, since 1940, resulting from adverse weather on the Great Lakes, have been so few that the obvious conclusion is that this is due in no small measure to the improvement in weather service. This is in the best tradition of the weather service which was organically constituted in a joint resolution of Congress in 1870, which read in part, ". . . . . and for giving notice on the northern lakes and on the sea coast . . . . . of the approach and force of storms." ■

It Can Be Done

One of the fears which constantly beset anyone who has to plan or manage programs is that he will lose touch with the actual operating limitations and problems, and that his carefully thought out directives, while completely logical to him, may not be workable. We are constantly on guard against this, but it is hard to be certain how successful we are; it is consequently gratifying to receive reports like the recent one from a regional director, part of which is quoted below:

"At the airport, under (the Chief Airport Meteorologist) there is a very definite interest in the technical phases of their work. The station is positive proof that the quantity of work done is not necessarily a deterrent to technical, personal, or group advancement. And the quantity of work is large! They have a very extensive and well-developed public service program that is state-wide, using the three main press service wires for dissemination. Personalized service is at a minimum, but general state-wide service is at a maximum in comparison with most other stations. The program seems to fit exactly the ideas of the Central Office in this respect.

"At both the city office and the airport, one gets the very definite impression that those in a supervisory capacity take a personal interest in the training of every other employee, and it appears that they are quite successful. In the administrative field, (the Chief Airport Meteorologist) is delegating as much of the routine work as possible and devoting his time to the service program." ■

Fire Weather

THE PROTECTION of the forests for timber production, watershed management, game conservation, and public recreation is the prime reason for the Weather Bureau fire-weather service.

The fire-weather program in the states of North Carolina, South Carolina, Kentucky, Tennessee, Virginia, West Virginia and the extreme northern portion of Georgia, all of which comprise District 8, is a major responsibility of the Weather Bureau Office at Asheville, North Carolina. Forecasts and warnings are furnished to national and state forest fire control agencies within the area. Under the protection of these organizations are 66 3/4 million acres of forests. The latest estimate of the volume of commercial saw timber contained in them is 137,273 million board feet, having a value of over two billion dollars. Timber is harvested in a manner to insure crops for future generations.

In the year 1950 alone, 20,728 (mostly "man-made") fires occurred in these protected units, destroying or damaging 878,488 acres of timber and causing losses estimated at $3,008,662.

Forecasts are issued to assist forecasters in reducing this loss in a natural resource that supports, directly or indirectly, at least one-third of people living within the area.

During two periods of the year (February 15 through May 15 and October 15 through December 15) when fire danger is at a maximum, three types of forecasts are supplied to 95 fire control units. They are (1) daily; (2) "four-day forecasts;" and (3) special forecasts covering individual going-fires. The daily forecasts contain specific information about sky conditions, precipitation, wind direction, temperature and fuel moisture for the current day, the following night and the succeeding day in terms which permit a forester to compute the fire risk and assist him in making operational plans looking to the prevention and control of fires. "Four-day" forecasts are issued each Tuesday and Friday, containing information about the principal weather changes to be expected within each four-day period. Special forecasts are issued upon request to cover any problem associated with fire control tactics specified by the person requesting the forecasts.

The fire-weather forecast headquarters is appropriately located in the heart of western North Carolina where forests abound and where forest fire control administrative and research units are located. Close contact is maintained with foresters studying fire control and fire behavior problems. Advice and information can be obtained from both state and federal foresters who actually fight the fires. [Editor's Note: Foresters in the southeast have, for a number of years, indicated their appreciation for, and satisfaction with, the Asheville fire-weather forecasts, which are "tailor-made" for individual ranger districts.]

Atlantic Weather Project

Twelve years! To those of us associated with the Ocean Weather Observational Program of today, it is difficult to believe that so short a time ago as January 25, 1940, the President, at the request of the Weather Bureau, officially authorized the Atlantic Weather Observation Service. Five Coast Guart Cutters on neutrality patrol at that time were assigned to take turns patrolling two ocean stations located between Bermuda and the Azores. These sites were selected because they lay within a heavily travelled aircraft route. On February 10, 1940, the Coast Guard Cutters BIBB and DUANE, carrying Weather Bureau personnel and equipment, physically assumed these ocean stations. Thus, the ocean station program was initiated and for the first time, regular synoptic weather observations at sea were taken by trained Weather Bureau observers.

Additional stations were considered as the need for them became apparent. Soon a third ocean station was established about five hundred miles northeast of Newfoundland. By July of 1942, when the first fighter planes were being flown across the Atlantic via a chain of Army airports, bridging the ocean from Labrador to Greenland, two more stations were established along this route, bringing the total to five in the Atlantic Ocean. Just prior to the Normandy Invasion, three more stations were placed in the mid-Atlantic.

At the peak, Atlantic Ocean stations numbered twenty-two. Of these, thirteen were manned by the United States and the remaining nine by European countries. Obviously, this number would not be required indefinitely, since a large percentage was authorized to aid in the war effort. It was inevitable that the post-war period bring a change in the ocean station program and, early in 1946, the number of United States-manned stations

dropped to six. Participation by other nations decreased proportionately.

The first step to establish the weather patrol on a permanent peacetime basis was taken at the North Atlantic Route Conference of the Provisional International Civil Aviation Organization at Dublin in March, 1946. This conference recommended the establishment of thirteen stations, of which the United States would provide seven and share another with Canada. Later, another change, decreasing the total number of stations to ten, was instituted. Today, the United States is responsible for five ocean weather stations and shares another with the Netherlands Government. Norway, Great Britain, France and the Netherlands operate the four remaining stations, with monetary contributions from a number of other countries.

To man the stations which are the responsibility of the United States, twenty-two Coast Guard Cutters are completely and permanently outfitted for Atlantic Weather Patrol duty. A staff of sixty-five observers is required; of these, thirty-eight are stationed at Boston, Massachusetts, fourteen at New York and thirteen at Norfolk, Virginia.

The function of an ocean station can be broken down into two main fields—scientific and operational. In the scientific phase, the ocean station ship makes both meteorological and oceanographic observations. Four or five observers working as a team are assigned to the Coast Guard Cutters scheduled for patrol duty. While the vessel is at sea, they accomplish the full observational program of three-hourly synoptics, two radar wind observations (or rawins), and two rawinsonde observations daily.

An assignment on the Atlantic Weather Project is one that is viewed by the men with mixed emotions. They all leave port with some regret. Once aboard ship, however, there is the constant challenge of completing assignments in the face of adverse conditions not encountered on land stations and they are kept busy enough so that thought of the world ashore fades to relative insignificance. Then, too, the overtime pay and compensatory time are concrete incentives to the ambitious and venturesome spirit of the ocean weather man and largely compensate for being on this unusual type of duty. When the men weigh the advantages and disadvantages of the Project, with few exceptions they are not quick to sever their connection with the Atlantic Weather Project.

The Project "recruit" and "old salt" both look forward with some anticipation to new friendships made during patrols, to the relaxation to be enjoyed on return from the voyage and to the spinning of sea yarns with the other AWP men. Many of the men who have had the opportunity to visit Bermuda, the Azores, Ireland, England and Scotland, find it a restful relief from the strain of an on-station patrol. These opportunities to visit foreign ports are, unfortunately, not common enough to be a regular patrol feature, but the value of rest and relaxation on occasion prompts the scheduling of the vessel for a brief stay at some of these ports.

ATLANTIC CITY

Weather for a Major Resort

The MAJOR industry of the seashore resorts along the New Jersey Coast, America's Playground and Vacation Center, is that of catering to the vacationer and those attending national conventions. There are varied programs of entertainment for the guests and visitors at the famous piers, numerous night clubs and famous Boardwalk restaurants. The property value of the seashore resorts catering to the sixteen millions of visitors annually from all over the United States and Canada is measured in hundreds of millions of dollars. The income from the resort industry is the third largest in the State.

The New Jersey beaches are among the finest natural means of recreation and pleasure within a comparatively short distance from the great metropolitan centers of Philadelphia, New York, Baltimore and Washington, besides all the northern New Jersey and eastern Pennsylvania areas. Along the many miles of ocean front in southern New Jersey there are probably as many as 500,000 or more bathers on a warm day during the summer season.

For Atlantic City the main income source is dependent almost entirely on "WEATHER." There are approximately 1400 hotels in Atlantic City; the largest of these are along the beachfront. Of extreme interest is that on a summer holiday only, one pier alone had about 78,000 paid admissions; also one world famous restaurant served as many as 14,000 meals in one day during a summer season. Ocean City, 10 miles south of Atlantic City, also has some large beachfront restaurants, as has Wildwood. In Atlantic City and immediate adjacent coastal area, 300,000 persons are summer boating enthusiasts. Telephone calls for weather information are received in season from all the business

interests up and down the coast with Atlantic City as the center. As is the case in all instances where the main source of income is so dependent on weather, the population is extremely weather-conscious and very closely follow the Weather Bureau's forecasts.

The hotels, restaurants, butchers, bakeries, ice cream makers, soft drink dealers, specialty shops on Boardwalk, amusement piers, provision merchants and fishermen must have advance information about the weather, especially week-end weather, to properly prepare for the influx of week-end visitors. Tons of frankfurters and hamburgers are required over a favorable week-end to satisfy the demands on the hundreds of small concessions. If they know in advance of a favorable week-end, special provisions are brought in from all over the country by water, rail and air. Also, the hotels and restaurants have their fixed staff for the ordinary daily flow of business, but which must be augmented for anticipated heavy week-end business. The same factor applies to department stores, ice cream concessions, candy shops, soft drinks, night clubs, auction houses, and many other business establishments. The State Department of Conservation and Development disclosed that the value of the seashore resort business in New Jersey in 1951 totalled $1,188,780,000. Atlantic City alone accounts for over half of this business.

Atlantic City is the 7th city in the entire United States in the number of hotel rooms, being surpassed only by cities such as New York, Chicago and San Francisco.

On a good fishing day as many as 4000 boats are out between Sandy Hook and Cape May Point. With the thousands of lives involved, small craft warnings and storm warnings along the New Jersey Coast are vitally important. The Atlantic City Storm Warning Display District extends from Cape May Point to Manasquan, New Jersey, a distance of about 100 miles. There are a number of display stations in this District for the protection and safety of lives and property.

Undoubtedly weather is probably the foremost and most important single topic of conversation in the Atlantic City area. By far, the major responsibility of the Atlantic City Weather Bureau Office is furnishing up-to-date weather advices to a concentrated population which literally eats, drinks, sleeps and lives by WEATHER. ■

SCIENTIFIC ACHIEVEMENT

Max Kohler Honored

AMONG the recipients of the 1951 Awards for Scientific Achievement presented by the Washington Academy of Sciences on March 20, 1952, was Mr. Max A. Kohler, Chief Research Hydrologist in the Hydrologic Services Division. The award was granted in the engineering sciences "for distinguished investigations of rainfall, runoff, and flood predictions." Mr. Kohler has been with the Bureau since 1939, has had published a number of important papers on hydrology, is co-author of the textbook "Applied Hydrology," and helped develop the electronic flood routing analogue discussed elsewhere in this issue.

RETIREMENTS

George L. Hilliard

DISABILITY retirement March 31, 1952, ended more than seven years' service in the Weather Bureau for George L. Hilliard, Library Assistant at the Central Office. Mr. Hilliard, in addition to his service in the Bureau, had worked for seven years (1920 to 1927) for the Railway Mail Service, and between these two periods had been employed in the W PA and the Federal Works Administration.

He lives at 135 R Street, N.E., Washington 2, D. C. □

George P. Murphy

GEORGE P. MURPHY retired April 30, 1952, at the age of 61, after over 36 years with the Bureau. Mr. Murphy transferred from Portland, Oregon to Seattle, Washington in 1947 and for the last three and a half years has been in charge of the Climatological Unit at the Seattle-Tacoma Airport Station.

Between the time he entered the Bureau as an Assistant Observer in 1916 and his assignment to Portland, he was stationed at a number of Bureau offices including Wagon Wheel Gap, Grand Junction, Denver, Salt Lake, and Topeka.

Mr. Murphy's present address is 1305 East Howell Street, Apt. 202, Seattle 22, Washington. □

Mrs. Georgia B. Sydnor

AFTER eleven years of government service, ten of them with the Weather Bureau, Mrs. Georgia B. Sydnor, of the Communications and Bulletin Unit, Washington, D. C., retired on account of disability on March 31, 1952.

Mrs. Sydnor came to the Bureau from the Railroad Retirement Board in 1942, and her entire service with us has been in the Communications and Bulletin Unit, where she was a shift supervisor at the time of her retirement. Her address on retirement is 504 Grove Avenue, West Falls Church, Virginia. ■

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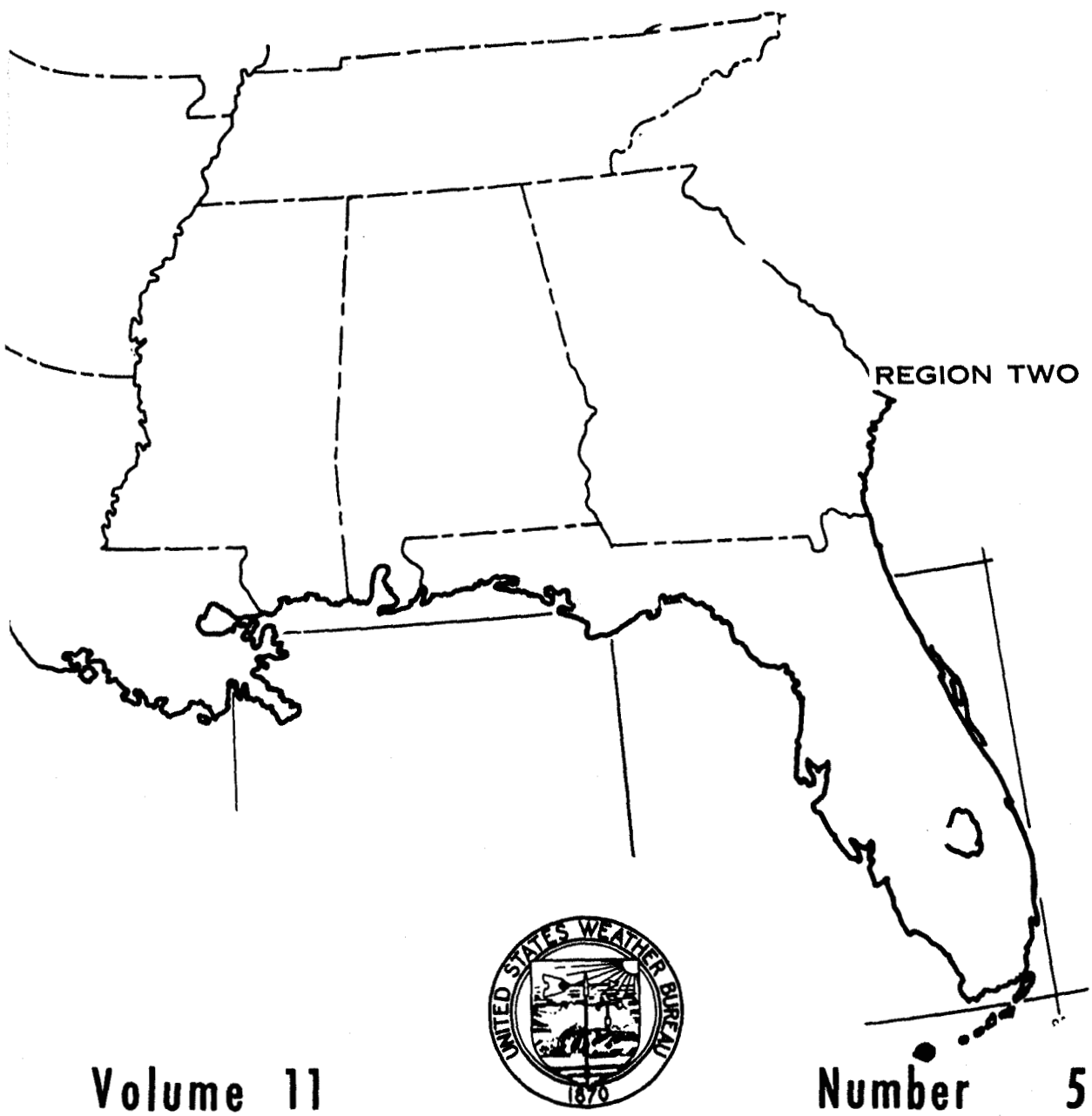
WEATHER BUREAU

TOPICS

MAY
1952



Volume 11 Number 5

WEATHER BUREAU TOPICS is published monthly to inform all employees about newsworthy operations and work programs of the Bureau; to give background on instructions; to carry news of new personnel assignments, retirements, deaths, and similar information about employees; and to serve as a medium through which ideas and views may be exchanged to promote efficiency and teamwork in attaining our common goals. While the contents, unless otherwise specified, reflect the Central Office viewpoint, they are not instructions but are presented for information. Opinions, discussions or comments by readers are invited; they should be marked for the attention of the Editor, TOPICS. WEATHER BUREAU TOPICS is distributed for official use only.

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In the Good Old Summer Time

COMES now the time of year when the voice on the office phone begins to ask, "How will the weather be in New England for the next couple of weeks? I'm thinking of driving up there on my vacation."

And, as he picks up his blue pencil and turns back to his search for that elusive cold front, a faraway gleam begins to grow in the eye of the weatherman. Thoughts of a string of lazy days far from the sound of the teletypewriter, free of the worry of whether that last pilot will get to his destination before it closes in, begin to intrude. Why can't he have a summer vacation, too?

As far as we can see, there is no reason he shouldn't—at most stations the lightest weather load comes in the summer, and, all other things being equal, each employee should be entitled to a vacation reasonably near the season of the year he likes best. True, on some stations seasonal demands, such as hurricane weather, make summer the busiest time of the year, at least potentially.

But, as is pointed out in Paragraph I-F-5105-b of the Weather Bureau Manual, annual leave "may still be scheduled if mutually agreeable arrangements can be made so that the employee is available for recall from leave if required." MIC's should review sections "a" and "b" of Paragraph I-5-5105; it is their responsibility to see that their stations do not suffer from lack of manpower at crucial times, but they should also remember that, in this day of fast communication and transportation, they may relax a little from practices which have been followed in the past.

As we write this, the sky outside the office window is beginning to show a slightly brassy tinge, and the summer cumuli are beginning to form. Maybe we'll meet you somewhere. ■

Forecast By-lines

THE FOLLOWING is taken from a recent travel report of a top regional official. We are quoting it for the information of all field offices.

"Regardless of abilities, all forecasts are issued as a Weather Bureau product and represent the combined efforts of all the staff. An individual 'byline' is not used, with the result that no single individual attempts to 'out-forecast' the others. The result is a highly satisfactory, uniform, and consistently good product." ■

What's Your Fog Index?

Much has been written lately on how to speak and write better, and a number of writers have devised methods of assaying your own ability to "communicate." Here are the musings on this subject by a Central Office official who wishes to remain anonymous.

IN the New York Times not long ago David Dempsey mentioned the fog index, devised by a man named Gunning, probably for the purpose of making it easy for people to read the fine print on the back of freight bills of lading and other obscure pieces among which one could mention the income tax instructions and the budget estimates.

Indices of this kind—and there are many of them—do not gage the ability of a person to write clearly and hold the attention of the reader. They can give a good rating to some pretty dumb stuff and a very poor rating to pieces like Milton's Paradise Lost. In general, they say, the lower the fog index, the better the writing, but there is some doubt about it. As examples, the stuff they gave you in the first grade in school would come out at about 2, while the first sentence in the Declaration of Independence, a model of clarity, continuity, and vigor, would grade 30, which is considered lousy.

There is one nice thing about the fog index. Anybody can manage to get some comfort out of it and at the same time garner a few hints on how to improve his writing. For the information of those who are intrigued by this note, the index figure is calculated as follows: To the average number of words per sentence in your piece is added the average number of words of three syllables or more per 100, and the sum is multiplied by 0.4. Not having read Gunning's book, I don't pretend to be an expert at indexing fogs, but we in the Weather Bureau are interested in all kinds of fogs—of advection, radiation, and administration. There is the discouraging fact, however, that no matter how much I struggle to improve my writing by reference to an index of this kind, I always come out with the same answer—on the fog index it is somewhere around 12 to 15.

It is a strange fact that an index of this kind bares some hidden mental quirk which is peculiar to the individual, like the length of his nose, the size of his shoes and the way his ears flap in the wind. Not much can be done about it except by long or painful processes. The individual's fog index changes slowly with age and in that respect is like his feet. Youth is often pigeon-toed, but the feet turn out as time passes and at some age between 70 and 100 most people's feet reach the position of the hands of a clock at ten minutes after ten and look like they had just emerged from a revolving door in a high wind. Thus one's fog index starts in at 2 in the first grade in school and in middle life is likely to be up around 20, not counting cuss words. At that age we know a lot more and are less sure about most things in life, so we beat around the bush and get a higher fog index.

How, then, can we tell good writing from bad? Many have tried to explain the difference but their explanations are unsatisfactory. Often, I have selected a piece by a popular writer and settled back to analyze it to see just how he did it. If he was a really good writer, I found myself fifteen minutes later at the end of the piece, trembling with eagerness, ashes on my shirt front, and astounded to find that it was the butler who shot the cop and that the hero already had kissed the girl behind the geraniums. I had forgotten to notice his technique, that is, the writer's technique, not the hero's.

The observations which follow are my own. If the average word count in your sentences is 20 or lower (8 on the fog index), watch out for continuity. Your writing has a staccato quality—a machine-gun cadence—and you flit from idea to idea like a horsefly in a riding stable. You may be making too many positive, unqualified statements, and you had better go back and check on their accuracy. But, more important, the idea in one sentence may not lead logically to the next. You should read the writings of Calvin Coolidge and Lincoln's Gettysburg speech and see how these great men got continuity while spitting ideas like smoke from the exhaust pipe of a V-8.

Machine-gun writing can lead to another objectionable habit which is often detected by an examination of the first words of paragraphs. Many sentences start with "the," "this," and "these," some of which are bound to come at the beginnings of paragraphs. If more than 25% of paragraphs start with any one of these three words, it is probable that the writer has reverted to the monotonous style of the first grade in school. "This is a man. The man wears a hat. The hat is black." Even if there is a subordinate clause, he always puts it at the end of the sentence, compounding the monotony. Here are the beginnings of four sentences in one paragraph of a government publication: "The Board is ..." "The members are ..." "The Board exercises ..." "The re-

organization places ..." In one section of the same piece, all five paragraphs begin as follows: "The Board is ...," "In general, the Board performs ...," "The Board issues ...," "The Board prescribes ...," and "The Board makes ..." In the entire article, running to eight pages, exactly 50% of the paragraphs start with the word "the," and the remainder have an equally tiresome style.

On the other hand, if you have a wordy style and your count averages 60 (24 or more on the fog index), you may be repeating yourself; your writing may be tiresome because of excessive caution, fence-straddling, and maybe the habit of connecting unrelated sentences by "and"—a bad habit some of us get into. In an effort to break the monotony of too many sentences of the same length, we acquire a certain rhythm (one in five, maybe) with which we join two long sentences together to make a really long one, whether or not it actually helps to convey the ideas in the paragraph. It is a natural rhythm. Every fifth child is a Chinaman, every fifth pig is a runt, every fifth day a new Low enters the country from the Pacific, and every fifth sentence is a yard long with an "and" in the middle.

Worst of these offenses, one which makes newspapermen shudder, women and children run to the dictionary, and bureaucrats turn green with envy, is the habitual use of words like promulgate, deactivate, effectuate, finalize, proliferate, participation, mechanization, and rehabilitation. Once in a while, one of these words will astound the populace and display one's erudition, but ordinarily there is a short word which hauls just as much meaning and gets there a lot quicker.

Coming back home with the examples, we find some of our own boys writing short sentences with a poly-syllable word count in excess of the State Department's diplomatic efforts. When this happens, one suspects a studied effort to use big words.

We see the same thing done deliberately in a piece on page 32 of the February 1950 issue of TOPICS. "Bill Bureaucrat" is a man who writes clearly in short sentences, but after he wrote this one he substituted long words for the short ones, thus producing an effect sufficiently strange to be humorous.

This is not the whole story. Some long words are commonly used while some short ones send nearly everyone to the dictionary. "Administrative" is widely used; "sist" is not. There are dictionaries which give the number of times each word appears in an average 10,000 words of text.

When asked by his teacher to name the uses of the human skin, a boy said: "It hides the bones and meat, makes us look more natural, and keeps the wind out of our innards." A good writing style hides the sentence structure, makes us sound natural, and keeps the wind out of our paragraphs.

▽ ▽ ▽ ▽ ▽

In this piece the fog index is about 14. ■

Private Meteorology and the Weather Bureau

RECENTLY the Chief of Bureau was requested to give a statement on the policy of the Weather Bureau with respect to cooperation with those engaged in the private practice of applied meteorology. Although this relationship between the private meteorologist and the Bureau has been defined in Circular Letter 22-48 and other official correspondence, the statement in a somewhat different form may be of use to MIC's who receive similar requests and is quoted below for that purpose:

"It is a responsibility of the Weather Bureau to gather weather observations and distribute meteorological information including reports and forecasts for agriculture, aviation, commerce, navigation and other general branches of the business community and the general public. The Bureau also has a responsibility to promote and develop meteorological science and its practicable applications in benefit of the national economy and national defense. Under this provision, the Bureau encourages extension of the private practice of meteorology in specialized services to business and private individuals. However, it is not the function of a government agency like the Weather Bureau to offer individual services. In its meteorological services to the general public the Bureau cannot give attention to many of the local features of weather that are of significance in private commercial and industrial operations. Individuals who desire special services such as a constant watch for certain conditions of temperature and humidity, or studies of particular applications or research and statistical surveys for industrial purposes, are referred to accredited lists of private meteorological consultants. Cooperation between private meteorologists and the Weather Bureau in extending the applications and benefits of meteorology into fields beyond the scope of the Bureau's services to the general public brings manifold advantages. It promotes progress in the science of mutual interest to all meteorologists and to the public. Weather Bureau meteorologists are encouraged to point out new opportunities in applied meteorology and to cooperate in ways authorized for government employees in developing such opportunities as a function of the private consulting meteorologists." ■

The Annual Bahamas Inspection Trip

PRIOR to the beginning of the hurricane season each year, representatives of the Weather Bureau at Washington and Miami, and the Department of Telecommunications of the Bahamas Government, inspect and service the meteorological and radio equipment of the 16 Bahamas weather reporting stations. These stations were established as a cooperative project with the Bahamian government, because of the strategic location of the islands and the fact that a network of radio stations was maintained throughout the islands. The Department of Telecommunications trained its radio operators in the technique of weather observing, and the Weather Bureau furnished the instrumental equipment. Surface observations are received from 16 stations at 6-hourly intervals and, in addition, pibal observations are made at Nassau and Mayaguana. Special observations are obtained as needed during the hurricane season.

The inspection is made possible through the cooperation of the U. S. Navy in providing air transportation to the islands. The trip takes about two weeks by air and would require several months to accomplish via inter-island mail boat. Travel is by an amphibious type plane, a PBM or a PBY, since all landings are on water, with the exception of those at Nassau and Grand Bahama. Most of the stations are reasonably accessible after landing; however, a 5-horsepower outboard motor has been added as standard equipment to speed up transportation by native dinghy to and from the stations. In years prior to 1951, the dinghies were maneuvered by rowing or sculling, which consumed as much as 3 hours at some of the more remote stations.

The inspection trip for the current year is planned for April 28-May 12, with the U. S. Navy furnishing transportation. Upon arrival at Nassau, conferences will be held with representatives of the Department of Telecommunications to lay plans for visits to, and work to be done at, the various weather reporting stations. Representatives of the British Air Ministry at the Meteorological Office are contacted. Courtesy visits will be made, as in the past, with the Colonial Secretary and the U. S. Consul at Nassau. Several members of the Assembly are usually met informally. The Commissioner of each island or district visited is contacted. He in reality collects and pays out moneys for the Bahamian government and acts as the government representative. Reporters from the Nassau newspapers are always received and given a full story of the proposed trip.

Nassau is base of operations for the northern group of stations, due to hotel and restaurant facilities. Usually two stations are visited and serviced daily, with overnight at Nassau. Due to the great distances of the southern group of islands from Nassau, Guantanamo Bay, Cuba, serves as operating base for this group of stations. Courtesy visits are always made with the base Commander and with the Aerological Officer.

Many points of interest are visited. On Grand Bahama several millions of dollars have been spent on the huge Butlin Development, which consists of the finest in modern apartments, stores, theatres, etc., to meet the tourists' requirements. A quiet, wholesome, and secluded type of living is to be found on Little and Great Abaco, Eleuthera, and Harbour Islands. San Salvador or Watlings Island was the first landing place of Columbus on October 12, 1492. Incidentally, the radio operator at San Salvador is quite a man in his native locale. He not only observes the weather and communications via radio with the outside world, but acts as midwife, preacher, lawyer, peacemaker, and mortician. In his own words, "I take care of the people from womb to tomb."

Great Inagua and, to a much lesser extent, Ragged and Turks, Island, produce considerable salt, by evaporating the ocean water in huge salt pans. This type of unrefined salt is shipped to Norway, Sweden, Japan, and other places for curing and preserving fish. Several thousand wild flamingos are to be found on the large salt lake in the interior of Great Inagua Island. This concentration is believed to have been on Andros Island originally but, because of airplane traffic during the past few years, was forced to seek new quarters. A few flamingos are also reported on several of the islands south of the latitude of Nassau.

Nassau has several types of interest. Old Fort Montague at the east entrance and Fort Charlotte at the west entrance to the natural harbor are of historical interest. The Governor's mansion, the various Government buildings, the ancient churches, and many other structures of historical architecture are noteworthy. On the waterfront is the city market, where hundreds of native weavers of baskets, hats, bags, etc., make and sell their wares from small booths. Numerous large, modern, and beautiful hotels and homes abound, especially on the east, north, and west shores of the island.

Several magazines have expressed an interest in publishing a story of the yearly inspection trip.

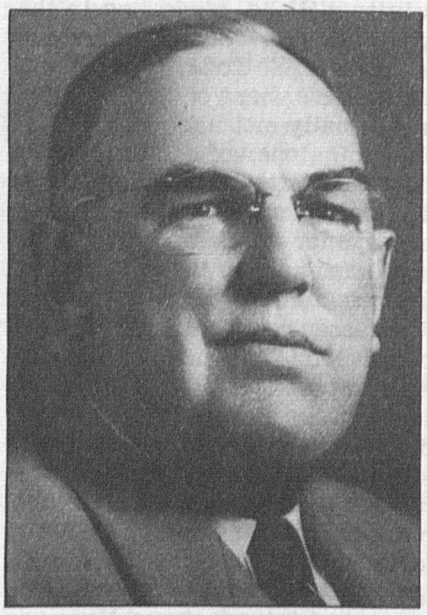
MEET THE REGIONAL DIRECTOR

Region Two

ERLE LEROY HARDY was born August 31, 1894, under conditions that could have been fatal to one of less stamina; his self-admitted motto is, "I came into this world fighting and expect to depart in the same manner."

As Mr. Hardy tells it, he first saw the light of day on a sand bar of the Missouri River, in South Dakota. His prospective father and mother, knowing that time was short, had started in a buggy to obtain the assistance of a doctor. After proceeding some distance across country, it became obvious that the mother-to-be could go no further and she was left behind with a squaw who lived in a mud hut on a low bank overlooking the Missouri, while Hardy senior continued on at top speed in search of a doctor. As the two women waited, a prairie fire swept toward the hut, forcing Mrs. Hardy and the squaw to flee to the precarious safety of a barren sand bar in the shallow waters of the Missouri River. As the fire swept across the low lying but somewhat protecting river banks, infant Erle arrived, increasing the population of the sand bar by fifty per cent.

With the passing of time, the Hardy family moved to New Mexico where young Erle cornered the newspaper delivery routes in Santa Fe, gaining valuable experience while still attending public school. Upon completing high school, he entered the local Weather Bureau office on February 8, 1912, as messenger boy at $360 p/a. Within a couple of years, he realized the need for additional education and took two years of LWOP to attend State College at Las Cruces, New Mexico. During this time, Mr. Hardy maintained his Weather Bureau connections by serving as cooperative observer at the college observatory. In February 1917, shortly after returning to the Santa Fe Weather Bureau office as an Assistant Observer (where he did considerable work in solar radiation), Mr. Hardy felt he was in a position to marry his Santa Fe sweetheart, Maude Lucile Douthitt. One year after the marriage, he entered the Army as the result of World War I, and



was in "the thick of things" overseas for the next year.

In 1919, he returned to duty at Santa Fe where he continued until he transferred in charge of Wagon Wheel Gap, Colorado, in 1923. There he made a considerable contribution, frequently under hazardous working conditions, in snowfall measurements and runoff. In 1926, he transferred to Los Angeles and participated in fruit-frost work. In 1927 he was assigned in charge of the Ft. Wayne, Indiana office, where he began to delve into aviation work. In 1932 he returned to Santa Fe as Section Director, thence to Albuquerque the following year. Under his leadership, the Albuquerque office rapidly took on many important functions--Section Center for New Mexico; hydrology; and district, aviation, and fire weather forecasting.

In the spring of 1941, Mr. Hardy participated in a conference at Denver, Colorado, which became a preliminary to the establishment of Weather Bureau regional offices. In the fall of that year the regional plan was put into effect and Mr. Hardy became Regional Director for Region Four, with headquarters at Fort Worth, Texas, the region consisting of Texas, New Mexico, Oklahoma, Arkansas, and Louisiana, with Swan Island and some Central American stations thrown in for good measure. Time passed and some two years ago the original seven regions in the continental United States were reorganized into four regions; and Mr. Hardy continued as Regional Director of the present Region Two, consisting of the former Region Four plus the states of Tennessee, Mississippi, Alabama, Georgia, and Florida, with headquarters remaining at Fort Worth.

Mr. Hardy is a stocky man of medium height, and is as alert, resourceful, and aggressive as they come. He is "Southwestern" lock, stock, and barrel; and lives "weather" 24 hours a day. He is both civic and professional minded. No problem is too great or too small for his personal attention, and he is accessible at all times to all comers. His knack for getting a job done in a minimum of time is legendary, and his loyalty to the Bureau borders on the extreme. The words "can't" and "assume" have no place in his vocabulary, and alibis are taboo. Perhaps it is the combination of these attributes that results in Region Two getting a large share of pilot

projects, for if a project can be made to work, Region Two will do it, and with dispatch.

His wealth of experience is a fountain from which he gladly dispenses help and guidance for those who come to know him. He has encouraged many young people to seek additional education, join service and professional clubs, etc., from which they will eventually reap a fuller life. Erleyne (Mrs. William Bradley) is the only survivor of three children--one boy and two girls. She received her degree in music from Texas Christian University, and with her husband "Bill," is now in charge of the Music Department of the public school system at Comanche, Texas, conveniently located some 100 miles from Fort Worth--and from Mother and Dad.

Mr. and Mrs. Hardy are gracious hosts, as the many friends who have enjoyed the hospitality of their home from time to time can testify. Mr. Hardy continues to add to the amazing store of unusual exploits that have marked his career, and to astonish all his co-workers with his seemingly boundless energy and "will to do." If he ever had a nickname, it seems to have dropped out of sight, and that is understandable when one appraises the universal respect won and kept by "Mister Hardy," or "Erle" to his close associates and friends. ■

A New Public Service Unit

A NEW Public Service Unit went into operation at Albuquerque, N. M., on Sunday, March 23, 1952, without increase in the over-all staff of the station. This new unit was set up to meet the rapidly increasing demand for weather services not associated with aviation. Simultaneously with the activation of this unit, the Aviation Forecast Unit began, four shifts per day, devoting all its attention to aviation forecasting and pilot briefing.

The new Public Service Unit launched immediately upon a fairly active public service program. All forecasting services of the station not related directly to aviation have been taken over. This includes a considerable volume of routine service by telephone; a schedule of four daily radio broadcasts of three to five minutes each; the preparation of local general forecasts (36-hour period) for nine of the larger communities of New Mexico once daily, with amendments when necessary; and four editions daily of local forecasts for Albuquerque and vicinity. In addition, the unit issues daily highway weather advisories, for all major State and National highways through New Mexico (see TOPICS, February 1952). Fire-weather forecasting, formerly handled by the Aviation Forecast Unit, was taken over; on occasion, this fire-weather job develops into a major activity, as it did during the 1951 season in New Mexico.

The new unit takes an active part in the work of the Albuquerque River District, keeping watch on any possible heavy rain developments over the Upper Rio Grande, San Juan, and Pecos watersheds, especially during the critical period of springtime snow melt that usually falls in May, especially considering the need for flood protection warnings for Alamogordo Dam, on the Pecos. Routinely, the unit will receive and compile the daily river stage reports during the springtime run-off.

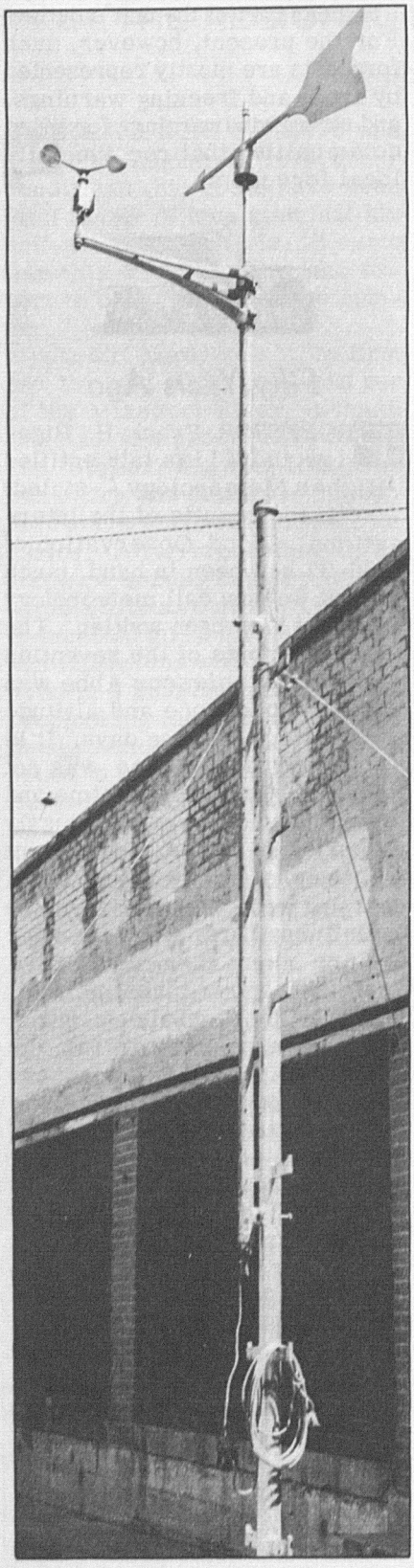
Some specialized agricultural forecasting will eventually become a regular part of the unit's duties. For the present, however, such forecasts are mostly represented by frost and freezing warnings, and strong wind warnings for those communities that receive daily local forecasts. ■

Fifty Years Ago

PROFESSOR Frank H. Bigelow, in 1901 in a talk entitled "Higher Meteorology," stated:

"If the results of the International Cloud Observation of 1896-97 had been in hand, much of what we now call meteorology would not have been written. The official reports of the seventies show that Professor Abbe was urging nephoscope and altitude observations in those days. It is a pity that his advice was not followed. Consider the time and labor wasted and money uselessly expended in trying to construct a theory of meteorology from guessing as to the motions of the upper atmosphere. A few thousand dollars spent then would have been the best of investments."

Today, by pilot balloon, rawin, raob and rason observations, the lower portion of the atmosphere over a large part of the world is rather adequately explored. BUT - - with the advent of the jet age, aren't we faced with only meager knowledge of the upper atmosphere and stratosphere? The use of jet aircraft for commercial and airline operations will necessitate and perhaps furnish the impetus required. Who knows but when the complexities of the higher altitudes are more thoroughly known that we may repeat in the words of Professor Bigelow: "...much of what we now call meteorology today would not have been written." ■



Cooperative Coast Guard Weather Stations

The Facilities and Observations Unit of Region Two has been faced with many difficult rehabilitation jobs during its existence but the revamping of the Coast Guard wind instrument exposures to eliminate extreme hazard attending servicing of the instruments was probably the most perplexing, and was the cause of more headaches than any other one problem.

Coast Guard installations in Region Two, providing part- or full-time weather observations, number some 25 stations located at strategic points along or just off the Gulf and Atlantic coasts from Brownsville, Texas, to Savannah, Georgia, a coastline distance of approximately 3,000 miles.

Facilities used as weather reporting stations are lightships, lighthouses, and lifeboat stations. These were generally set up for observations, in cooperation with the U. S. Weather Bureau, in 1942 and 1943, although some of the lifeboat stations began in 1935 and the lightships as late as 1947. The original observational equipment at the lighthouse stations was Coast Guard property and the installations were made by Coast Guard personnel. Coastal lights are on huge steel towers, each topped by the lamp house, and they range in height from 95 feet at Carysfort Reef to 165 feet at Dry Tortugas. A catwalk, with a 3-foot guard rail, extends around the base of the lamp house. The wind equipment was exposed on a 20-foot galvanized support, the base of which rested on the catwalk. It was bolted to the guard rail and guyed with two galvanized pipes to a metal brace around the top of the lamp house. The anemometer and wind vane extended about two feet above the light.

The installations were good and were quite safe when first put up, except for persons affected by height. However, even galvanized metal is subject in time to the adverse effect of the moist, salty air. By 1948, when the Weather Bureau first took an active part in the maintenance of this equipment, it was very evident that all supports and instruments must soon be replaced and that something would have to be done to afford safety for the man who must climb up to service the instruments. By 1949 the supports were in very dangerous condition and the Coast Guardsmen ceased all attempts at maintenance.

At the lifeboat stations the situation was very similar, except that the exposures were atop the peak of the roof of the boathouse about 50 feet above ground and the supports were only seven feet in height. A lookout catwalk, three feet in width, extends around the top room (10 feet square), the roof of which extends 6 inches beyond the catwalk for protection against the weather. No means of access to the instruments on the roof was provided. One could stand on the top guard rail around the catwalk and pull oneself up onto the overhanging roof providing strength and nerve did not fail. However, maintenance was usually delayed, pending the infrequent visits of Weather Bureau personnel.

Attempts to have the stations rehabilitated by the Coast Guard were unsuccessful, and since there was in effect a working agreement that equipment was to be furnished by the Weather Bureau, authority was requested to re-

place most of the equipment and the wiring.

The difficulty attending the servicing of anemometers and wind vanes exposed on lighthouses was overcome by using specially constructed supports capable of being lowered sufficiently to enable servicing by the observer while standing on the catwalk. These were fabricated in Fort Worth at a contract price of $41.00 each. Material for support and braces was steel, galvanized after construction.

Briefly, this type support is in two main sections. One is a 2-inch piece of tubing, 12 feet long, attached securely to the lamp house near the roof level, the base bolted to the steel deck of the catwalk, steps welded on at 12-inch intervals. The other section is a 1 1/4-inch tube, 9 feet in length, mounted on the larger tube in a manner to permit lowering the upper end to a suitable height, with fastenings to control the swing of the upper section. The wind vane and anemometer are placed at the top and can thus be swung down for servicing. (Specifications covering this design can be obtained from the SF&MO Division of the Central Office.)

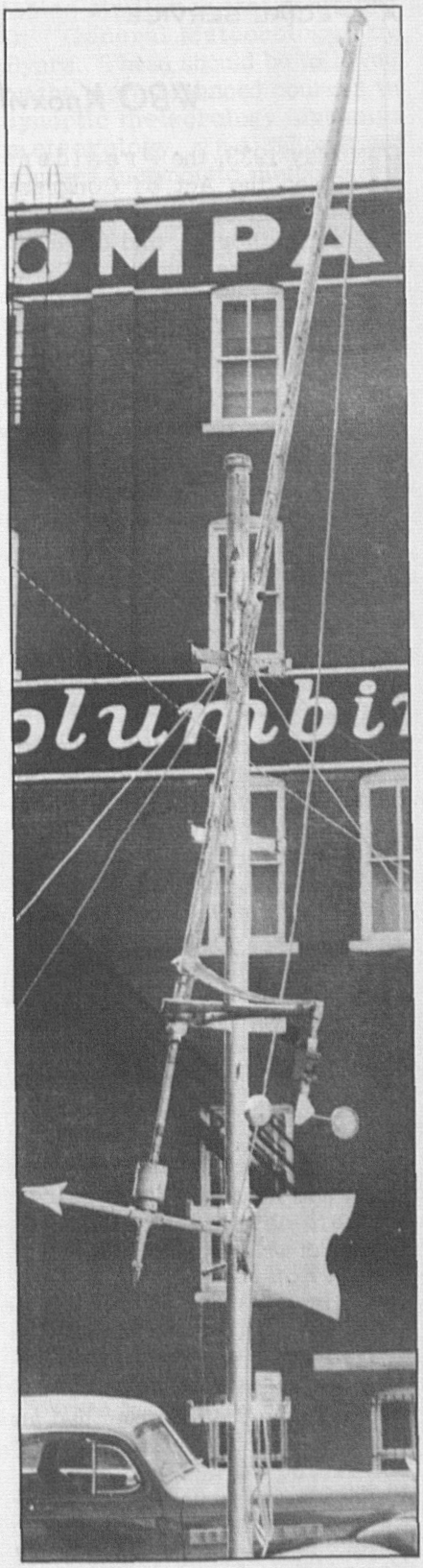
Authority was obtained from the Coast Guard for making 2 x 2-foot cuts through the eaves of roofs at the several lifeboat stations. These openings were flashed with 1/8-inch copper sheet, which was cut to fit and soldered on the job. Ladders were placed to afford access to the roof. These also were constructed in Fort Worth, the rungs welded in place and the whole galvanized after construction. In place, the ladders extend well above the opening with the upper part curved and the ends attached to the roof near the apex, thus affording a hand grip and guard rail.

The job of rehabilitating and replacing instrumental equipment, and rendering it accessible was not expensive by commercial standards; and after nearly two years, the instruments show no lack of maintenance nor have there been any accidents while servicing. This has fully justified the considerable effort on the part of the General Maintenance Technicians, and the reasonable cost of the equipment. ■

WORTH READING

Air Pollution

ON May 3-5, 1950, the U. S. Technical Conference on Air Pollution was held in Washington, D. C. This meeting was conducted at the request of the President of the United States and organized by an interdepartmental committee consisting of members from the Bureau of Mines, Public Health Service, Agriculture, Atomic Energy Commission, Department of Defense, Bureau of Standards, and the Weather Bureau. Dr. Louis C. McCabe, Bureau of Mines, was the chairman. Separate panels were organized for Agriculture, Analytical Methods and Properties, Equipment, Health, Instrumentation, Legislation, and Meteorology. The entire proceedings of this three-day conference were transcribed and have been condensed into an 850-page book on "Air Pollution" published by the McGraw Hill Book Company, March 1952. Four copies of this timely book have been placed in the Weather Bureau Library and are available for loan. It is recommended that any office interested in, or cooperating with, a local air pollution program familiarize itself with this publication. ■



A SPECIAL SERVICE

WBO Knoxville and the TVA

IN May 1933, the President signed the Act of Congress which created the Tennessee Valley Authority, and directed it to control the Tennessee River to provide for navigation, flood control, and the production of power incidental to such development. This act provided a new approach to the problem of water control, the unified development of an entire drainage basin.

During the first years of the TVA, great use was made of the Weather Bureau river and rainfall records for the planning and design of its projects. From 1933 to 1938, the operations of the TVA were carried out without benefit of a specialized daily weather service.

By the end of 1938, the Authority had a sufficient number of water control projects in daily operation to make a specialized weather service desirable. As a result of this growing need, in 1939, the TVA and the Weather Bureau entered into a cooperative memorandum of understanding, under which the Bureau agreed to supply a specialized weather service to meet the specific needs of the Authority. The Knoxville, Tennessee office was staffed to provide this service.

Stimulated by the need for more and more electric energy for national defense, the TVA system of water control and power generation has expanded many fold since 1939. As of June 1, 1939, the TVA system consisted of five reservoirs, four on the main river and only one on the tributaries. This system had an installed hydro-electric capacity of 421,750 kw and was supplemented by an additional fuel capacity of 59,300 kw. As of April 1, 1952, the system consisted of 34 reservoirs, nine on the main river and 25 on the tributaries, with an installed hydro-electric capacity of 2,968,360 kw, supplemented by an additional fuel plant capacity of 781,550 kw. The efficient day-to-day operation of this system for the multiple purposes of navigation, flood control, and power generation has become a complicated operation in which prospective weather is a vital factor.

Because of growth of the TVA system and the many related changes which had taken place since the first agreement was signed in 1939, a new and greatly expanded cooperative agreement was executed in June of 1951. As under the original agreement, the Knoxville Weather Bureau Office supplies all of the different meteorological services that are needed in the daily operation of the system.

Daily quantitative precipitation forecasts are provided twice daily during the summer and fall months and three times daily during the winter and spring flood season. They are projected 36 hours in the future, and cover the entire 40,000 square-mile drainage area divided into seven sections of orographic homogeneity. They are used in scheduling water releases and power generation at the various projects. These forecasts are based on independent analysis of all available data and they employ both objective and subjective techniques which have been developed by the station and Central Office personnel.

To aid the TVA engineers in the daily planning of system operations, the Knoxville office also provides the services of a meteorologist for daily personal conference in the TVA offices. A TVA-owned automobile has been assigned to the Weather Bureau for transportation between the airport and the city.

In addition to the quantitative precipitation forecasts, specialized utility operation forecasts are provided daily. These are specific forecasts of highest and lowest temperatures expected at 12 key points in the TVA power service area and forecasts of light intensity over the same area. They are used to schedule power generation. Some idea of the importance of these two elements can be formed from the fact that a change of one step in a four-step light intensity scale for forecasts calls for a change of 10,000 kw in the generating schedule. Likewise, an area-wide temperature change of one degree calls for a change of 10,000 kw generation, due to increased or decreased heating and cooling loads throughout the area. Forecasts of all of the other weather elements which might in any way affect the extensive power transmission system, such as lightning, freezing rain, etc., are also made for the entire power service area, which extends over all of Tennessee and major portions of four neighboring states.

These are the most important forecast services rendered to the Authority solely by the Weather Bureau Office at Knoxville. However, that office currently participates in a number of cooperative hydrometeorological investigations, which include such projects as the preparation of meteorological storm studies and reports for inclusion in TVA's reports on floods in the Tennessee Valley; the determination of maximum precipitation in the Tennessee Valley area; and the effect of ambient terrain on precipitation station locations.

Another important cooperative activity of the Knoxville office is the dissemination of river information. With the construction of the many TVA reservoirs has come increased public interest in river and lake stages bearing on recreation and navigation. The stages on all the reservoirs and controlled streams can be controlled by the TVA, hence the forecasts of these stages are all made by the TVA. The dissemination of this information is handled by the Knoxville office through an extensive network of radio stations located along the river. The interest in this information is growing and extends to newspapers and radio stations at a distance outside the area.

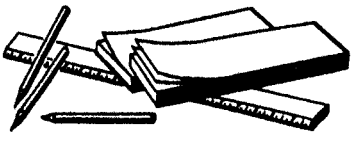
Whereas, in some areas of the country, the Weather Bureau has had to overcome considerable resistance to gain recognition as the agency responsible for natural flow stream forecasts, during the past year the TVA actually requested the Weather Bureau to establish a cooperative river forecasting unit at Knoxville. This new unit is currently concentrating on the development of procedures for forecasting natural flows in the Tennessee Valley. Eventually, it will make daily forecasts of natural flows on not only the uncontrolled tributaries of the Tennessee River, but also for significant points on the controlled streams for conditions assuming no TVA projects. These will be used by TVA as guides in operating their control structures. The Bureau will also prepare all flood stage forecasts for the uncontrolled streams in the Tennessee Valley.

In addition to the daily forecast and information service responsibilities, the Knoxville office has been designated as the responsible contact and liaison office for the Weather Bureau in matters of mutual interest to the TVA and other Weather Bureau field stations. Under this responsibility, the office provides meteorological consultation and advice on a wide range of TVA activities not necessarily a part of the daily operation of the system. Indicative of the character of this advisory service is the problem of selecting possible wind power sites in the mountains. ■

What to Study

A LARGE amount of interest in meteorological study is being shown by Weather Bureau employees. In addition to those taking college resident courses, over 500 individuals were indicated in the Pennsylvania State quarterly report, covering the first three months of this year, as being actively engaged in the meteorology correspondence courses offered by that college. Fifty-seven of our employees have indicated completion of one or more correspondence courses during the same three-month period. This educational activity will undoubtedly be worthwhile and the Bureau is proud to have such energetic employees.

In connection with this activity, the Central Office has received many inquiries as to a suggested course of study that may be followed. In planning to take a series of courses, each individual should strive for a well-integrated program. One should begin with the basic elementary courses covering topics similar to that contained in "General Meteorology" by Byers. These should be followed by the more advanced courses in synoptic meteorology, dynamic meteorology, and laboratory courses in synoptic meteorology and weather forecasting. These advanced courses are generally considered essential to a basic meteorological curriculum. In the process of satisfactorily completing the above-mentioned advanced courses, sufficient credits are usually received to total fifteen to twenty semester hours in meteorology. Courses in meteorological instruments, climatology, dynamic climatology, physical meteorology, etc., may be used to supplement the essential courses. Students should take every precaution to see that a duplication or partial duplication of courses does not occur, as credit for only one of the courses could be allowed; if there is any doubt, the individual should contact the University in which the courses are to be taken.



Individuals who have the equivalent of seventeen semester hours by virtue of the Enlisted Forecaster's Course at Chanute Field would probably benefit most by supplementing these seventeen semester hours with a course in dynamic meteorology. Dynamic meteorology and dynamic climatology are the only two meteorology correspondence courses offered by Pennsylvania State College that would not be considered duplication of the Enlisted Forecaster's Course.

After acquiring a sound background of meteorological studies, the student is encouraged to enroll in those courses that will help to provide a well-rounded education. Courses in other fields of physical or natural sciences, history, literature, and the social sciences should be considered according to the particular interests of the individual. ■

Florida's Frost Warning Service

FLORIDA'S winter agriculture is vital to the State's economy. According to the latest agricultural report, over 500 million dollars worth of crops were produced in Florida during the 1950-51 season; these include such crops as citrus, tender vegetables, the hardier vegetables, cut flowers, nursery stock and plants (tomatoes, peppers, etc.) for shipment in early spring for transplanting in the States to the north. In a single winter season, over 78 thousand acres of beans are planted, and in the early spring the watermelon acreage is near 68 thousand. Valuable and rare public gardens are tourist attractions during the winter season, and a profusion of home shrubs and gardens are grown.

All of these crops and gardens are vulnerable to frost damage. The best type of soil for growing the tender vegetables is the low-ground muck soil, which is most susceptible to low temperatures and frost. The number of frosts in Florida has varied from as few as 23 to as many as 66 in the period from November through March, which is the main growing season. On occasion, the synoptic charts do not show very low temperatures in the State, but the mucklands and low-ground locations at times experience temperatures, during ideal radiation conditions, that will destroy large acreages of tender crops. An example of this is a minimum temperature of 50° at West Palm Beach Airport Station one morning this past winter season in contrast to a reading of 31° in a bean field only 20 miles to the west. As much as 18° difference in temperature has been noted between high and low ground in locations less than 1/4 mile apart. In one case with a temperature of 41° on high ground, it was 23° in the near-by muckland. There have been major losses to vegetable crops in all of the growing areas with no synoptic station in the State reporting a minimum temperature below 38°.

Much of the operational planning for the protection of crops from frost and freeze damage must be done well in advance. Therefore, it is essential that growers have forecasts of freezes and frosts as far in advance as possible for their particular fields and groves.

The Federal-State Frost Warning Service is operated by the U. S. Weather Bureau in cooperation with the Agricultural Experiment Stations of the University of Florida. This service was established in 1935 in the citrus belt of central Florida. After seeing how valuable the service was to growers in the main citrus belt, vegetable and citrus growers in other sections of the State insisted that it be extended to cover all the horticultural and vegetable areas of the Peninsula. The activities of the frost warning service may be divided into the following principal parts: (1) providing timely and accurate weather forecasts for groves and fields; (2) conducting temperature surveys to determine local temperature variations; (3) giving advice and information concerning methods of frost protection; and (4) conducting experiments to determine the best methods and equipment for frost protection, and to learn the effects of various temperatures on truck and citrus.

Headquarters of the frost warning service is located at Lakeland, by virtue of a central position in the important citrus and truck crop areas. The staff at Lakeland consists of three meteorologists, including the meteorologist in charge, a secretary, and two map clerks. The latter three are employed by the State of Florida.

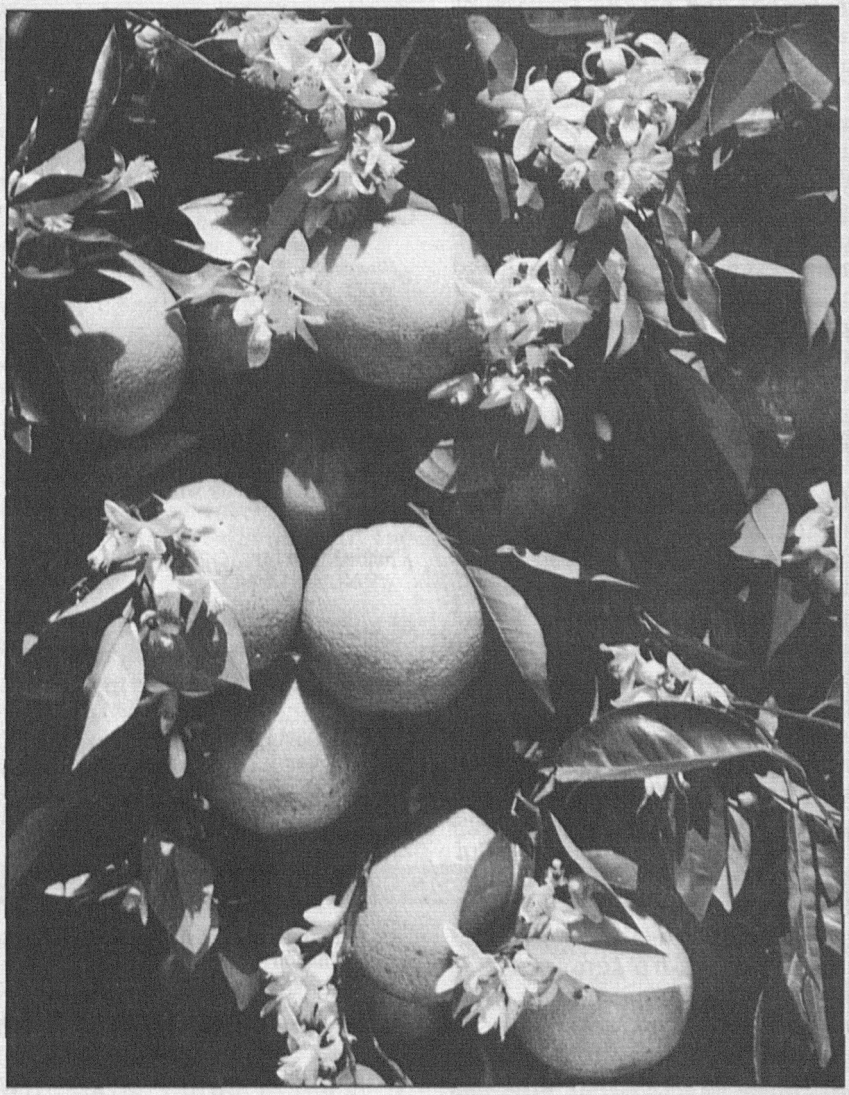
All special forecasts for the frost warning service originate at the Lakeland office, which is regularly open from 6:00 A.M. until 5:30 P.M. However, during cold weather or its approach, the office is open 24 hours a day if required to meet the emergency. Extra telephones are installed each season to handle the large number of calls received from all parts of the State, requesting minimum temperature forecasts. The main forecast bulletin is prepared twice daily at 11:00 A.M. and 4:00 P.M. from November through March, and if needed during an emergency a third bulletin is issued from the 0030Z weather chart. Special bulletins are also issued in October and April whenever conditions warrant such a release.

These bulletins are promptly distributed by Western Union as "CND messages" which makes them readily available to all interested parties, including the press services, which have a regular schedule for distribution on their lines to radio stations, newspapers and individuals. Practically all radio stations in the State of Florida broadcast the bulletins on a regularly scheduled basis, two to four times each day. Schedules giving the radio station frequency, location, and the time of broadcast, are published each fall and are distributed to growers and shippers. When frost or freezing temperatures are forecast, many stations broadcast the bulletin hourly. All daily newspapers feature the bulletin, and it is also displayed at ex-

periment stations, county agents' offices, packing houses, and at farmers markets. A large list of special messages is sent "collect" to all who request them; these give definite minimum temperature forecasts for specific locations.

The forecast bulletins cover expected sky conditions, wind, precipitation, temperatures, and whether frost is expected for the following night and day. During periods of cold weather, definite minimum temperatures are predicted for various types of locations, and the expected time of occurrence for each of ten local districts. The bulletin is concluded with a temperature outlook that gives in general terms the temperatures expected for the following two to three days; this feature has proved to be very advantageous to the growers since advance warning of impending freezes allows considerable time for setting up protective measures or, in some cases, harvesting crops early in order to save them.

Another service of the Lakeland office is the preparation of shippers' forecasts, made available to shippers and growers for protection of highly perishable products en route to markets at distant points. These forecasts generally cover three days. Specialized rain forecasts are made for where irrigation and drainage are necessary; these aid in regulation of the ground water table so as to take maximum advantage of expected rainfall. Forecasts for spraying operations are also made daily, covering weather, precipitation, humidity, temperature, and emphasizing expected wind direction and velocity. Local and State power and heating companies also use the Lakeland forecasts for severe conditions in planning to meet peak operating loads. Aviation forecasts are made on request, but these are mostly for private flying.



Florida Citrus in Bloom

The usual local services and forecasts are rendered for Lakeland and vicinity. Direct radio broadcasts are made twice daily from the office and special broadcasts are made during critical conditions. In addition to the daily forecasts, special freeze reports are issued after the fact, not only for Florida freezes, but information on California and Texas freezes is released to the Florida citrus and vegetable growers and other interested persons. All such freezes affect the markets for perishables.

Investigations and studies for continued improvement of temperature forecasting are carried on as a continuing project. Minimum temperature forecasting is a highly specialized type of work, which lends itself to the specific solution of local problems as new data become available. In addition to the usual synoptic factors taken into consideration in issuing forecasts, the frost forecaster must consider slight differences in elevation, soil moisture, water temperature of surrounding lakes, the stage of plant growth, air

drainage, and a very important factor, the type of soil and its influence on radiation.

If the forecast temperatures are only a degree or so above the critical point (36° for tender truck and 28° for citrus), growers stand by but do not make operational arrangements to protect their crops, even though they may stand to lose hundreds of thousands of dollars if the temperatures should go a few degrees below forecast. Such reliance on the degree of accuracy places a heavy burden of responsibility on the forecaster.

As an adjunct to the Lakeland office, there are eight field stations strategically located in the major winter agricultural areas of the State. Each is manned by a Weather Bureau meteorologist. These meteorologists are responsible for forecast dissemination, for temperature surveys in their respective districts, and for furnishing growers with technical information on frost protection.

The survey program involves establishment and maintenance of about 400 recording temperature stations at strategic points throughout the agricultural areas on the Peninsula. The temperature histories thus secured have time and again proved invaluable in determining local temperature variations on an intensive scale, important to grove and truck farm operators in choosing favored spots in which to extend their operations. These records are also used in forecast research and forecasting. In addition, the men in the field submit crop progress reports each week and make an intensive survey of crop damage whenever freezing or other damaging weather conditions have occurred.

Experimental work includes testing the effectiveness of various types of equipment used to protect tender crops under different conditions, and determining critical temperatures of the various crops. ■

Employees Suggestion Scoreboard

EMPLOYEE	AWARD	SUGGESTION
Kenneth T. Erickson WBAS, Seattle-Tacoma	$30	Provide a table of precentage equivalents to simplify computations of aviation forecast verifications.
Warren H. Miller WBO, Philadelphia	$25	Invert ribbons in teletypewriters to increase life (TOPICS, September, 1951, p. 174)
Edward E. Wilson Bakersfield, California	$25	Provide dual scales for wind indicators to show both true and magnetic directions.
Raymond J. Haley River Services, Washington (Non on active duty with Air Force.)	$15	Furnish Office of Chief of Engineers with a copy of the CR sequence of Service "C", obviating preparation of daily messages.
John C. Hurley WBAS, St. Louis	$15	Bind WB Form 1130 on left edge to facilitate use, saving time and eliminating errors.
Robert J. Ahrens WBAS, Milwaukee	Certificate	Procure wiping cloths in smaller quantities to allow more efficient stocking and supply.
Lee R. Bovinett WBO, Miami	Certificate	Use blue guide lines on maps to be reproduced photographically. (TOPICS, January, 1952, p. 12.)
Mrs. Trubee T. Campbell WBAS, Los Angeles	Certificate	Use transmittal slip (CD-14) in place of transmittal letter or memorandum within Bureau (TOPICS, February, 1952, p. 27).
C. Benjamin Carnahan Blue Canyon (now at Beaumont)	Certificate	Provide printed form for authorization of mailing, holding, or forwarding checks and bonds.
Ernest L. Kvam P&PMO Washington	Certificate	Reduce workload at Depot Stations by requisitioning aerological supplies on a quarterly rather than an annual basis.
Emory C. Pharr Procurement and Supply Washington	Certificate	Use new system of checking quantity of forms prior to printing of revisions.
Norman N. Richardson Abilene	Certificate	Use cardboard sheet to eliminate jamming of teletypewriter paper caused by static electricity (TOPICS, February, 1952, p. 27).
Miss Loretta F. Roeseler Cheyenne	Certificate	Use code number on label of air massstamps. (TOPICS, November, 1951, p. 206.)
Raymond T. Stever Pendleton	Certificate	Use basin in Bristol ceilometer recorder to catch wax scraped from roll by recorder. (TOPICS, February, 1952, p. 27.)

RETIREMENTS

Edwin H. Jones

THROUGH an oversight, the retirement of Edwin H. Jones as MIC at Boise, Idaho, on August 31, 1951, was not noted in TOPICS. In more than 38 years with the Bureau, Mr. Jones saw service in thirteen stations, beginning and ending with Boise, and including two assignments to Fairbanks, Alaska.

In 1913 Mr. Jones began his Weather Bureau career in Boise, and the itinerary of his assignments between then and 1944, when he returned to his first station, included Wagon Wheel Gap, Portland (Oregon), Reno, Ithaca, Los Angeles, San Francisco, Redding, Yakima, Burbank, Fairbanks, Seattle, Salt Lake City, and Fairbanks (again).

Mr. Jones can be addressed at Box 43, Langley, Washington. □

Dexter T. Gouge

DEXTER T. GOUGE, meteorologist at El Paso, Texas, retired April 30, 1952, after more than twenty years in the Weather Bureau. Mr. Gouge, before his retirement under disability retirement provisions, was in charge of the FAWS unit at El Paso. His entire service in the Bureau was in Texas; he served at Dallas from his appointment in 1931 until he went to El Paso in 1946.

Mr. Gouge's present mailing address is 164 Riverside Drive, El Paso, Texas. □

Herbert C. Springman

ILL health caused Herbert C. Springman of the WRPC, Chattanooga, to retire at the end of April 30, 1952. Mr. Springman joined the Bureau as a messenger boy in 1909 at Buffalo, later went to Kansas City, and, after a year with the Navy in 1918 and 1919, served at St. Louis and Cheyenne before becoming a part of the Chattanooga pilot balloon checking center, and later the WRPC.

He will reside at 717 Mt. Vernon Avenue, Chattanooga, Tennessee. □

Leon K. W. Walters

AFTER more than 34 years of service with the Weather Bureau, Leon K. W. Walters, meteorologist at WBO, Galveston, Texas, retired April 8, 1952, as a result of ill health. Beginning as an assistant observer at Bismarck in 1916, Mr. Walters' tenure with the Bureau was interrupted only once, when he served with the Army for 14 months in World War I.

Before going to Galveston in 1951, Mr. Walters had been assigned, in addition to Bismarck, to Weather Bureau offices at Reading, Detroit, Cheyenne, and Columbus. His address will be 315 Sixteenth Avenue, Columbus 1, Ohio. ■

Station "Q" Established

NORTH Pacific Ocean Station Quebec was established on April 6, 1952. The location of the station is 43°N 167°W. The observational program consists of twice-daily rawinsonde observations at 0300 and 1500Z, intermediate rawins at 0900 and 2100Z, and eight daily synoptic observations. ■

Trapping Notes

FROM "Borealis Briefs," published by the Anchorage Regional Office, comes word that the rain gage one December morning contained not only precipitation but a "fat little muskrat, quite perturbed by his predicament."

That his perturbation was justified is indicated by the fact that the report continues, "He is now safely on a stretcher board awaiting a fur buyer."

As Robert W. Service put it, "Strange things are done, 'neath the midnight sun....." ■

NEW METEOROLOGISTS IN CHARGE

Hartford, Connecticut

LAWRENCE R. MAHAR, aged 33, became the MIC at Hartford, Conn., upon the transfer of Mr. William R. Fuller to the U. S. Corps of Engineers. Mr. Mahar was graduated from Middlebury College, Vt., with a degree in Mathematics in the spring of 1941, and went immediately into the Army. He had the enlisted forecaster's course in 1942 and later was assigned to the Massachusetts Institute of Technology for the "A" course training. Following this training, he was an Army Weather Officer until January 1946.

Mr. Mahar entered the Weather Bureau immediately after separation from the military service, and served as a forecaster at LaGuardia Field, New York, until his transfer to the Central Office in September 1947. From that time until his recent transfer to Hartford, he served in the Station Operations Division and later in the SF&MO Division.

Olympia, Washington

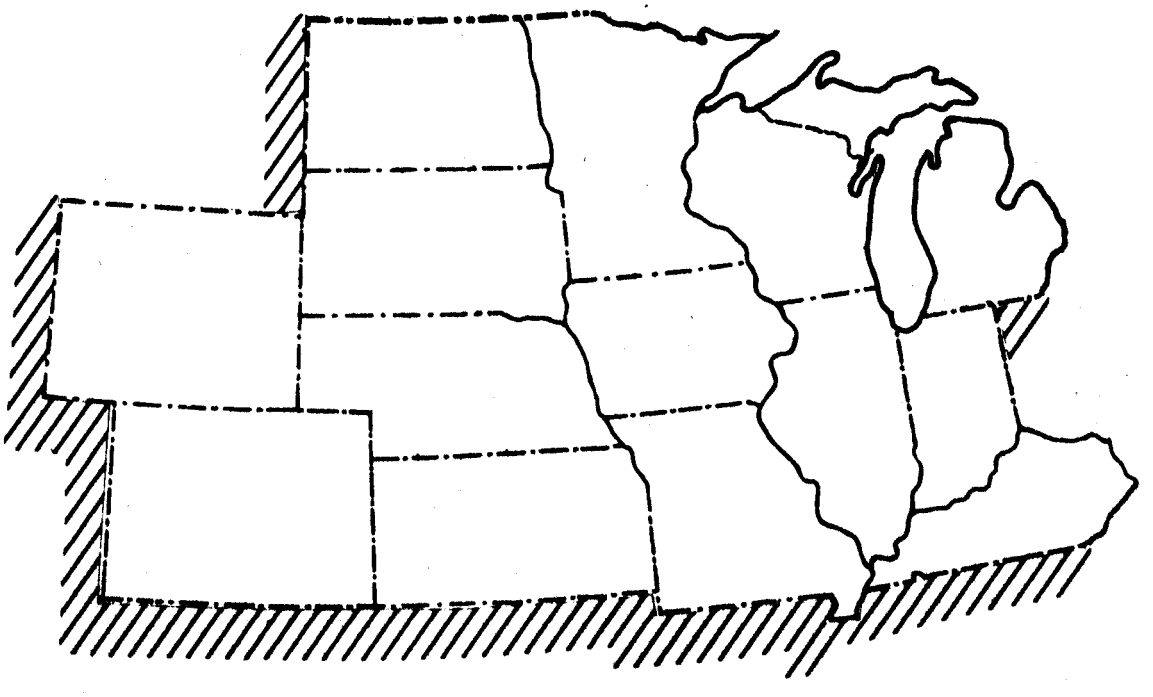
MR. FRED C. MILLER, now Placement Officer at the Salt Lake City Regional Office, has been selected for assignment as MIC at Olympia, succeeding Mr. Edward W. Nelson, who is being transferred to the Special Weather Services Unit at Portland, Oregon.

Mr. Miller is 35 years old, entered the Bureau in January 1946, and has served at Baker, Stevenson (Observer in Charge), Seattle (Field Inspection Unit), and Salt Lake City. He served for five years in the Army Air Forces as Weather Forecaster.

WEATHER BUREAU

TOPICS

JUNE
1952



Region Three

Volume 11 Number 6

WEATHER BUREAU TOPICS is published monthly to inform all employees about newsworthy operations and work programs of the Bureau; to give background on instructions; to carry news of new personnel assignments, retirements, deaths, and similar information about employees; and to serve as a medium through which ideas and views may be exchanged to promote efficiency and teamwork in attaining our common goals. While the contents, unless otherwise specified, reflect the Central Office viewpoint, they are not instructions but are presented for information. Opinions, discussions or comments by readers are invited; they should be marked for the attention of the Editor, TOPICS. WEATHER BUREAU TOPICS is distributed for official use only.

Volume 11 Number 6

Mostly Verbal

IT has been said of certain demagogues and politicians that they use words to keep from being understood. Most of us, however, when we speak or write, definitely want to be understood, and it is therefore important that we use words that mean what we want them to mean.

There are quite a few words which are used loosely by most writers and speakers, and if we use them just as loosely we may be correctly understood -- and we may not. It is usually just as easy to use the proper word, and then we are much more sure that the person who reads what we write or hears what we say will get the exact meaning we had in mind.

From time to time we plan to note here some of the loose or incorrect usages we see in Bureau correspondence.

The first of these is the second word in our caption.

"Verbal" means "consisting of, pertaining to, or by means of words." Whether these words are written or spoken is not signified by the word itself; a written contract is just as much a verbal contract as is a spoken agreement. When we mean "word of mouth," we should say "oral."

About the only way an agreement could be other than verbal would be one signified by a handshake or a nod of the head. ■

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We Blush

WHEN we implied, on page 46, TOPICS, April 1952, that Mt. Mitchell and Mt. Washington were the highest two mountains east of the Rockies, we overlooked Harney Peak in the Black Hills, which, according to geographers, are not a part of the Rocky Mountains. Harney Peak is 7,242 ft. above sea level.

At least, Mt. Washington and Mt. Mitchell are the highest U. S. points east of the Mississippi.

It is fitting that this error should be corrected in the issue devoted to Region 3; but it is only fair to mention that it was A. J. Knarr, MIC at Ft. Worth, who called it to our attention. ■

National Economy and the Weather Bureau

WHEN the new National Defense Program was announced in 1950 and it was pointed out by the President and by Congressional leaders that the civil branches of government would have to economize in order to provide funds for rearmament, the Weather Bureau was one of the Federal agencies that took the matter seriously. It seemed wholly logical that since there is a limit to increases in Federal income and since there would not be sufficient funds for military programs and for all desirable civil programs at the same time, many of the justifiable improvements and extensions in services to the public must give way to urgent defense projects. There would naturally be exceptions for civil improvements contributing directly to national defense and improvements which in themselves brought economies in essential civil activities. Previous articles in TOPICS have summarized some of the ways in which the Weather Bureau has economized. The budget and management staff of the Central Office and of the regional offices have given much time and attention to finding further means for reducing operating costs without curtailing meteorological services that are essential to the national economy.

In a recent statement for an appropriation committee, the Chief of Bureau listed some of the economies accomplished by the Bureau. This statement was in response to a request for information on the subject. Because of its interest to many field officials, a resume of the most important items is given below:

The Weather Bureau has a capital investment in equipment amounting to about $7,000,000, much of it subject to continuous outdoor exposure. In most agencies the useful life of equipment under such circumstances is 10 or 15 years. By careful maintenance and repair, the Weather Bureau retains outdoor equipment in service for an average of 20 years or more, thus reducing the cost for current replacements. Furthermore, surplus equipment and items regarded no longer fit for service for military purposes have been salvaged and utilized in many cases to equip field stations and extend the Bureau's radar and upper-air sounding facilities.

In the procurement of radiosonde transmitters alone, the Weather Bureau has made savings of several hundred thousand dollars a year. Radiosonde instruments are purchased at relatively low prices and are utilized in service through special attention to calibration, storage and operating procedures. The radiosonde reconditioning shop of the Bureau at Joliet, Illinois, (see page 86) effects savings of about $200,000 per year by repairing otherwise discarded radiosonde transmitters. Without these savings, the Bureau would have to reduce the upper-air sounding network because annual appropriations have been insufficient to maintain the program at full cost for new radiosonde transmitters.

Maintenance and repair cost of Weather Bureau-owned buildings has been reduced to the minimum and buildings disposed of in cases where space could be obtained more cheaply by renting.

Field administrative and data processing centers have been consolidated and reduced in number. Field printing has been centralized in five plants; records processing centers have been reduced from seven to three; and regional offices from eight to five. The consolidated offices have been found adequate to carry on essential work by eliminating some of the activities found necessary during the period 1942 - 50. The reductions in staff, office space, and other facilities have resulted in large savings and have enabled the Bureau to meet rising cost of supplies, increased salaries, etc. Without these savings other field stations whose functions are essential to the national meteorological service would have had to be curtailed in hours of service or closed completely.

Economies have also been made in travel and personnel costs. For example, the Bureau follows the policy of authorizing per diem allowances on a sliding scale designed to cover the actual cost to the employee under differing circumstances, in excess of his normal rental and subsistence cost. If the Bureau authorized per diem payments at the maximum rate, it would be necessary to curtail needed field travel because appropriations for this purpose would not cover the costs at the higher rate.

Wherever practicable, cooperative observers are utilized for weather observations in the climatological, hydrologic and airways meteorological services in order to keep within the appropriations for salaries. The salary costs for operating stations with full-time commissioned personnel are high, and many important weather observations would have to be discontinued if it were not for the economies in salary costs made possible through the Bureau's utilization of voluntary cooperative observers.

Transportation costs for upper-air sounding balloons have been reduced by an arrangement with the Navy to ship the gas to distribution ports in tank cars rather than by shipment of gas cylinders from the helium plant

to individual Weather Bureau stations at Bureau expense.

Storm warnings and other weather forecast information have been given wider distribution with relatively little increase in communication costs by enlisting the cooperation of state police networks, radio and television stations, press associations, etc.

Despite these many economies the Weather Bureau has kept expenditures within authorized appropriations only by leaving vacant more than 300 positions, which has necessitated the closing of some stations and curtailment of working hours at others. That these curtailments have not been merely a case of reducing "the fat" in the organization is proven by investigation of the difficulties experienced in the process of closing the stations. Civic authorities have pointed out the economic loss to the communities that comes from inadequate storm warnings, etc., and have been satisfied only when the Bureau has been able to provide a reasonably good alternative source of service at less cost. Regional Directors and Central Office representatives have been called upon by local public officials to justify such curtailments in detail, and in some cases the curtailments have resulted in re-establishment of services by another government agency usually at greater operating cost than the Weather Bureau would incur through integration with its basic network. Re-established services of this kind are evidence that the Bureau in the process of tightening its economic belt has of necessity reduced essential services too far in some places. In fact, the growth of air commerce and the trend toward greater specialization in agriculture and industry have created the need for new meteorological services, many of them of an urgent nature, which the Bureau has been unable to fill. New airports need weather stations, high altitude aircraft need upper-air soundings to higher levels, and the success of agricultural planning depends much upon longer range forecasts. ■

PLANS FOR FURTHER IMPROVEMENT

Climatological Organization, Operation, and Service

MUCH study and attention has been given in the past several years to development for maximum use to the country of the Bureau's climatological resources and skills. A major development necessary to provide a basic structure on which to build further was the inception and implementation of the WRPC program. With this program now well stabilized and operating smoothly, we are in a position to move ahead again for further development. Recently the following memorandum was circulated among those officials of the Central Office concerned; forwarded to the Chief of Bureau for consideration, and given his approval for action.

Recent discussions in the Climatological Services Division and elsewhere, regarding the climatological program of the Bureau, show good agreement on the following basic concepts:

ANALYSIS OF PROGRAM

(1) The going field program in climatology is generally good in its present form and must be kept intact for (a) maintenance of the basic net for data gathering, (b) quality control on observations and records, and (c) the localized application of climatic information, which includes the crop-weather program. The introduction of machine card procedures and of the program for specialized attention to cooperative stations and equipment through the hydro-climatic inspection plan is paying large dividends in improved quality of basic records. The morale of the cooperative observer corps is also being elevated by the existing field program.

(2) The work described in (1) is shared between the WRPC units and the Section Centers. The role of the Section Director is primarily served in matters pertaining to the continued development and improvement of the basic data network and reports therefrom, and only secondarily in the more technical and professional aspects of climatology as a branch of applied science. The described functions of the Section Director are of such importance that they must be maintained regardless of any plan for further development of the climatological program.

(3) The Section Director is in every instance responsible for operating a station that serves the totality of Bureau interest in the place; hence, no Section Director can give, or should be expected to give, full time to climatological work. This being the case, we will increase our problems if we attempt to develop the concept that the climatological program in each state should be made the primary and highly specialized technical concern of the Section Director himself. The major portion of section center functions outside those of data gathering, records quality control, and network administration falls into the category of general public service—not that of specialized technical or scientific climatology. There may perhaps be justification for the kind of staffing we have provided in a few places which supports the Section Director as MIC with a specialized climatological aide or technician, but even there, we see little evidence that the science of climatology is particularly applied or developed other than in these important basic matters of network management and data gathering.

(4) State lines, for the most part, embrace areas too small to warrant the full-time application of climatological technology. Moreover, we see all too often that even in matters of quality control the section centers do not obtain and use information from stations adjacent to but beyond the state borders as criteria for judgment about

stations within the state borders. The WRPC on the contrary is in a position to view larger climatic areas, and the three WRPC areas offer a workable subdivision of the country for applications of an improved and expanded technical approach.

(5) Dr. Barger is showing us in the midwest what can be done to secure the interest and profitable cooperation of State Universities in the development of climatological information to meet practical problems of agriculture and some other state interests. This field justifies more intensive effort, but we cannot expect one man to cover the United States. Moreover, the State Universities have so far confined their active cooperation largely to the agricultural field, but we all know many other practical problems need exploration for climatological development and the application of our climatic information.

PROPOSED FORWARD STEPS

(1) Divide the United States into three general areas coincident with the WRPC districts and establish an Area Climatologist for each, with the ultimate intention of having two such positions in each area. At the outset the Area Climatologist would no doubt have to be provided with a secretarial aide but I would not suggest more staff until practical development of program demands and justifies such action.

(2) Formulate and institute a program for the Area Climatologist through which he will (a) assist section centers in arriving at greater uniformity of results including the simple analysis of their climatic information; (b) explore with a wide variety of interests, including State and other Universities, the problems and known needs in the field of climatological analysis and publication, and elicit cooperation in the production of climatological applications; (c) accept and seriously work at a place of responsibility alongside the Area Hydrologic Engineers in connection with the new and growing requirements of the various basin development committees, and thereby help relieve the Hydrologic Engineers of an increasing overload upon them with a tendency to spread their limited efforts beyond "hydrology" and into the proper realm of "climatology"; (d) use the Area Climatologists as part of backbone staff for planning and piece-meal production of urgently needed climatological digests looking ultimately to the production of a really modern and exhaustive climatological atlas; (e) in consultation with section directors, survey potentials for contribution to the planned development of climatological studies with any available time and talent of the section centers, and assist in the profitable use of any such potentials for their contribution to overall plans for U. S. climatology.

(3) The Area Climatologist will not, under this plan, assume "command" of any part of the field program (WRPC or Section Centers) but will serve as a staff member of the Climatological Services Division, headquartered at the WRPC as the most effective location from which to pursue his field functions of surveying; advising, reporting, and rendering general assistance in plans developments.

CONCLUSION

If the plan herein can be accepted in principle, the further steps for effectuation within existing fiscal resources for climatology will be thoroughly explored to see whether the plan can be made self-liquidating rather than one requiring allotment of a greater proportion of Bureau appropriations.

The Chief of Bureau in a supplementary memorandum dated May 28, 1952 to Mr. W.F. McDonald, Chief of Climatological Services Division, pointed out three areas to which particular attention should be given in going forward with the program, viz:

1. The plans should include efforts to guide and stimulate responsible field officials to undertake constructive programs in their areas without material increases in staff.

2. Because of the fiscal situation, everything possible should be done to finance the plans from existing resources for climatology.

3. Procedures should insure that Area Climatologists retain a proper balance as regards "dynamic climatology" and statistical or "machine tabulation climatology", with emphasis on the "dynamic", rather than the "machine".

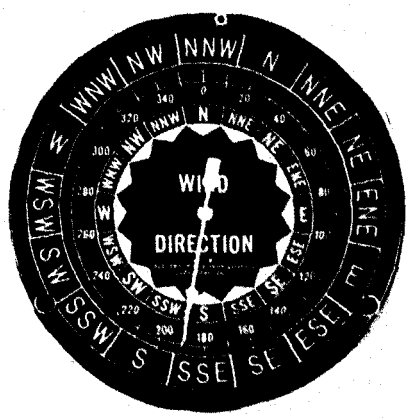
The program is expected to be implemented on a progressive basis as experience with one step permits another to be taken. The purpose of this article is to acquaint the field with the general aspects and meaning of the plans. Prescribed channels of action will be used in activating the plans in specific detail and location.

Magnetic Wind Direction Indicators

As a result of an employee suggestion submitted by Edward E. Wilson, WBAS, Bakersfield, California (page 78, May 1952 TOPICS), plastic discs have been obtained for use with F420 series wind equipment which will make it easy to read either true or magnetic direction of the wind.

These discs, one of which is shown in use in the photograph, are fastened under the three screws which hold the indicator to the panel by using small nickel plated washers. Each station using one of the discs can determine the magnetic declination from appropriate charts for its location and adjust the disc accordingly. It is important that this be done correctly since incorrect readings given out to pilots could be embarrassing, if not dangerous.

The indicator shown is the latest design used on all equipment now being received from the contractor.

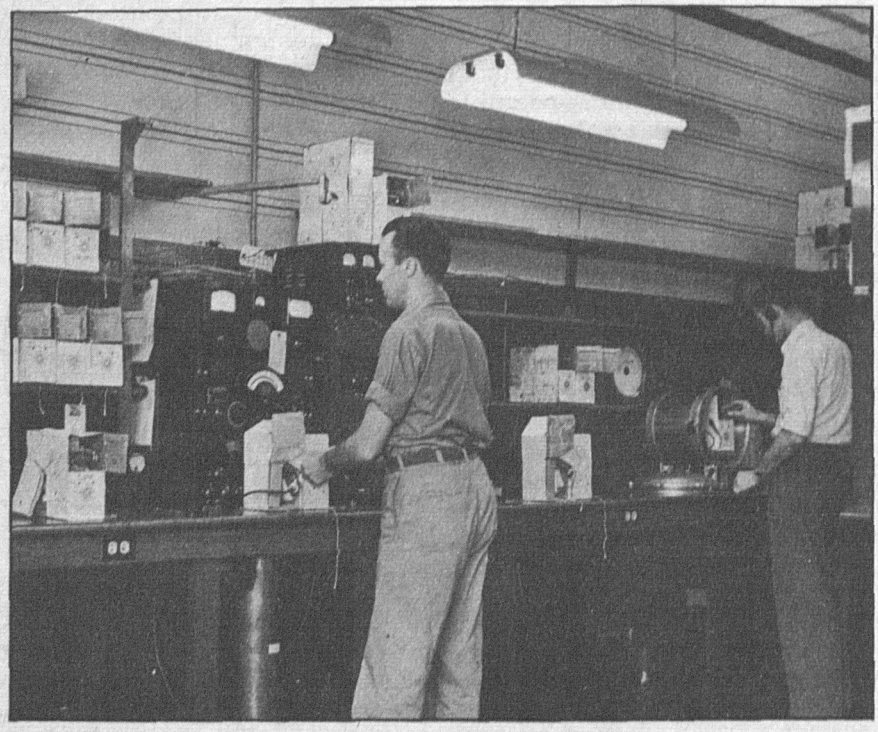


Discs have been forwarded to Regional Supply Depots for distribution as necessary to stations using F420 wind equipment.

Sending Them Up Again

ON January 26, 1945, the long-considered plan of establishing a facility for reconditioning recovered Weather Bureau radiosondes became a reality with the leasing of 354 sq. ft. of floor space in the hangar building at the Municipal Airport, Joliet, Ill. The center was formally designated the Weather Bureau Radiosonde Reconditioning Center, an activity under the technical direction of the Instrument Division of the Central Office, but assigned to the Third Region for administrative purposes. Mr. Glenn M. Miller, then chief radiosonde inspector for the Weather Bureau, was assigned as engineer in charge.

The equipment and supplies believed essential for starting the center were gathered from all corners of the Instrument Division and field storage spaces. The first shipment of 16 cartons of equipment and supplies, 12 of which contained recovered radiosondes, arrived at the center about the middle of February. The job of building work benches and assembling the few pieces of needed equipment was completed by about March 20 and work was started on the reconditioning of radiosondes. During this period a great many problems presented themselves but one by one their solutions were worked out. Some of these solutions required the designing and constructing of a special tool or jig, and in some cases a special machine to best do a certain job. From the beginning it was apparent that the work could be done in an orderly and assembly-line fashion. However, a great deal of preliminary work had to be done and data collected before actual production could begin.



A recovered radiosonde starts down the RRC assembly line.

Then came the day, April 30, 1945, when the results of all the planning and work thus far were realized by the delivery of the first lot of 32 reconditioned radiosondes to the WBO, Joliet. Of all the flights of reconditioned radiosondes, none is more memorable than No. 560001, the first RRC reconditioned radiosonde, which was released at 1512 GCT on May 1, 1945, at the Joliet Airport. When the officials of the Joliet station recorded in their log of that date for this instrument—radiosonde performance satisfactory, balloon burst at 19,175 meters—history had been made by the Radiosonde Reconditioning Center! Instrument No. 560001 was recovered and returned to Joliet and now occupies the number one position in the RRC archives as a reminder that for all things that succeed, there must be a beginning.

By June 30, 1945, 160 radiosondes had been reconditioned and delivered to the WBO, Joliet. Also by that date, the total work necessary to recondition radiosondes had been divided into some six categories or similar types of activities, and the reconditioning process carried on in assembly-line fashion with the operator (since there was only one) moving from position to position as the radiosondes travelled along the reconditioning line from the initial job of receiving the recovered instruments to the final job of packing the reconditioned ones for shipment.

By mid-summer of 1945, the reconditioning of radiosondes having been already demonstrated to be a profitable venture for the Weather Bureau, the Central Office was ready to expand the activities of the center to an operation of 10,000 instruments annually. This proposed expansion entailed a

relocation to larger quarters and an eventual increase in the number of employees from 1 to 10. The first of the new assistants reported for duty October 18, 1945; and the move to the present quarters at 451 Ruby Street, Joliet, Illinois, took place October 26, 1945.

By December 31, 1947, the full complement of 10 employees needed to supply 14 stations was on the job. For the calendar year 1947, the goal of 10,000 reconditioned radiosondes annually had been exceeded by 698. Further expansion was authorized in September, 1948, to increase the complement by two more employees to meet the optimum production goal of 14,000 reconditioned radiosondes annually. This goal was achieved during fiscal year 1950 when 14,192 instruments were shipped. Seventeen stations currently are being supplied with reconditioned radiosondes. The annual production of reconditioned instruments was leveled off at 14,000.

Four times during the past five years the RRC has been requested to increase its production by working overtime to meet emergencies resulting from failure of manufacturers of new radiosondes to meet their shipping schedules.

Beginning January 1, 1946, all radiosonde recovery tags were addressed to the Weather Bureau Radiosonde Reconditioning Center, Joliet, Illinois. Each year approximately 14,000 radiosondes are returned to the RRC. For the fiscal year 1951 the following are the five stations having the greatest number of recoveries:

Station	Number Recovered
Omaha	570
Dodge City	521
Columbia	516
St. Cloud	485
Oklahoma City	484

As rewards to finders for returning radiosondes were discontinued during 1944, the RRC expresses the appreciation of the Weather Bureau by mailing an acknowledgment to each finder who has entered his name and address on the recovery tag, thanking him for his cooperation. There have been perhaps as many as five radiosondes that have been flown, recovered, and reconditioned six times. With the return of recovered radiosondes come numerous letters from finders concerning their use, rewards, and disposition. A few of the more amusing ones are on the next page.

The RRC at Joliet. Note the reconditioned radiosondes on shelves.

The Post Office delivers daily from 50 to 100 recovered radiosondes to the RRC. These instruments are first examined for compliance with station preparation procedures, the tags removed, and the instruments sorted into the various series. Radiosondes with a usable case of the series currently being reconditioned are started down the production line where the cases are cleaned, tape removed, and minor repairs made to the case. They move to the next position where, among other things, the relays are cleaned, adjusted, and checked for operation. Now they are ready for the transmitter position where complete checks for power, stability, and audio characteristics are made on the transmitter. All transmitters are made to meet minimum standards and tolerances for all operating characteristics before they are permitted to pass this position. In the next position, the pressure units are removed, cleaned, adjusted, checked for temperature effect, reinstalled in the case, and made ready for calibrations. After pressure calibration, the complete radiosonde is given a visual and mechanical inspection, as well as an electrical performance check, before it is stamped with a new serial number and packed for shipment. Many special tests are made on the various component

parts to determine their compliance with specifications. At each position along the reconditioning line are a number of special tools, jigs, and equipment designed to insure the highest quality of workmanship and the best possible performance of the instrument in flight use. Each mechanic must have a thorough and complete knowledge of the work of a radiosonde and be able to use the tools and equipment in the various positions since he is required to rotate from one position to another.

The quality of the reconditioned radiosondes is reflected in the summary of the performance of the instruments that have been released from July 1, 1946, to February 28, 1952, during which time 63,282 releases have been made, and the cause of the termination for 52,988 or 83.8% was due to the bursting of the balloon. It is believed that Sault Ste. Marie also holds a record by making 336 consecutive releases without a second release for any cause whatsoever. Other stations have had excellent results with reconditioned instruments, many having had above 90% balloon-burst averages for as long as 72 consecutive weeks.

As of March 31, 1952, the RRC has shipped a grand total of 70,402 radiosondes. The average cost of reconditioning these instruments has been $5.61 each. Based on the cost of new radiosondes, this represents a total savings of $744,326.72 to the Weather Bureau by reconditioning radiosondes at the RRC. In addition, the RRC has been of service to the Weather Bureau in many other ways, by conducting special projects, checking on the causes of instrument failures in flight, suggesting modifications of new radiosondes, and providing other data which otherwise would not be available. ■

Dear Weather Bureau:

Many radiosondes return with letters from the finders. Here are a few of the more amusing ones.

May 16, 1949

Dear Weather Bureau:
I am sending you this gaget I found on 16th date of May. Sure wish you help me on this 21 years ask the govner to cut my time send from Magnolia, Ark., 11/18/43 for murder Secion Degre. Sorry the red cloth was lost off just a raing atatch to it other part up in a tree did not have time to get it think you.

Your truly,

November 30, 1948

Dear Sirs:
I want to write a few lines about that Radiosonde U.S.W.B. Serail No. 848539. I and my wife went fishing to the creek on Thanksgiving after noon. She saw it first on our madow. She says to me look that big spidow web. I says no thats not a spiedow web, maybe its a kite. Then as I went to it I notice it was something else. I look carefully about what could it be. Findly as I read the label no the side of it. I called to my wife come here thats a radiosonde droped from an airplaine and it landed in a good place. She as asked me wonder if it would play. I said no it says it should be returned if found. I had to laugh as she said maybe we will get some reward for it. I said maybe never can tell. But I said I will return it. What good would it do us. If we have no use for it. And its U. S. Government property. The red parachute I sent to Weather Bureau Office, San Antonio, Texas. I hope it returned safe were it should. Good bye and Good lucky.

February 17, 1950

Weather Bureau
I am sending you under separate cover the remnants of the equipment that landed in a tall tree on a bluff near my home. This landed sometime during the night of February 13th. We saw the red parachute and no one seemed to know just what it was. Quite a number of people assembled to view it and guess what was in it. Finally, the Green County Sheriffs came and they shot it all to pieces with their pistol. This is the reason that it was in the condition in which it was mailed in. I thought perhaps that you could salvage some of it

Respt.

January 29, 1947

Dodge City, Kansas
Municipal Airport
I found this instrument on January 29 at 11:30 A.M., 4 mi. N of Wilson on a stream called Hell Creek. It was bitter cold—I was shivering as I fed the cattle. My whiskey just gave out. Thinks I - here it comes on the parachute - No Pay - Take a Hint.

September 13, 1948

Dear friends:
I an writing to you about the white box and parachute that I found. I found them, they landed here in a tree at my house, 2 miles south of _____. I found it around 8:30 o'clock this A.M. I went over to my aunts and the girl that sent it in came by my house and my ten year old boy was there and she stole it and sent it in. I have a note she wrote me and put on the door saying it belonged to my little boy.
If there is a prize or reward for finding it, it belongs to my boy. As she stole it. I went over and ask her about it when I came home, and she wouldn't talk to me about it. I told her I would send you a airmail letter and let you know that she stole it. If you want to see the note she wrote and said it belonged to my son. Write and let me know and I'll send it to you at once. Let us her from you all.

Thanks

P.S. I sent the parachute to Fort Worth, Texas.

December 19, 1948

Dear Sir:
I sended of your radiosonde to day. This is my second one I found. I heard the people say around here, that they pay $5 for returning them, but so far I never received any thing. And if I wont get any thing for finding them, and returning them, then I wont bother picking them up any more. It sure should be worth someting for finding them. Or is it cheaper to make a new one. Will you please let me know. I thank you.

Civil Jet Transport Operation

On March 4, 1952, Mr. A. C. Campbell Orde, Operations Development Director for British Overseas Aviation Corporation, addressed Air Force and Weather Bureau meteorologists on civil jet transport aircraft operation and associated meteorological problems. A summary of his address follows.

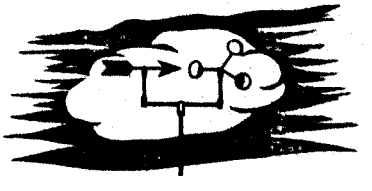
MR. CAMPBELL ORDE stressed the importance of meteorological factors on the overall economy of jet operation, and the great need for creating some new means for obtaining upper air information on a world-wide scale to support research and day-to-day flight operations. The altitudes involved in the current BOAC operation are 35,000 to 40,000 feet. The present day radiosonde (atmospheric sounding of temperature, pressure and humidity) and rawinsonde (atmospheric sounding of winds) observational networks were described as far from adequate to meet these altitude requirements, both in density of coverage and height of penetration of the atmosphere. No suggestions were offered as to what new type system might be developed to offset this deficiency, but it was stated that meteorologists should not expect transport operators to furnish weather reports while in flight. [Editor's Note: ICAO procedures, however, require a certain number of reports from aircraft in flight.] In the discussion period that followed the talk, the meteorologists pointed out the great expense of the upper air observations now provided and that a new and global type reporting system would entail much greater expense. It was suggested that a first step toward obtaining more adequate reports should be the development of airline operating procedures which would include the reporting of essential weather elements while in flight. The question was also raised as to who should bear the burden of cost for this specialized information—the meteorological services or the airline operators?

● As a background for his talk, Mr. Campbell Orde drew from the experience BOAC has built up during the latter part of 1951 in the operation of its Comet I prototype four-jet transport aircraft. A series of development flights were conducted, including overseas flights from England to South Africa, India, Malaya and Australia. The fact that the Comet was recently certificated for civil air transport operation places these associated meteorological problems in the realm of immediate importance.

● Highlighting the importance of an adequate system for collecting upper air information, Mr. Campbell Orde cited the general inaccuracy of wind forecasts made for the development flights. The range of jet aircraft is most sensitive to temperature. To illustrate, with take-off weight limited, that is, where extra fuel required can only be carried by making an equivalent weight reduction in payload, for a flight of 1,000 nautical miles under standard (ideal) temperature, the introduction of 50-knot headwinds would result in a direct increase in operating cost of about three percent. With the same headwind, but with temperatures 15° Centigrade above standard, the operating cost would be increased to about 48 percent above no-wind and standard temperature conditions. The magnitude of the problem becomes more clear when it is considered that winds much greater than 50 knots are quite common at 35,000 and 40,000-foot altitudes and that actual observations of winds and temperatures at those altitudes are very scarce.

● The advent of jet transport aircraft operations brings a doubling in cruising speeds and operating altitudes to the field of air transportation. This doubling in speed and altitude not only introduces a new region of airline meteorology, but brings with it accentuated communications problems and requires highly efficient airline operations procedures keyed to working at a much faster pace than heretofore. The high-speed operation of jet transport over long distance routes requires a more global type weather service and organization and with it a synchronized communications system to provide the operator with more comprehensive data on which to base flight planning at the point of flight origination. In addition, current weather information from relatively far distant points must be readily available to the aircraft during flight. In this respect, Mr. Campbell Orde pointed out that weather and communications services should be organized expressly to serve the operators to enable their ground and air personnel to work faster and make decisions quicker.

● Mr. Campbell Orde suggested that closer international cooperation between the authorities concerned and the airline operators offers the best way to solve these problems. ■



MEET THE REGIONAL DIRECTOR

Region Three

C. F. VAN THULLENAR was born in Green Bay, Wisconsin, and spent his first 19 years there, graduating from high school in 1923; one month later he began his Weather Bureau career at Broken Arrow, Oklahoma. He was first assistant there to John A. Riley; this was the first of three assignments under Mr. Riley in the same capacity, before he succeeded his first OIC as Regional Director 27 years later.

In 1924 Mr. Van Thullenar came to the Central Office, where he was one of the farsighted who realized the value of advanced education, and in four years, while working full time at the Bureau, he obtained a Bachelor of Science degree from the George Washington University. He was progressing slowly in the Bureau as a Scientific Aid during this time, but his desire for forecasting was so strong that, when such an assignment in the Bureau seemed too far off, he resigned to take a forecaster position with Transcontinental Air Transport, a forerunner of the present Trans-World Airlines.

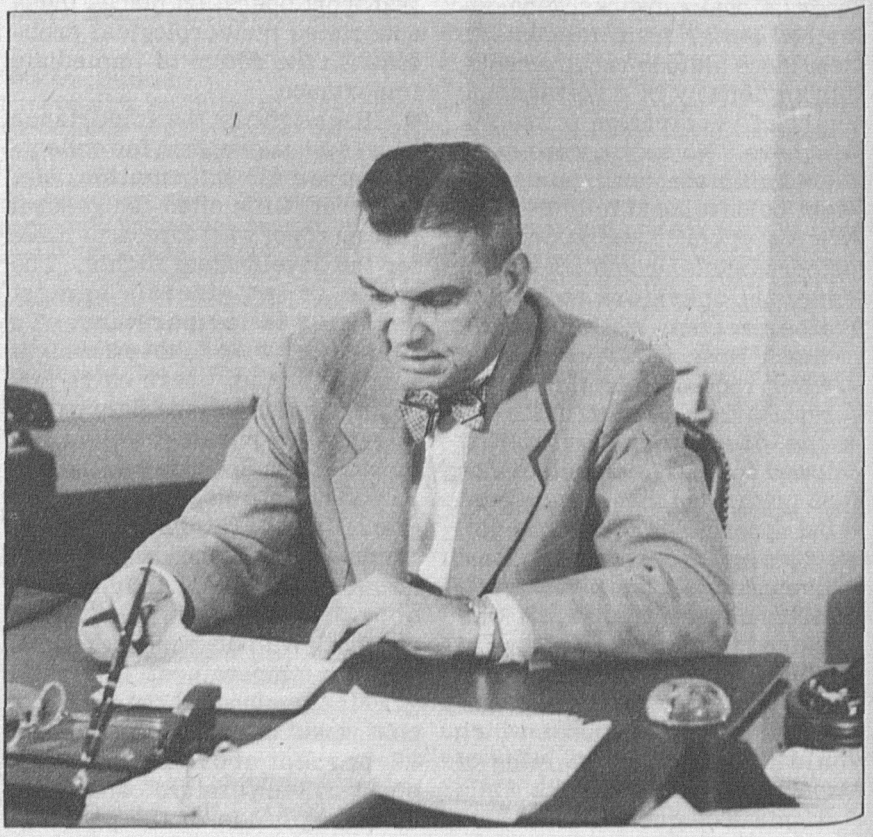
Here his desire for forecasting was somewhat stultified by the fact that, in those days, an airline meteorologist did everything from selling tickets to gassing airplanes and doing 100-hour engine checks in addition to making forecasts, so he returned to the fold in 1930 to establish the WBAS at Toledo, Ohio. Three months later he was back under the wing of J. R. Riley, this time at Dallas, Texas, where he found enough activity to satisfy his desire for meteorology and whet his appetite for more knowledge; graduate work in mathematics at Southern Methodist University helped him keep abreast of the newer concepts in forecasting.

After three years at Dallas, "Van" went to Salt Lake City, where his work was impressive enough that after six years he was selected, in 1939, to set up the new forecast center at Albuquerque, New Mexico. Two more years, and he was sent on a similar assignment to Boston.

In 1947 with prospects of a return to "normalcy" and an end of personnel shortages, the Chief of Bureau asked Mr. Van Thullenar to take the long planned position in charge of service development in synoptic meteorology and forecasting in the Bureau. This was a short assignment, however, because he had barely begun it when the U. S. Military Government "tapped" him to head its Meteorological Branch in the U. S. Zone of Occupation in Germany. Associated duties included acting as American Representative on the Allied Control Authority and as supervisor of the German Meteorological Service in the U. S. Zone. Here he had daily opportunity to demonstrate, in addition to the abilities mentioned above, his inherent knack for accomplishing what he sets out to do (once he is convinced he is on the right track) in the face of difficulty or even downright opposition.

Returning to the Weather Bureau in May, 1949, he was assigned to Kansas City Regional Office, where he was first Assistant Regional Director, and then, upon Mr. Riley's retirement, he became Regional Director.

His experience in international



meteorology made him a logical choice to be a member of the United States Delegation to the organization meeting of the World Meteorological Organization, held in Paris in the spring of 1951.

A large man with strong features and a slightly brusque manner of speech, "Van" gives the impression that he is completely sure of what he is saying -- that otherwise he would not be speaking at all. A definite reserve makes him a little difficult to get to know, but those who know him best attribute this to an innate shyness -- a shyness, however, that is not a reflection of lack of confidence in his convictions. Before arriving at a conviction, he examines thoroughly every facet of the situation; having decided on a course of action, he pushes it for all he is worth, but without stopping his constant examination for flaws to be corrected.

He knows his subordinates and has confidence in them, delegating authority to the limits of their capacity; Van is a man who does a good job as a matter of course, and expects others to do likewise -- he knows how well a job is done, and if he makes no comment it is a sign he is satisfied.

Settled now in a new home with his wife, Pearl, and a scholarly and athletic son, Phil, Mr. Van Thullenar has reached a stage where many men might be tempted to rest on their laurels. Those who know him well, however, say that the status quo is not for him. He will always be looking for another and bigger job to do, and, as he has in the past, will make his own breaks to do it. ■

STATION BRIEFING MAP

Automatic Mileage Indicator

SEVERAL employee suggestions have been submitted pointing out the advantage of modifying the 4x4 station briefing maps so that distances can be read directly when the magnetic bearing string is pulled out to points on the map. This feature was considered when the maps were constructed but was not incorporated because of the additional time and material required, and since it would add little to the value of the map from the standpoint of weather briefing.

There is, however, no objection to a neat direct-mileage reading aid of this sort should stations wish to construct such a device for use with their maps. Probably the easiest way to accomplish this is to place a smooth metal or plastic grommet or eyelet toward the top and within an inch or so of the right or left-hand edge of the map. The nylon string attached to the ring should then (1) be threaded in through the station eyelet as at present, (2) be brought back out through the newly placed eyelet, and (3) be tied to a weighted cursor with sufficient slack to allow the cursor to hang within a few inches of the bottom of the map. A vertical scale increasing upward showing both statute and nautical miles should be constructed using as a guide the printed statute and nautical mile scale on the bottom of an untrimmed World Aeronautical Chart on which the station is located. This scale should then be attached to the map parallel to and just behind the string holding the cursor and in such a position that the cursor is at zero when the ring on the other end of the string is at the station eyelet.

It would, of course, be well to construct some sort of channel for the weighted cursor to keep it from swinging free. Perhaps a flat curtain rod can be used or a cursor and channel arrangement be devised similar to a regular slide rule. ■

WB FORM 4035

Severe Storm Report

The recently issued Chapter C-08 of Volume III of the Weather Bureau Manual contains, in Paragraph C-0852, instructions for the preparation and routing of WB Form 4035, Severe Storm Report.

Information received at Section Centers on this form is used in preparing a monthly report of severe storms on Form 4035A, which is forwarded to the Central Office where it is used in preparing Table 4 in the National Summary.

Use of Form 4035 at Weather Bureau offices is preferred to storm reports by letter, since it simplifies the preparation of the consolidated report. In addition to answering all appropriate questions on the form, supplementary remarks should be used freely, attaching a separate sheet if necessary, and newspaper clippings should be attached.

Forecasting a Flood

Newspapers, wire services, and national magazines have presented the Missouri River Flood of March and April, 1952, in words and pictures; and accuracy and timeliness of the Bureau's river forecasts during this record-breaking inundation are a matter of record. Here, however, is a strictly Weather Bureau angle, the blow-by-blow account of what the Kansas City River Forecast Center went through, as told in the monthly report of the Hydrologist in Charge.

The unprecedented April flood on the Missouri River was the result of an abnormally high snow cover underlaid by a sheet of ice and frozen ground, heavy ice cover on the main stem and tributaries, the delayed rapid thaw, and the break-up of river ice in the upper reaches while the ice cover was holding downstream.

The tardy melt-producing temperatures arrived on March 28 in eastern Montana and along the western and southern perimeter of the great snow field in the Dakotas, causing a break-up in the Yellowstone and Little Missouri Rivers, while the Missouri River remained frozen southward to the mouth of the White River. Heavy flows from the Dakota tributaries were blocked by the unbroken ice of the main stem. Fort Pierre, South Dakota, at the mouth of the Bad River, was inundated.

To the south, the White River was running bankful and moving freely into the Missouri. The Big Sioux, flooding in the lower reaches, recorded a new maximum on April 1, while in the upper reaches above Sioux Falls the heavy runoff was impounded behind ice jams. The Floyd River had reached the highest of record at James, Iowa on March 31. Tributaries of the Little Sioux were overflowing from rapidly melting snow.

Preliminary crest estimates from Bismarck to Omaha, based on the measurements of water content of the snow mantle, were released to Sioux City, Omaha and Kansas City on March 31 and April 1. These estimates indicated the 1943 flood would be equalled at Bismarck and exceeded by 2 to 3 feet at all forecast points downstream to Omaha. This preliminary forecast was refined as temperature and runoff information became available.

The Yellowstone River ice broke at Sidney early on March 31, reached a near maximum stage, and forced a heavy load of ice into the Missouri. Hugh ice jams were formed and broken. Williston crested on April 1 with a peak flow just short of the record 1930 ice break-up. The snow-plow effect of the swelling flood, moving with increased force against the stubborn resistance of the cover, was halted temporarily by the formation of enormous gorges. Then, breaking loose, the river flowed again to re-jam downstream. On April 5, the crest at Elbowoods exceeded the flood of record by 2 feet. Each re-occurring ice-jam retarded the flood and increased the peak flow as the jam was broken. The ice-jam crest at Bismarck on April 6 has been estimated by the U. S. Geological Survey to be 500,000 cfs.

In the meantime, the ice break-up had been progressing upstream from the south, releasing the impounded flow of the Bad, Cheyenne, Moreau and Grand Rivers. The last 50 miles of ice cover in the reach below Bismarck moved out on April 8. High tributary inflow prevented sharp reductions to the peak as it moved downstream.

The Big Sioux at Sioux Falls reached a crest approximately one to two feet above the 1951 flood on April 6. Early advisories had been issued to prepare for a greater flood than that of 1951. The daily forecasts were handled very capably by Mr. Rennels, Meteorologist in Charge, Sioux City, and later by Mr. K. R. Clark, Meteorologist in Charge, Sioux Falls. The Weather Bureau Office at Sioux Falls was evacuated on the day of the crest. Failure of a levee flooded the airport. This was the first of three Weather Bureau Offices evacuated during this flood. Omaha moved on the 12th and St. Joseph on April 15.

The U. S. Geological Survey did a superb job in securing stream-flow measurements during the entire course of this flood. Several hydrographers with stream gaging equipment were loaned by other government agencies. Many of these measurements were obtained under very hazardous conditions. Some overflow sections measured 7 and 8 miles in addition to the main channel.

Mobridge crested on the morning of April 9, 10.5 feet above bankful. Mobridge was the first gaging station to reach its crest as a free-flowing river. Peak flows at Bismarck and above were complicated by ice jams. Crest forecasts were revised upward and extended to Jefferson City, 15-16 days downstream. A general rain over the Kansas Basin on the 9th required within banks forecasts to ascertain its effect on the Missouri at Kansas City. An earth tremor through the mid-western states caused an overload on the River District phones during forecast time. Even the River Center picked up a few stray inquiries.

Reports of the 10th indicated the river was performing as forecasted. Revisions were unnecessary. The dike protecting South Sioux City crevassed early in the morning, inundating several city blocks. Additional levees between Sioux City and Omaha collapsed. A previous warning for Huron, on the James River, to prepare for a stage of 16 feet was re-issued.

The flood crest reached Pierre in the late afternoon of the 10th, as forecast. Dual gage readings were reported, one at 24.8, another at 25.3. It is presumed that one was from the automatic recording gage and the other from the wire-weight. Crest forecasts from Omaha downstream were revised upward on the basis of discharge measurements and revised rating curves. Several more farm levees between Sioux City and Rulo were reported as overtopped.

The Omaha forecast of 30 feet, 6 days in advance, required special consideration. This forecast called for a flood 5½ feet above the all-time high of record. The levees and floodwalls protecting Omaha and Council Bluffs were forcing the flood waters to flow through an hour-glass constriction. At the Blair gage, 24 valley miles upstream (39 main stem channel miles), the flood waters were forming a huge lake 10 miles wide. Four miles above the Omaha gage the total width has been reduced to one mile. Two miles above, the width of the channel pinched to 2,000 feet. Five hundred feet below the gage, the top width of the flood protection structures narrowed to 1,100 feet. At the Bellevue gage, 10 valley miles downstream (13 channel miles), the flood waters had spread to a width of 3½ miles. The position of the Omaha gage within the neck of the hour-glass, the tremendous build-up of the floodwaters entering the federally constructed levee system, the scour action on the river bed, and the forecast discharge of 420,000 cfs were the factors considered in making the forecast. The levee system was designed

to carry 26.6 on the Weather Bureau gage, with 5 feet of freeboard. According to design the levee would overtop at 31.6. But the river was beginning to exceed the design slope of the structures. Emergency contracts were let to add two feet to the Omaha-Council Bluffs levees.

The crest arrived on schedule at Chamberlain, 7½ feet above bankful. The forecast for Sioux City was revised upward 0.5 feet on the basis of discharge measurements and the fact that a levee fight was being made to prevent a cutoff through Crystal Lake. This cutoff had previously been considered inevitable.

Yankton crested 0.4 feet under the forecast on April 13. A near crest discharge measurement at Ft. Randall was reported as 463,000 cfs. The forecast discharge into Omaha was increased to 450,000 cfs. Our extended rating curve placed this value at 31.0. Prior to release of this forecast, the Omaha Division Engineer Office was contacted. The Corps of Engineers' Vicksburg Model had completed another run during the night, indicating a 32.4 peak for Omaha. We agreed on a forecast of 31.5 feet. This forecast would force complete evacuation of the valley and allow more freedom of movement for the flood-fighting crews and equipment. Above Omaha, the sequence of flooding of valley lands shortened the river channel mileage to valley mileage. Below Omaha the forecasts were revised one foot. An enormous amount of acreage was flooding below Omaha due to the failure of privately constructed farm levees, but the big federal agricultural levees were holding. The effect in this case delayed the movement of the flood waters downstream.

The observed crest at Sioux City on the 14th verified the forecast. Only the St. Joseph crest forecast was revised on the morning of April 15. St. Joseph was another special problem. The forecast was nearly equal to the base of rail elevation of the St. Joseph and Grand Island Railroad crossing the valley. The railroad embankment was reported to have one small trestle relief opening. An inspection of the valley crossing was made, and levels were run to determine the elevation of the railroad embankment above the valley floor. The embankment inspection disclosed that the old trestle relief opening had been filled. Our forecast of crest depended on how long the embankment would remain in place. The forecast was revised to 27.0 feet.

The federal agricultural levees below Omaha were holding on the 16th. Tremendous build-up was being experienced on the upstream tie-backs of these levee units. Information was received that a fight would be made for a unit protecting 71,700 acres on the left bank of the Missouri at Nebraska City. Upon receipt of this information, a revision for the Nebraska City crest was issued late in the afternoon, raising the forecast to 28.5 feet.

Omaha crested on the morning of April 18, 1.3 feet below the forecast. It had been apparent on the 16th that the huge valley storage upstream would reduce the computed peak discharge and stage. However, in the interest of maintaining the levee fight at full strength, the forecasts were not revised downward.

The Omaha gage was not representative of the conditions being experienced 3 miles upstream. The slope of the river at crest, in the first 9,000 feet above the gage, was reported to be 4.4 feet (2.6 feet per mile).

The design of the floor protection structures was based on a slope of approximately one foot per mile. While the peak passed the gage with 1.5 feet of free-board on the floodwalls, the crest pushed approximately two feet up on the new "flash-board" levee at the Council Bluffs tie-back, three miles above. The levees were soggy. There was a continuous fight to control sandboils all along the levee system. The 1952 April flood exceeded the 1881 flood at Omaha by 5.6 feet. At Bellevue, 10 valley miles downstream, the historic 1881 flood was exceeded by 0.1 feet. The problems of forecasting a record flood through this man-made bottle-neck are quite obvious.

Downstream, also on the 18th, the last remaining levee unit between Omaha and Rulo was overtopped. The rise of the river at Nebraska City was stopped at 27.7. Revised forecasts for Hamburg were issued immediately. To lessen the destruction in Hamburg, the lower end of the unit was dynamited. The maximum discharge passed the Nebraska City gaging station on a falling stage as floodwaters raced through the levee breaks, inundating the entire valley.

In the evening of April 18, a big break occurred in an Omaha sewer tunnel behind the levee. The tremendous pressure on this "blow-out" was controlled by placement of steel beams, stone and sandbags over the outlet on the river side of the levee. One thousand acres were flooded behind the levee before the flow of water could be stopped. This type of sewer failure (blow-out) caused flooding of the Kansas City, Kansas Fairfax industrial district in the July flood last year. The likelihood of a repeat performance during the current flood at Kansas City was responsible for several firms moving their stocks and equipment to higher ground.

The rising limb of the predicted downstream hydrographs were revised daily with respect to time. Levee breaks were adding additional valley storage and delaying the time of travel through the downstream reach. The Atchison and Fort Leavenworth forecasts were revised upward. Upon receipt of the forecasts issued nearly two weeks earlier, the Rock Island Railroad strengthened its embankment, traversing the valley, by placement of heavy ballast and sandbagging. This railroad embankment was completely destroyed in 1943. In 1952, the railroad embankment was expected to hold. It was believed this condition would result in higher stages at Atchison. Information was not available on the Leavenworth crossing.

The forecast of 29 feet for Kansas City, issued on the 14th, was revised with respect to time only as upstream levee breaks slowed the progress of the flood. Meteorological conditions were watched very closely, and on April 21 it became apparent additional rainfall could be expected. On the basis of the weather forecasts, advisories were issued on what to expect if varying amounts of rainfall occurred. The forecasts were revised on the morning of April 22, based on reports of observed rainfall, and again on April 23 following another period of rain.

The St. Joseph crest of 27.2, April 23, verified the forecast. The Corps of Engineers were successful in saving seven of the large agricultural levee units, protecting 47,611 acres, between Rulo and Atchison, while losing the battle for Sherman Airfield at Fort Leavenworth. The upstream tie-backs of all the levee units had to be raised to prevent overtopping. At St. Joseph the flood waters cut through two large meanders of the old channel, isolating Rosecrans Field and Elwood, Kansas. The Corps of Engineers are attempting to seal the Elwood, Kansas cutoff.

Kansas City reached a crest of 30.7 on the 24th, 0.8 foot short of the forecast. Appreciable build-up was again noted in the upper end of the levee system. Minor difficulty was experienced controlling sandboils behind the levees. "Flash-board" levee extensions were placed along the upstream levees as a precautionary measure in the event heavy rains occurred.

Below Kansas City the floodwaters were approaching maximum stages just high enough to overtop the upper tie-backs of the few remaining large levee units, but without sufficient energy to "break-out" at the lower end. Great quantities of water were impounded as the crest moved downstream. The last natural break-through of these entrapped flood waters occurred just above Lexington, releasing the contents of the 10,000 acre Sunshine levee unit, giving a "second" crest of 30.1 on the 26th, 0.9 under the forecast.

The levee systems at Waverly would be completely overtopped at a stage of 28.4. It could be safely assumed that failure would occur prior to overtopping. With the 8 miles of valley inundated, an enormous amount of water could be carried at 28.5. This was a river forecaster's "cinch." Waverly crested at 28.2 on the 25th, 0.3 under the forecast.

The crest at Glasgow, Boonville and Jefferson City was effectively reduced by levee entrapped water below Waverly. Six levee units protecting 30,000 acres were reported to have filled by overtopping the upstream tie-backs as the crest was passing, but did not break-out on the lower end. Later the levee districts dynamited these levees to release the impounded water on the recession of the flood wave. The retaining action of these levees was reported to this office by the Corps of Engineers. If the levees continued to hold the entrapped water, the crest forecasts downstream would be substantially undercut. While this was apparent, the forecasts could not be lowered because of the possibility of a break-out similar to the Sunshine levee break above Lexington. The crest forecasts for Boonville and Jefferson City were lowered when the chance of additional rainfall faded, and we were informed the levees containing impounded water were being cut on the recession. The rating curve at Boonville, as determined by discharge measurements, shifted one foot to the right of the 1951 July flood, carrying 40,000 cfs more in April, 1952 than in the July flood for the same stage. The Boonville long range forecast was 2.2 feet too high.

Jefferson City is forecast by stage relationship from Boonville. Discharge measurements are not made at Jefferson City. In the July, 1951 flood, Jefferson City crested 1.4 feet above Boonville. In April, 1952, Jefferson City crested 1.7 feet below Boonville. It is quite evident that excessive scour occurred at the Jefferson City station—even more than occurred at Boonville. Jefferson City crested at 26.1, 3.9 feet under the long range forecast. ■

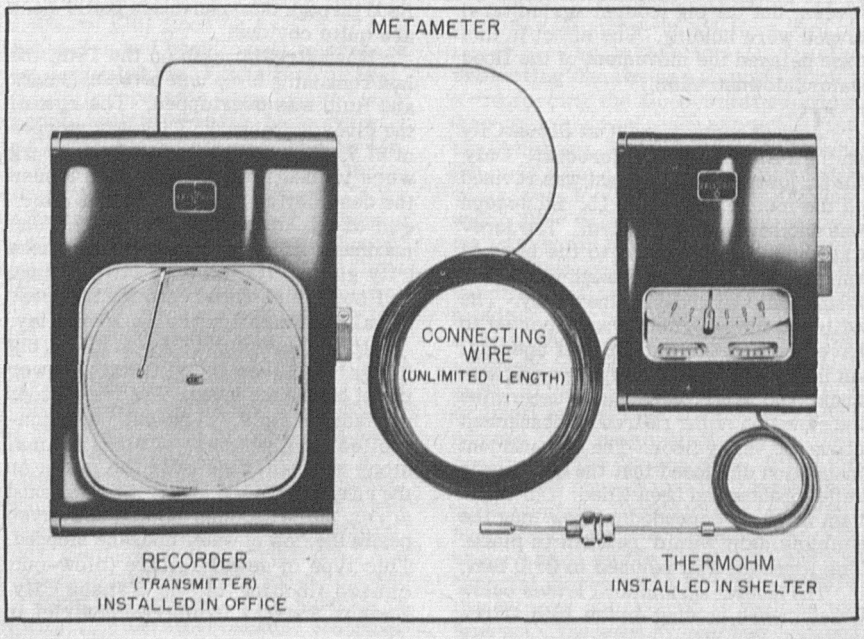
INSTRUMENTATION

Temperatures at a Distance

WITH a glance at a circular recording chart on the wall, an observer at Baltimore's Friendship Airport can read the temperature at the old city office location, eight miles away. This new installation, an instrument that goes by the trade-mark name of "Metameter," uses one pair of telephone lines to connect the recorder and the thermocouple, and makes unnecessary the difficult task of securing, training, and retaining a cooperative observer at the old site. Previously the only alternative was to detail an observer from the WBAS, since there is sufficient variation between airport and city temperatures at Baltimore to create considerable local pressure for continued downtown readings.

This is the second installation of a Metameter for the Bureau; a year ago, when it was necessary to find some way of supplying the Cincinnati WBO with temperature readings from the Abbe Observatory, our official observation site three miles away, this type of remote recorder was installed experimentally. In its first year of use, it has proven surprisingly accurate and dependable.

The Metameter is relatively expensive, but the installations are simple; in places where the need is great, and if sufficient savings can be shown, more of them will probably be installed from time to time. ■



HINTS FOR SERVICE IMPROVEMENT

Safety Measure

AN employee suggestion points out a possibly hazardous condition exists at some stations as a result of the ladder effect of the steps to standard instrument shelters. Since no hand rail is provided on the five-foot supports, there is a slight danger of accident because the exposed area of the step is limited. If personnel feel there is sufficient risk involved, the depth of the step may be increased a few inches by adding a board to its leading edge. If any station desires to add this extra width to the step, and it cannot be done locally, the necessary parts with instructions for accomplishing the job can be obtained from the Central Office by submitting a requisition through the regional office.

Filing Forms

THE METEOROLOGIST in Charge at Dayton WBAS, Gilley T. Stephens, writes:

"We recently rearranged our forms file cabinet so that all of the blank forms on hand are in the exact order of the form numbers as given in the Forms Catalog which serves as the guide for the files.

"Also, we have completely rearranged our file drawer for retained miscellaneous and fiscal forms in the same order.

"We have found this filing system effective enough at this station that we would like to pass the idea on to others, many of whom may already be using the system." ■

FOR OVERSEAS SERVICE

Special Insurance Available

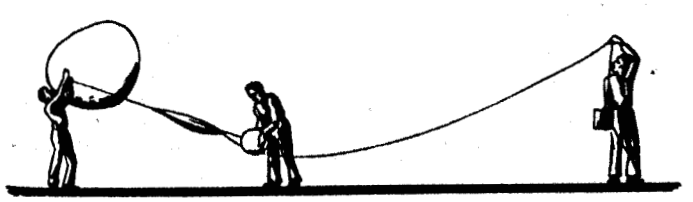
PERSONNEL who have considered assignments to Bureau posts outside the United States have frequently been discouraged to find that their life insurance policies protect them only when within the country's borders. They may be interested to know that the "War Agencies Employees Protective Association," a non-profit organization whose address is 1040-43 Washington Building, 15th and New York Avenue, Washington 25, D. C., has a group insurance plan which will cover them.

The plan pays $12,000 in case of death, with an additional $15,000 benefit for accidental death, with monthly premiums of $8.33 for an employee under 40 years of age whose income is $3,200 per annum or more. Premiums for older persons are higher.

Four classes of Government employees are eligible for this insurance:

1. All employees of American citizenship now outside the continental limits of the United States, wherever domiciled.
2. All employees located in the United States now in training for duties abroad or awaiting transportation.
3. All supervisory or administrative employees located in the United States who, in the normal course of their duties, are required to make trips abroad.
4. Directors of training programs for such employees.

Further information may be obtained from the association.



New Forecast Center

THE first item in December 1951, TOPICS, outlined the general program for FAWS and aviation forecast reorganization. On June 14, 1952, the El Paso, Tex., center began issuing official terminal forecasts for those terminals included in the El Paso ARTC area; making it the first of the completely new aviation forecast centers to go into action.

Because major revisions in aviation regional forecasting procedures are now under consideration, issuance of regional forecasts from any of the new centers will be deferred until a decision is reached; the changeover can then be made simultaneously at all centers over the country. This means that aviation forecast centers now issuing regional forecasts will continue their responsibility for areas as now assigned for the present.

Yugoslav Weather Service Surveyed

IN connection with an application by the Government of Yugoslavia for technical assistance from the World Meteorological Organization for the purpose of improving its meteorological service, Mr. James M. Beall, Weather Bureau Meteorologist currently assigned to a Mutual Security Administration mission in Greece, made a survey of the Yugoslav Meteorological Service during the period April 6-27, 1952. During this survey he visited all the principal meteorological centers and one of each type of station operated by the Service. The Yugoslav project is one of several being undertaken by the World Meteorological Organization as a part of the United Nations' expanded program of technical assistance for economic development.

Station Rehabilitation in Region Three

There is little doubt that we work better in surroundings we can be proud of, and it goes without saying that efficient arrangement of the equipment we work with will promote more efficient work. For the past several years a Bureau-wide program of modernization of station furniture, layout, and equipment has been in effect; travellers coming back to the Central Office from Region III almost always comment on the effectiveness of the program in that region, so we present here a report.

REGIONAL consolidation in 1949 was the catalyst, so to speak, for a planned program of station rehabilitation. The revised maintenance staff pattern and the establishment of a regional shop, together with unrestricted (except by funds) availability of equipment and materials made such a program possible.

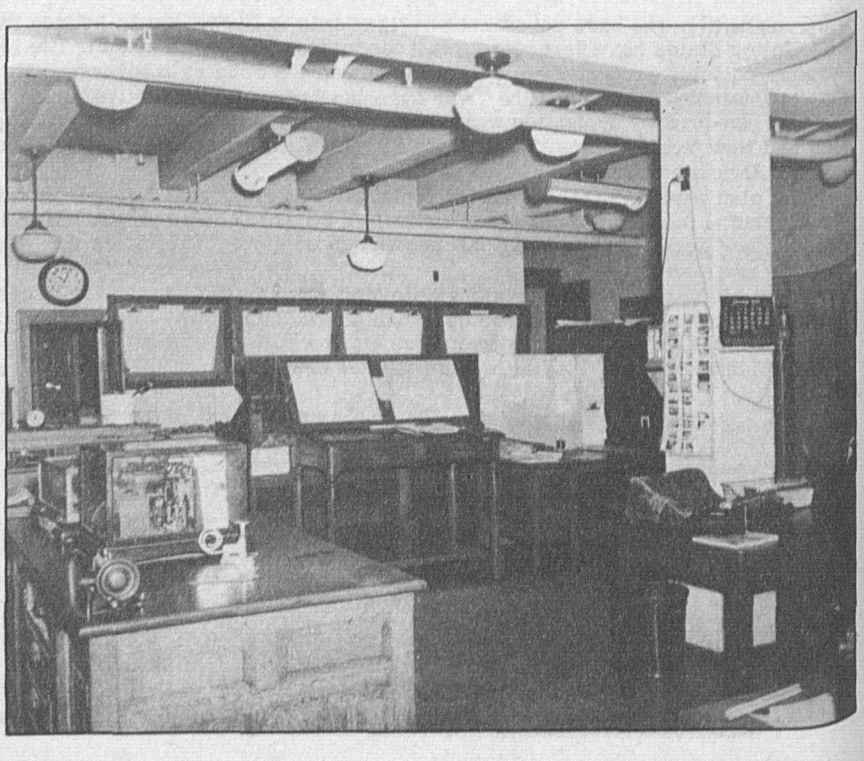
The greatest amount of planning and work, as well as the greatest opportunity, is entailed by the establishment of offices in new airport terminal or administration buildings. It begins with coordination with the CAA and the architect of the building to make sure Weather Bureau space and exposure standards are met. In this phase a great deal of vision is required right down to the smallest detail; once final construction plans are drawn, changes are difficult to accomplish, besides being expensive to either the city or the Bureau.

Once the floor plan is agreed upon, the planning of the office layout begins. This is done by the MIC and the F&O Unit working in collaboration. Primary consideration is given to four factors: the arrangement of furniture and equipment must be functional so that the routine work of the office can be performed with the least number of steps; the over-all appearance must approximate that of other rehabilitated offices; synoptic maps, sequences and forecasts must be convenient to visitors without interruption of office routine; display material and instruments should be visible to visitors as they enter the office.

The refurbishing of already established offices does not present the initial planning problems that a move into a new building does, but planning office layout is usually more complicated; the space available is seldom tailor-made to Weather Bureau requirements. The same considerations are taken into account, however; and in order to accomplish the objective, ingenuity and resourcefulness need be exercised. Figure 1 depicts a typical office which had, like Topsy, "just growed" through the years. No two pieces of furniture matched and many were obsolete or not functionally suited to modern day operations. Figure 2 shows the same office after rehabilitation. Figure 3 is an opposite view of Figure 2.

When a planned program of station rehabilitation was decided upon, it was apparent that some items of special equipment, not readily available through normal procurement channels, would need to be fabricated in the regional shop. The two principal items were an observer's console and a combination sequence and map display table on which

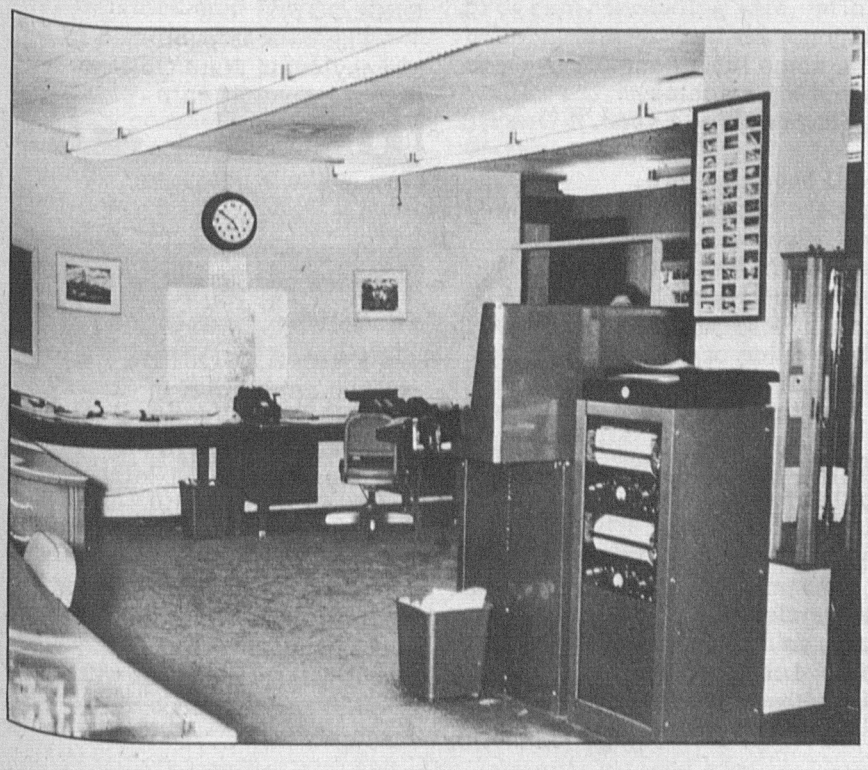
Figure 1. Typical Weather Bureau Office before rehabilitation.



synoptic charts could be plotted. The console developed in Region III was the forerunner of that described in TOPICS, April 1951. Wood desks, which were being replaced by steel, were used as the base of this facility. To the back edge of the desk top was affixed a frame whose front face sloped upward toward the rear of the desk top. The back was enclosed by an arc of sheet metal, so that in cross section the console top resembled a slice of pie. Wind and altimeter setting indicators, telethermometer or telethermoscope, and a clock were mounted in the sloping face and were thus immediately in front of the observer as he sat at the desk writing up his observations. This model has now been discontinued in favor of the standard item adopted for national use. The map and display table was designed with the thought in mind that it must lend itself to self-help briefing. It is either single or double-sided with sloping top, the top mounted on enclosed steel shelving. The table is of stand-up height. The single-sided model is shown in Figure 3. This is similar to the steel single-sided table later furnished by Central Office procurement.

Figure 3. After rehabilitation, picture taken from opposite direction to show chart and sequence display.

Figure 2. Same view as Figure 1, after rehabilitation.



A routine rehabilitation job consists of equipping the station with matching gray furniture in the observation and briefing room, and gray or green in the MIC's office. Where floor covering and lighting are inadequate, suitable replacements are made either by the lessor or the Bureau. In many cases, instrument exposures are improved. At several pibal stations a plastic dome, designed in the Regional Office and fabricated under contract, has been supplied.

As originally envisioned, it was estimated it would be five years before the program would

be completed. After three years, 41 projects have been taken care of. Of these, 12 were moves into new quarters. Presently, there are five projects in process. There are 13 more airport stations at which work needs to be done. Rehabilitation at two forecast centers is in the planning stage. City office quarters not in federally-owned buildings are lower on the priority list since these locations do not require such extensive planning and labor.

Experience thus far has corroborated the findings of management experts regarding increased production and quality of output. We have noted, too, a greater pride by station personnel in their office. Not only is there a united effort to keep the quarters in a neat and clean condition, but the people themselves are more prone to dress and act in keeping with their work environment.

Has Region III's planned program of rehabilitation paid off? Station personnel are unanimous in their opinions that it has. As evidence, we quote a comment from an official of another region who recently visited a few of Region III's installations:

> As is almost invariably the case where major rehabilitation has been accomplished, station personnel apparently took considerable pride in the appearance and maintenance of their installations.... Personnel there had no advance information concerning my visit. Yet, the over-all appearance left little to be desired. ■

Your Job

Wherever you're working, in office or shop,
And however far you may be from the top,
And though you may think you're just treading the mill,
Don't ever belittle the job that you fill.

For however little your job may appear,
You're just as important as some little gear
That meshes with others in some big machine
That helps keep it going, though never is seen.

They could do without you, we'll have to admit,
But business keeps on when the big fellows quit.
And always remember, my lad, if you can,
The job's more important (Oh, Yes) than the man.

So if you hope to stay off the shelf,
Think more of your job than you do of yourself.
Your job is important -- don't think it is not --
So try hard to give it the best that you've got.

And don't ever think you're of little account,
Remember, you're part of the total amount.
If they didn't need you, you wouldn't be there;
So always, my lad, keep your chin in the air.

A digger of ditches, mechanic or clerk--
Think well of your company, yourself and your work.
Try ever to learn from the man at the top,
And some day you may be the head of the shop.

------Author Unknown.

WORTH READING

INTRODUCTION TO PHYSICAL METEOROLOGY by Hans Neuberger is a textbook written especially for the Weather Bureau.

To quote from the book's introduction, "In early 1951 a request was received to develop a series of college-credit courses in meteorology, to be offered by correspondence to employees of the U. S. Weather Bureau who would be residents of other states as well as Pennsylvania; this series was developed and placed in operation by May 1951. One course, Meteor. 340 C, Physical Meteorology, had been taught in residence by Dr. Hans Neuberger from notes assembled over a long period of time. It was necessary that this information be provided in textbook form for the correspondence students, so Dr. Neuberger developed his notes in manuscript form, and they were printed as the textbook, INTRODUCTION TO PHYSICAL METEOROLOGY."

The book is published by the Pennsylvania State College.

DEATHS

Eric R. Miller

ERIC R. MILLER, 74, who retired as Official in Charge of the Madison, Wisconsin WBO in 1944 after 43 years in the Weather Bureau, died at La Jolla, California on April 7, 1952.

Mr. Miller spent 36 of his Weather Bureau years at Madison, and had the distinction of being the first Bureau meteorologist to make regularly scheduled weather broadcasts. He and his wife have lived in La Jolla since his retirement. ■

RETIREMENTS

Mrs. Julia F. Carder

AFTER over seventeen years of Government service, four of them with the Weather Bureau, Mrs. Julia F. Carder, clerk in the Kansas City WRPC, retired May 13, 1952, because of disability. Mrs. Carder's address is 111 East 51st Terrace, Kansas City, Missouri.

Andrew M. Hamrick

ANDREW M. HAMRICK, MIC at WBAS, Dallas, retired on May 31, 1952. A conscientious public servant, he actively participated in the direct radio broadcasting programs of the Bureau. Once, upon being complimented upon the quality of his broadcasts, he related this story: "Andy" was discussing his trepidations over his fast-approaching maiden broadcast with his sister. She told him (according to the story) to pretend that he was speaking directly to her and no one else. Mr. Hamrick said that he never made a radio broadcast without that thought in his mind.

Sixty-nine years old, Mr. Hamrick completed over 48 years of service with the Bureau before retiring, serving, in addition to twelve years at Dallas, at a number of other WBO's, including Cairo, Illinois; Taylor, Texas; the Central Office; Los Angeles; Portland, Oregon; Honolulu; Cheyenne; Grand Junction; Davenport; and Kansas City.

A relatively minor incident in his career, but one of special interest to the TOPICS editor, was the fact that a suggestion by Mr. Hamrick of a special chart for recording sky condition resulted (in April, 1918) in the first use of color in TOPICS AND PERSONNEL.

Mr. Hamrick's address is Route 1, Box 25-A, Arlington, Texas.

William L. Howard

WILLIAM L. HOWARD, chartman at the Washington National Airport, was forced to retire because of ill health on April 30, 1952. Mr. Howard entered the Bureau in December, 1946, at LaGuardia Field, after five years with the Army Weather Service, and transferred to WNA in 1948. His address is 873 South Greenbrier Street, Apartment 14, Arlington, Virginia.

Leroy T. Samuels

LEROY T. SAMUELS, 59, retired May 16, 1952 because of ill health, after more than forty years with the Weather Bureau. Entering the service as a messenger boy at Milwaukee in 1911, he went to Fort Worth as an Assistant Observer and came to the Central Office in 1918, working there until his retirement. In Washington he supervised the Bureau's upper-air observational program, including kite, pilot balloon, aircraft and radiosonde observations.

His address is 1610 Sixteenth Street, N. W., Apartment 606, Washington 9, D. C.

Walter A. Schulz, Jr.

DISABILITY caused the retirement on May 8, 1952, of Walter A. Schulz, Jr., observer at the Houston WBAS since September, 1945. His address will be 386 Raymond Road, Apt. 43-D, Jackson, Mississippi.

William Weber

MORE than 51 years of service with the Weather Bureau ended for William Weber, Chief of the Division of Administrative Services, when he said "Goodbye" to his many friends and associates in the Central Office on May 29, 1952, and entered upon his retirement. Mr. Weber (whose biography appeared in TOPICS, July 1951) plans to establish headquarters -- as soon as a home now being built there is ready for occupancy -- in one of the new subdivisions of St. Petersburg, Florida, from which vacationland he plans occasional jaunts back to Washington to visit his daughter; to San Antonio, home of Mr. Weber's mother; and to the "rock-bound coast of Maine" if Florida's weather proves too uniformly clement. These projected trips, plus the fact that the new home will be near good fishing areas and practically adjacent to a golf course, will, he feels, keep him well occupied.

Until autumn, when Mr. Weber expects to take possession of his Florida home, his address will be 2032 Belmont Road, N. W., Washington 9, D. C. ■

Retired Weatherman Celebrates Golden Anniversary

ON May 18, 1952, Edgar C. Horton and his wife celebrated their golden wedding anniversary in the Weather Bureau building in Birmingham, Alabama.

Since his retirement as MIC in 1945, Mr. Horton has continued residence in the building where his wife, Mrs. Carrie Belle Horton, is observer at the present second-order station.

Mr. Horton is well known locally as an amateur anthropologist, specializing in studies of the American Indian. ■

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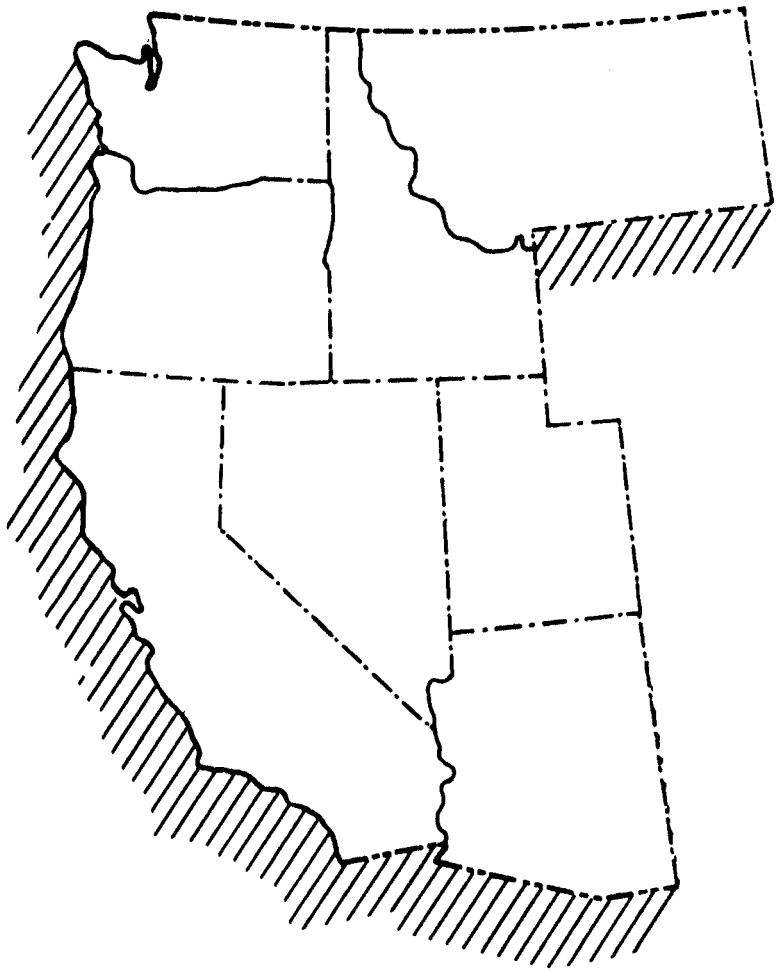
WEATHER BUREAU

TOPICS

JULY
1952



Volume 11 Number 7

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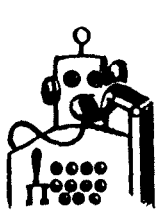
WEATHER BUREAU TOPICS is published monthly to inform all employees about newsworthy operations and work programs of the Bureau; to give background on instructions; to carry news of new personnel assignments, retirements, deaths, and similar information about employees; and to serve as a medium through which ideas and views may be exchanged to promote efficiency and teamwork in attaining our common goals. While the contents, unless otherwise specified, reflect the Central Office viewpoint, they are not instructions but are presented for information. Opinions, discussions or comments by readers are invited; they should be marked for the attention of the Editor, TOPICS. WEATHER BUREAU TOPICS is distributed for official use only.

Volume 11 Number 7

Graph or Table?

AN employee suggestion that the data now appearing in Diagram 1 of the Manual of Radiosonde Observations be printed in tabular form has been received. Opinion among observers differs as to whether it is better to present data in tabular form or in graphs. Since the data now appear in graph form, the advantages, if any, to be gained by revising the manual would not be commensurate with the cost and the work involved. However, for those who prefer the data in tabular form, a table is printed below. It is short enough that those desiring to use it may easily make a copy.

Temperature range °C.	Motorboating relative humidity %
+40° to +12°	12
+11° to + 3°	13
+ 2° to - 4°	14
- 5° to -10°	15
-11° to -15°	16
-16° to -20°	17
-21° to -24°	18
-25° to -28°	19
-29° to -32°	20
-33° to -36°	21
-37° to -40°	22



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Records Broken

THE 292,082 calls recorded on January 29, 1951, by the Chicago telephone company on the lines of the automatic telephone forecast service, looked like a single-day record that would stand for some time.

But, on June 26, in New York City, the temperature soared to 97.2°, and 374,781 Gothamites dialed the number there, thus proving what all Weather Bureau people have known all along, that there is nothing that interests the public more than "How cold is it?" Except, that is, "How hot is it?"

Also, in Washington, D. C., the calls to WEather 1212 were 241,146 on June 26th and 250,208 on June 27th, the latter breaking all previous records for the number of calls in a single day in the nation's capital. ■

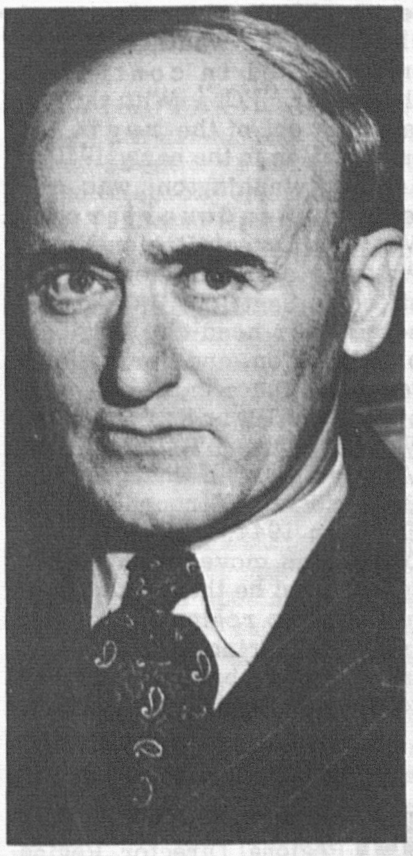
MEET THE REGIONAL DIRECTORS

In our series on the Regional Directors we reach Region Four in time to say "Hail and Farewell." The following sketch of J. C. Smith had already been prepared when its subject announced his intention of retiring at the end of June; the short biography thus becomes a parting tribute. He is being succeeded by Hugh D. Spangler, his right-hand man for eight and one-half years, of whom we speak more fully on the next pages. Before actively taking over the reins of Region Four, Mr. Spangler is on a short detail to the Central Office; and Mr. Lloyd E. Brotzman, Chief of the Plans and Program Management Office, is acting as Regional Director pro tem.

J. C. Smith

JULIUS CLARENCE SMITH, known better to his friends and associates as "J.C.," was born in Nashville, Tennessee, on November 10, 1891. He entered the Weather Bureau in Nashville, Tennessee, at an early age, working the city office evening shift, remembered so well by so many of the older Weather Bureau personnel. This arrangement of hours permitted continuation of his education and provided the basis for his many years of varied experience that have proven so valuable in his long Weather Bureau career. In accordance with true Weather Bureau tradition, it was not long before he was transferred to Grand Junction, Colorado. After a short assignment there, he continued his transient experience by comparatively short assignments to Des Moines, Iowa; Wagon Wheel Gap, Colorado; and Saginaw, Michigan. For the good of the Weather Bureau, it was apparently established that his services were again needed at Nashville, Tennessee. From Nashville, he was transferred to Philadelphia, Pa. By now "J.C." seems to have been bitten by the travel bug, and he accordingly accepted transfer from the East Coast to as far West as it was possible to go and continue in his chosen profession. He was assigned as Official in Charge of the Weather Bureau Office, Point Reyes, California. Point Reyes in the year 1914 was a picturesque and interesting place, located on a rocky bluff overlooking the Pacific Ocean. Complete isolation from the world was there if desired, or a short drive by Model T or by boat could be made to the center of the Western metropolis of San Francisco. During this period, with Government quarters, your own boss, your own cow and chickens, no days off -- in other words, a weather man's dream -- "J.C." apparently was well satisfied with all the advantages of the Point Reyes assignment and remained there for the longest period of any Weather Bureau assignment up to the present time. It was at Point Reyes that his sons, Kenneth and Richard, were born.

In the late 20's, with the advent of air transportation and resulting demands for service of a new type, reorganization of the Weather Bureau began and resulted in the closing of the Weather Bureau Office at Point Reyes. "J.C." was assigned to the Forecast Center at San Francisco for a short period,



J. C. Smith

then selected to head a new station established primarily for airway service at Redding, California. The march of reorganization continued in the Weather Bureau and it was found necessary to establish Airway Forecast Districts with intensification of reporting stations. One of these Airway Forecast Centers was located at Portland, Oregon, and "J.C." was selected to head the new unit. The establishment of 3- and 6-hourly observational stations, and preparation and distribution of forecasts, with many other problems, were part of the daily routine at Portland. He continued at Portland as head of the Airway Forecast District until 1939. At that time, the Airway Forecast Center and "J.C." were moved to Boeing Field at

Seattle, Washington. Continued change in the Weather Bureau only resulted in continued change for "J.C." With the establishment of the regional organization in the early 1940's, Seattle, Washington, was selected as headquarters for Weather Bureau Region No. 7. With the establishment of this office in Seattle, "J.C." was selected to head the regional organization, and for several years continued in the dual role of Regional Director of the Weather Bureau 7th Region and Meteorologist in Charge of the Boeing Field Airport Station. Early in 1944, the Regional Office was moved to downtown Seattle, and he then devoted his full time to regional administration. During his Portland assignment he became an ardent golfer, and in Seattle he became interested and an active participant in bowling with the local Weather Bureau bowling teams. In January 1950, further Weather Bureau reorganization again entered into the life of "J.C." and, with the consolidation of Regions 6 and 7 into Region 4 with headquarters at Salt Lake City, "J.C." was again selected for transfer and assignment to Salt Lake City as Regional Director of the new Region 4.

On June 30, 1952, the following letter went out to all stations of Region 4:

"For many years I had planned to retire when I reached the age of sixty -- however, it has been difficult to voluntarily separate myself from those who have cooperated so loyally in endeavoring to make a success of ventures with which I have been associated since 1930. The decision finally has been made and this is my last day as a Weather Bureau employee.

"My sincere appreciation is hereby extended to my fellow-employees for their generous and able assistance in solving the many problems with which we have been confronted from time to time.

"It is possible that some may be curious as to my future plans: at the present I am imbued with the idea that I am far behind in such extra-curricular activities as golf, bowling, fishing, bridge playing, and a few other incidentals -- so it is a case of "California, Here I Come" -- with headquarters at Anselmo.

"Au revoir but not goodbye."

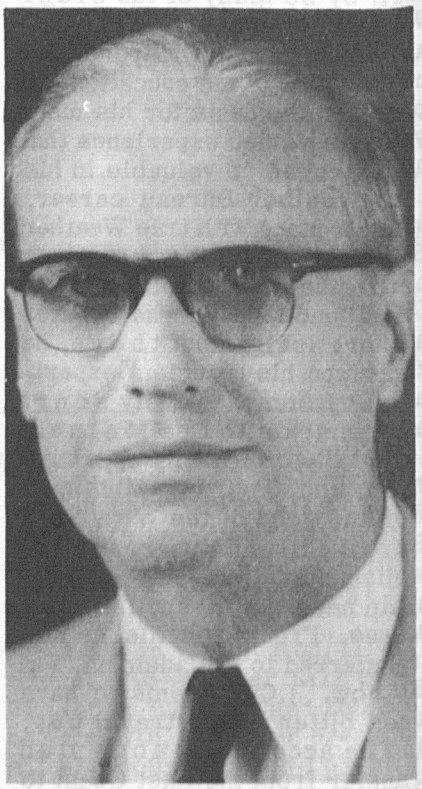
"J.C.'s" address is 151 Meadowcroft Drive, San Anselmo, California. ■

Hugh D. Spangler

HUGH D. SPANGLER, now Regional Director, Region 4, was born in Steele, North Dakota, on October 24, 1900. He stayed in North Dakota, finishing grade school and high school at Bismarck; and his first Weather Bureau assignment was at WBO, Bismarck, as a part-time observer during school vacation periods. In 1926 Mr. Spangler accepted a full-time position at Bismarck, where he served until 1928, when he moved to the post of Official in Charge at Lander, Wyoming.

In Lander Mr. Spangler, in addition to his official duties, found time to gain in executive experience by taking an active part in the Wyoming National Guard, becoming Commanding Officer of Troop I, 115th Cavalry. He was also selected as Wyoming's candidate to participate in the Officers Training Course at Fort Riley, Kansas, in 1933.

In 1937, Mr. Spangler left Lander for a series of successive assignments as First Assistant at Cheyenne, Wyoming; Official in Charge at Billings, Montana; Spokane, Washington; and Boise, Idaho, where he built up an impressive background of operational and administrative experience which led to his being loaned to the Reconstruction Finance Corporation as Chief Meteorologist for the Rubber Development Corporation. This assignment involved the establishment and operation of approximately thirty surface-observation stations and a network of fifteen upper-air stations in the Amazon Valley of Brazil, Bolivia, Peru and Colombia, South America; and establishment of a general aviation weather service for an air cargo operation throughout this territory. His success in carrying this program to an effective conclusion in a period of fourteen months is indicative of his ability



Hugh D. Spangler

to meet and overcome obstacles and his capacity for leadership, irrespective of language and other barriers.

Returning to the Weather Bureau in December, 1943, he became Assistant Regional Director, Region 7, at Seattle, Washington, continuing in this position at Salt Lake City, Utah, when Regions 6 and 7 were consolidated into the present Region 4. Upon Mr. J. C. Smith's retirement on June 30, 1952, Mr. Spangler succeeds to the position of Regional Director.

In addition to accumulating a wide background of experience in the Weather Bureau, he has attended Notre Dame, Boise Junior College, the University of Washington, and the Regional Technical Conference in Chicago in 1940. As an end result of all this, we find a man of medium athletic build, a pleasant disposition, a good sense of humor and of fair play. He believes in leading by doing, and those who know him will attest to the fact that he gives frank answers based on all available facts.

Although his official activities are his prime concern, he and his wife Edna have managed to become ardent bowlers and canasta players. "Hugh" may bowl the better score, but we understand that as far as canasta goes he has met his match. As grandparents, the Spanglers have their interest divided between their families now living in Boise, Idaho; Oakland, California; and North Platte, Nebraska.

The Spanglers' host of friends in and out of the Bureau wish him success in his new position as Regional Director. ■

FOR SUPERIOR ACCOMPLISHMENT

Awards to Three

ONE-STEP salary increases for superior accomplishment have been approved for three Weather Bureau employees by both the Employee Awards Committee of the Weather Bureau and the Department of Commerce Employee Awards Board. The awards became effective on May 25, 1952.

● Mr. Sidney Teweles, Jr., of the Scientific Services Division, received his award for his exceptionally high standard of accuracy in preparation of prognostic charts, his contribution and application of new ideas in prognostic work, and in research projects carried out in the Analysis Center.

● His work in bringing about a major redesign of the Bureau's radar storm detection equipment brought the salary increase to Mr. Dewey R. Soltow of the Instrument Division. The redesigned equipment can now be relied upon to give additional and useful information to forecasters.

● The notification of his award told Mr. Eugene J. DeVeaux, Meteorological Aid at WBO, Charleston, that it was given for his outstanding over-all performance, not only in the manner in which his regularly assigned duties were accomplished, but also in consideration of the many services he performs over and above the specific requirements of the job. ■

"Unlisted" or "Unpublished"?

A. W. TAYLOR, MIC at Savannah, Georgia, has called attention to the fact that, to the telephone companies, the term "unlisted number" means merely that the number is not printed in the telephone directory, but is available to anyone who requests it from the "Information" operator. A phone number which is not available on request is, in the language of the companies, an "unpublished number."

Since the purpose of using such numbers in Weather Bureau offices is to keep one line clear for access of special agencies such as airlines, radio stations, newspapers, etc., and to keep one phone open for outgoing calls in times of unusual weather or other times of unusual demand, it is the "unpublished" service which is of value. Chapter IV-B-30 of the Weather Bureau Manual is being revised; therefore, to change the word "unlisted" to "unpublished." ■

Newspaper Clippings

PRESS clippings from field stations provide the Central Office with information of considerable value and interest, and are frequently used in the preparation of various types of statements and reports. However, clippings are often received without WB Form 4034 and, as a result, are misplaced or mutilated in handling; also, in many cases the name of the newspaper and date and place published are not shown. It will help if clippings forwarded to the Central Office are mounted on WB Form 4034, "Press Clippings," and if the information requested on the form is given. The "routing" column on the form is for use in the Central Office, and need not be checked. ■

Watching the Snow Line

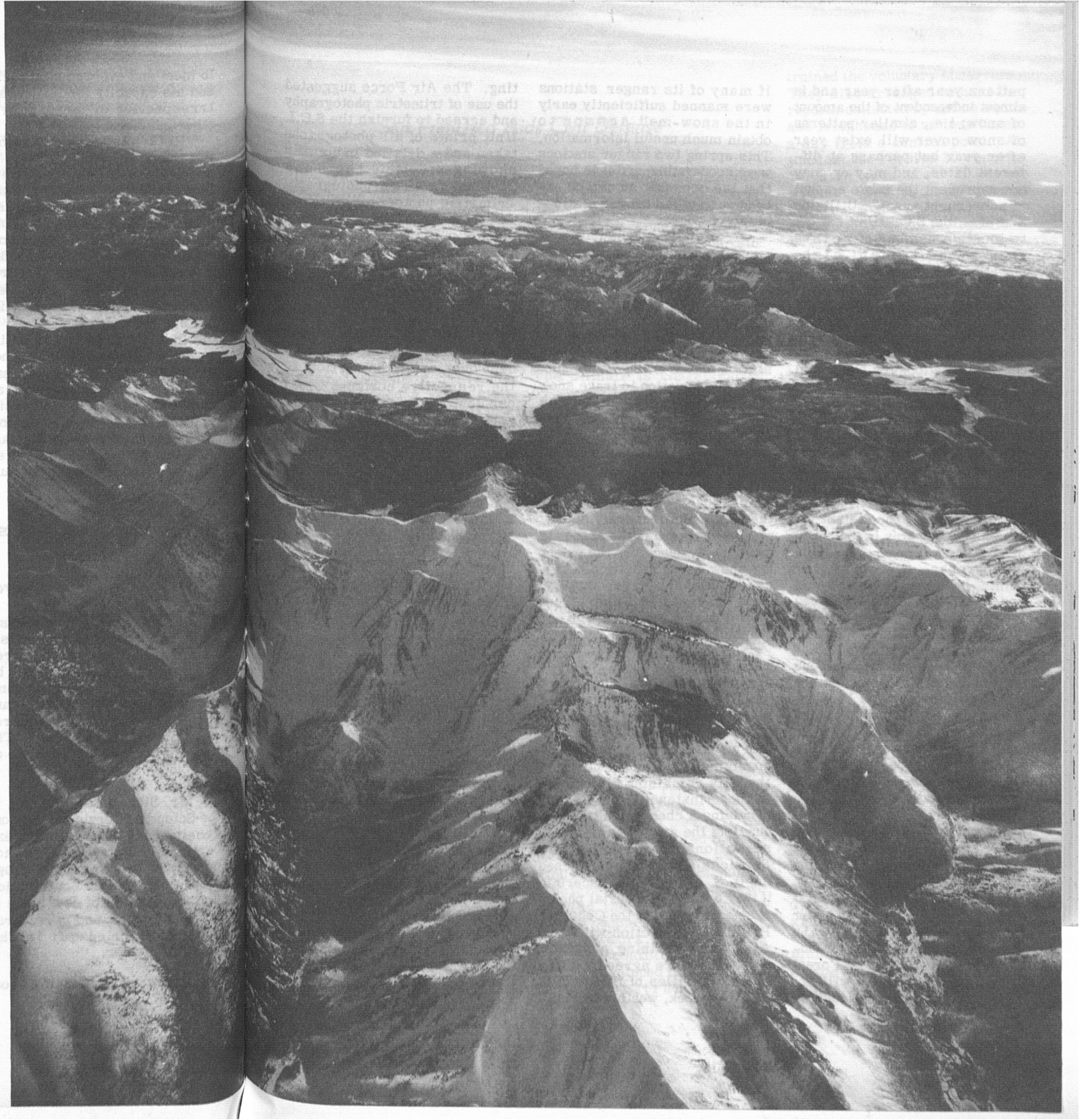
ONE of the major problems confronting the River Forecast Center at Portland, Oregon, is the estimation of daily snow-melt runoff. Streams which are fed primarily by melting snow drain the major portion of this area; high water, caused by rapid melting of the accumulated winter snows, is an annual spring occurrence in the Columbia Basin.

Snow-melt studies pointed up the need for additional knowledge about the "snow line" or snow-covered area contributing to runoff and, as a result, a Snow Cover Investigation Unit was organized within the Center, staffed largely by men who had served in the Weather Bureau-Corps of Engineers Cooperative Snow Investigations Laboratories at Glacier Park, Montana, and Donner Summit, California. The primary objective of this unit was to devise a means to observe the areal distribution of snow in the Columbia Basin, or an index thereto, so that a simple and more reliable working relation between temperature and daily snow melt could be derived.

The problems involved in such an assignment are manifold. Large areas which produce substantial amounts of snow-melt runoff support little or no habitation, few access roads exist and many areas do not have even a railroad going through. Still other areas remain essentially in their primitive state and are frequented only by U. S. Forest Service personnel, or a few ambitious prospectors or fishermen and hunters. These people usually enter the area subsequent to the spring snow-melt season. Railroads and traveled roads in the mountainous areas generally follow river valleys, and in almost all instances do not reach median basin elevations. Observations from these relatively low elevation points quite frequently will show snow completely gone at a time when relatively high temperatures will produce substantial increases in streamflow.

Snow surveyors reach the higher elevations semi-monthly but observations spaced so far apart in time afford too little information about rate of snow recession to be of value in the problem of indexing the snow-covered area. Cost of more frequent ground reconnaissance to the remote areas would be prohibitive. Some exceptions to the general rule of not being able to obtain frequent samples of high elevation snow cover do exist, the most notable of which is the Mullan Pass CAA Station, Idaho, elevation approximately 6,000 feet mean sea level. It soon was apparent that adequate sampling of snow cover from nearly fifty per cent of the mountainous area was not possible by means other than actual ground reconnaissance, horizontal view of distant high elevation terrain, or by aerial flight.

Aerial photographs of the Upper Columbia Cooperative Snow Laboratory, located at Glacier National Park, Montana, have suggested that snow cover recession follows the same general



pattern year after year and is almost independent of the amount of snow; i.e., similar patterns of snow cover will exist year after year but perhaps at different dates, and may or may not represent the same amount of subsequent runoff. Utilizing this idea, the S.C.I. Unit set out to locate a number of points from which adjacent high-elevation terrain could be photographed periodically by local observers equipped with inexpensive cameras. Reconnaissance of the areas of interest showed that relatively few acceptable locations for horizontal photographs exist; primary objections were: (1) elevated terrain frequently obscured by lower foot-hills; (2) high elevation terrain so heavily timbered that it is difficult to distinguish between snow covered and non-snow covered areas; and (3) elevated terrain too distant for inexpensive cameras in the hands of novices to capture readable photographs. A number of points, however, were selected and observers were furnished inexpensive cameras using "620" size roll film. Observer instructions were to take photographs of adjacent mountainous terrain at least three times per week, preferably each Monday, Wednesday and Friday, weather permitting. Exposed film, eight snapshots, is then forwarded to the River Forecast Center in Portland for developing, printing and interpretation.

To extend the photographic observation network to the more remote and primitive areas, the S.C.I. Unit contacted the U. S. Forest Service to ascertain if some of the isolated ranger stations, located well within these areas, could aid in the observation program. The Forest Service expressed its willingness to cooperate, but doubted if many of its ranger stations were manned sufficiently early in the snow-melt season to obtain much useful information. This spring two ranger stations were cooperating, and it is hoped that the cooperation can be extended to other ranger stations in future years.

If, after the accumulation of several years' record, the basic idea that snow cover recession follows a similar pattern year after year is substantiated at any or all camera stations, it will be possible to select a sequence of photographs for each station which will provide sufficient information to trace snow cover recession through the melt season. A file of this sequence of photographs will be placed in the respective observer's hands, as well as maintained in the River Forecast Center. Telegraphic snow cover reports can then be made by merely stating which photograph in the sequence most nearly describes the existing snow cover condition. As a check upon observer quality, each observer will also take a photograph each time a telegraphic report is filed.

Even with the above observational program, vast areas which produce substantial amounts of snow-melt runoff cannot be sampled by any means other than aerial reconnaissance. Recognizing aerial observation as the only remaining alternative in these instances and also for providing a check upon the adequacy of the ground camera observations, the Hydrologic Services Division approached the U. S. Air Force to ascertain if they could obtain aerial photos of selected areas in the Columbia Basin in conjunction with the Air Force training program. The Air Force agreed to fly some 500 miles of flight track once per week, weather permitting. The Air Force suggested the use of trimetric photography and agreed to furnish the S.C.I. Unit prints of all photographs taken and a detailed index map showing precisely the area covered by each photograph. Trimetric photography utilizes three cameras which take pictures simultaneously; one vertical shot and right and left oblique shots perpendicular to the line of flight. The vertical photos cover an area approximately four miles square; the right and left oblique shots cover the area from thirty per cent overlap on the vertical to the respective horizon. Sixty per cent overlap obtains on the vertical shots along the line of flight; thus stereoptic analysis will be possible. Flight tracks flown this year covered portions of the Clearwater and Salmon Basins in Idaho and the Flathead Basin in Western Montana. Missions were flown by B-29's from Fairchild AFB, Spokane, Washington, and, within the limits of navigation, the same flight tracks were flown on each mission.

The prospects for obtaining valuable information from this project were viewed with enthusiasm, but then came the aviation gasoline shortage and general curtailment of non-essential military flying during May 1952. As a result, only three photo missions were completed this year. The last flight was made on April 26; photos on that date indicated nearly one hundred per cent snow cover. Unfortunately, the major portion of the 1952 snow melt occurred during May; hence little information can be gleaned from the aerial photos this year. It is hoped that this cooperative arrangement with the U. S. Air Force can be continued for several more years. ■

San Francisco Aids Civil Defense

Circular Letter 11-51 alerted field stations to the role meteorology could play in emergencies coming under the jurisdiction of the civil defense organization. It listed the main fields in which Weather Bureau offices could assist civil defense; gave a general outline of related Weather Bureau policy; and mentioned certain references which would aid field offices in planning service for civil defense. Here is how one WBO has carried on.

AT San Francisco we did not have long to wait for evidence of the timeliness of C. L. 11-51. A few months earlier, the State of California had established a large civil defense organization. That organization had designated San Francisco as one of four critical areas -- areas which require careful planning to achieve any real effectiveness in civil defense against the results of attack by atomic weapons. At an early stage of its planning, the State civil defense organization consulted us about the meteorological aspects of the problem.

A Regional Control Center was established by civil defense to direct activities throughout the areas bordering on San Francisco, Suisun, and San Pablo Bays. At our first conference it was decided that, to provide a basis for many of its decisions, the Regional Control Center would require (1) a continuously current picture of the local wind circulation, (2) current information on the strength and height of the temperature inversion characteristic of this area, and (3) information on wind direction and speed at upper levels. This, of course, would be in addition to the usual weather forecasts.

The climate and geographic location of San Francisco and nearby cities present unique problems for civil defense. The area is densely populated, there being something over two and a half million people in the counties bordering on the three bays. The climate is characterized by strong temperature inversions. These inversions are made doubly significant by the persistent on-shore wind. The geographic location is critical, not only because San Francisco is on the sea coast, but also because it is virtually surrounded by water. The nearby cities not surrounded by water are downwind from the waters which surround San Francisco. These circumstances require that civil defense give serious thought tc the problem of predicting fallout patterns to be expected in case of near ground or underwater atomic explosions; also that of forecasting downwind area likely to be covered in case of attack by aerosols.

A little experimenting soon revealed that the existing network of weather reporting stations in the Bay Region was not dense enough to permit the micro-analysis required by civil defense. The Weather Bureau could not undertake establishment of micro-networks, and so we enlisted the aid of the civil defense people in amplifying our local network. Civil defense arranged for additional reporting stations, equipped them with the necessary instruments, and trained the voluntary observers. They also arranged to have the reports collected by police radio and telephoned to us four times a day from a central point. At present we receive 25 reports from an area about 70 miles square. Nine of these reports are from points within a 15-mile square area which includes San Francisco and the Golden Gate channel and the areas immediately downwind.

Analysis of so dense a network of reports calls for a large scale map. One of our own employees skilled at drafting prepared a suitable map, including topographic shading for selected height intervals. Civil defense bought the paper and had a large supply of these maps lithographed for our use.

For the past nine months we have been making micro-streamline analyses of wind flow over the Bay Region every six hours. About three months ago, when the Regional Control Office began functioning, the practice was established of coding the analyses on a special grid and sending it by TWX to the Regional Control Center. Along with the coded analysis goes information on the strength and height of the temperature inversion and the direction and speed of winds aloft. We also send a prognosis of the type of flow pattern to be expected six hours later. For this purpose the flow patterns have been segregated into about forty types.

With new information received every six hours, the Regional Control Office does not depend on being able to contact us immediately after an emergency arises. It is reasoned that in case of an atomic burst, communications may be disrupted to the extent of making such contact impossible during the

brief period when need for information is most critical. Civil defense must have a reasonably accurate picture of local weather at its disposal at all times. Under this plan, civil defense will have at hand enough information to estimate the spread of radioactive particles, aerosols, and fire the instant the center of attack is known.

This cooperative activity not only helps the State Office of Civil Defense discharge its responsibilities without going to the expense of an elaborate meteorological setup, but it helps us to obtain a better picture of local weather and wind conditions than we have had in the past. It seems reasonable to expect that it will aid us eventually in fog and stratus forecasting; and that it will help us in dealing with air pollution problems, which are likely to increase in importance as people become more insistent on abatement of air pollution. So the cooperation yields a mutual benefit both to our own service and to civil defense. ■

Professor Cleveland Abbe

FROM the articles and notices concerning Professor Cleveland Abbe published in recent years, we have become accustomed to look on Professor Abbe as the father or dean of the Weather Bureau and, as a matter of fact, he was. Some of the statements which have been made, however, have been broader and more inclusive than were warranted by the facts. If such statements had been confined to the development of the weather service after its inception in the Signal Service and during Professor Abbe's career in the civilian Weather Bureau, all would have been well. Unfortunately, though, some of the statements have claimed that he was largely or primarily responsible for the origin, and inferentially the passage, of legislation which created the National Weather Service. From a careful examination of all the facts immediately preceding the approval of the Joint Resolution of February 9, 1870, which created the first National Service, it is evident that, while Professor Abbe's work at Cincinnati no doubt had its effect, it was largely the Memorial, supported by convincing statistics on the loss of lives and vessels on the Great Lakes, forwarded to Congressman Halbert E. Paine by Professor Increase A. Lapham, that provided the impulse which induced the Congressman to draft and foster the Joint Resolution.

An extract from a recent mimeographed report prepared by Mr. R. H. Weightman, based on a careful study of all the facts, is given below:

"If any one person was responsible for the legislation more than anyone else, it would appear to be Congressman Paine. He received from Lapham some rather indefinite ideas and suggestions which he whipped into an entirely new and effective form, first as a bill and later, with a few slight modifications, as a Joint Resolution which he submitted to Congress. In this he did an excellent job. Not stopping there, however, he was able with the aid of Senator Wilson to have the Joint Resolution approved by both houses and signed by the President in the brief space of a week.

"With respect to the meteorological achievements of Lapham and Abbe, the situation is quite different. Lapham was some 26 or 27 years older than Abbe, so that at the time of the passage of the legislation in 1870, Lapham was 59 years of age, whereas Abbe was 32. Prior to 1870 Lapham had been active in meteorology for a period of 30 years, whereas in Abbe's case the really active period covered only about two years, although he was quite aware of meteorological developments (see TOPICS, April 1916). After 1870, however, Lapham had only about one and one-half years in active meteorological work, whereas Abbe had about 44 years of distinguished service in the Signal Corps and the Weather Bureau. The latter's service was recognized in 1912 by the award of the Symon's Gold Medal by the Royal Meteorological Society, and in 1916 by the award of the Marcellus Hartley Memorial Medal by the National Academy of Sciences. That both Lapham and Abbe had important roles in the creation and development of a national weather service is obvious. Lapham had a more important part in its creation, whereas Abbe had a far longer and more important part in its development.

"..... In addition to Abbe, Lapham, and a number of others cited in the references, there is a host of others whose achievements will no doubt remain unnoted and unsung, who had a part in developing the basis for the inauguration of our present Weather Bureau institution -- an organization which is outstanding among the meteorological services of the entire world.

"A study of all available facts shows that a number of men were responsible for the creation of a national weather service; therefore, no one man can or should be given the major credit." ■

STATION REHABILITATION

Winnemucca Does Its Own

The JUNE issue of TOPICS told of the work done by regional offices in rehabilitating and modernizing the furnishings of Weather Bureau offices. Some stations have done their own refurbishing; Winnemucca, for example, did such a job and, on the basis of a Field Aide's report, has been commended by the Chief of Bureau.

The letter to the MIC said, in part, "We understand that you and your staff have, on your own initiative, undertaken the rehabilitation of your furniture, equipment, and quarters; and have done a commendable job with little cost to the government." ■

SPECIAL COURSE

Severe Local Storms

IN the fall the Weather Bureau will conduct a course on severe local storms. A review will be made of present knowledge concerning the formation, movement and structure of tornadoes, thunderstorms, squall lines, and hail storms; some characteristics of flow of air over mountains will also be described. The duration of the course will be about two weeks, and it will be conducted in Washington, D. C., in October or November.

The purpose of the course is to provide meteorologists with additional background for improved forecasts and intensified research in this important field. To be eligible for assignment to the course, applicants must have a knowledge of meteorology comparable to that which would be obtained by completing a curriculum in meteorology leading to a B.S. degree. Forecasting experience, while desirable, is not necessary. Travel expenses and per diem will be paid for applicants accepted for the course from stations outside of the Washington, D. C. area.

Those wishing to apply for the course should write to the Central Office through the Regional Office, giving the following information:

1. Present position
2. Educational background
3. Pertinent experience
4. Reason for applying

Applications should reach the Central Office by September 1, 1952. ■

EMPLOYEES' INTERCOM

A. D. DiLAURO, GS-7 Observer-Briefer at WBAS, Rochester, New York, would like to exchange jobs with another Observer-Briefer working in the West or Southwest.

Anyone interested should communicate direct with Mr. DiLauro. It is understood that any such exchange, if arranged, would be without expense to the Government. ■

RETIREMENTS

Lonnie F. Ball

AFTER more than 25 years in the Weather Bureau, Lonnie F. Ball, Meteorological Aid at WBAS, Fort Smith, Arkansas, retired because of disability on June 30, 1952.

Mr. Ball entered the Bureau in 1926 at Broken Arrow, Oklahoma, and served at several stations before going to Fort Smith in 1946, among them Groesbeck, Texas; Salt Lake City, Utah; Baker, Oregon; Oakland, California; Santa Maria, California; Medford, Oregon; Kalispell, Montana; and Baton Rouge, La. His present address is 3627 Jenny Lind Street, Fort Smith, Arkansas. □

Julius C. Smith

Julius C. Smith, Regional Director of Region 4, retired at the end of June 30, 1952 (see page 103). □

Miss Mary O. Souder

THIRTY-FOUR years and seven months of government service, all but two and one-half months of it with the Weather Bureau, have, she says, put Miss Mary O. Souder in a frame of mind appropriately youthful and vigorous enough to properly enjoy her retirement, which begins on August 1, 1952.

Miss Souder is a Statistical Clerk in the Climatological Information Section of the Climatological Services Division, the division in which most of her time in the Bureau has been spent. Her address is Idylwood Road, Falls Church, Virginia. ■

DEATHS

Glen H. Phillips

AFTER almost 32 years in the Weather Bureau, Glen H. Phillips, 58, MIC at WBAS, Pueblo, Colorado, died June 16, 1952, following a brief illness.

Mr. Phillips, a native of Pueblo, entered the Weather Bureau office there in 1920 and spent his entire Bureau career at that station, becoming MIC in 1936. He was a veteran of World War I and a member of the American Meteorological Society and the American Geophysical Union. ■

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WEATHER BUREAU

TOPICS

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WEATHER BUREAU TOPICS is published monthly to inform all employees about newsworthy operations and work programs of the Bureau; to give background on instructions; to carry news of new personnel assignments, retirements, deaths, and similar information about employees; and to serve as a medium through which ideas and views may be exchanged to promote efficiency and teamwork in attaining our common goals. While the contents, unless otherwise specified, reflect the Central Office viewpoint, they are not instructions but are presented for information. Opinions, discussions or comments by readers are invited; they should be marked for the attention of the Editor, TOPICS. WEATHER BUREAU TOPICS is distributed for official use only.

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It's a Fact That

● Alaska, with 571,000 sq. miles of land area, is approximately one-fifth the size of the United States.

● Alaska has 14,889 miles of coastline as compared with 8,473 miles for the United States.

● Mt. McKinley (20,300 ft.), in south central Alaska, is the highest mountain in North America, and is also reputed to be the highest mountain in the world from its base. With an elevation of 20,300 feet MSL, it rises over 18,000 feet from its near 2,000-foot base, while Mt. Everest's 29,000 feet rises from an 18,000-foot plateau, making the mountain itself only approximately 11,000 feet high.

● It is 4,794 miles from Anchorage to Washington, D. C., by highway.

● There are 539.7 miles of railroad and over 1800 miles of connected highway in Alaska.

● Over 100,000 guesses at $1.00 per guess are made in the Nenana Ice Pool. The trick is to guess the exact day, hour, and minute when the clock will be stopped by movement of the Tenana River ice. Over a 35-year period, the ice has moved as early as April 20th and as late as May 16th—just try to pick a minute.

● Alaskans have no votes in the Electoral College; hence, they cannot vote in the Presidential Election.

● There are 16 first-order stations, of which six have a RAOB program and seven are rawinsonde stations.

● Alaska's permanent population has increased from 72,524 in 1940 to 128,643 in 1950, but, including military personnel and summer workers, the Anchorage area's population nearly reaches the 1950 census figure for all of Alaska.

● There is a potential annual source of 50 billion kilowatt hours of hydroelectric energy in Alaska.

● The Malaspina Ice Field at the base of Mt. St. Elias near Yakutat covers a greater area than Rhode Island. Approximately 2300 sq. miles, it is reputed to be the largest ice field in the world, although this comparison, of course, does not include the ice caps of Greenland and Antarctic.

▲ ▲ ▲ ▲ ▲

Chicago Forecasters Move to Chicago U. Campus

The Weather Bureau's forecast improvement program is proceeding (to the extent our appropriations will permit) along every avenue which offers promise of success. This program includes improvements in forecast organization, various types of research, and training of personnel. Relocating the Chicago Forecast Unit to the campus of the University of Chicago is a pilot-project along this line.

AROUND October 15, 1952 the district and aviation forecasting units of the U. S. Weather Bureau in Chicago will be moved to the campus of the University of Chicago and located in a building close to the Institute of Meteorology. A research unit headed by Dr. Sverre Petterssen and operated by the Institute of Meteorology with cooperation of the Air Weather Service will be located in the same building. A briefing unit for the benefit of aviation interests will remain at the Midway Airport and a service unit for the general public will continue at the present location in the Loop.

It is hoped this plan, which will bring a forecast center and a research unit primarily concerned with forecast improvement into close contact with each other at one of the country's outstanding academic institutions, will contribute materially toward progress in weather forecasting. Daily map discussions, frequent seminars, and the application of new or improved techniques derived from research should assist in the development of a more systematic short-term forecast procedure, shifting the current strong emphasis and reliance on "experience" to objective methods, that is, from qualitative to quantitative procedures. At the same time, it is fully realized that forecasting techniques will remain largely subjective for a long time. It is believed that with some effort research and increased upper-level observational data of the past decade or so can be processed into additional practical techniques.

The three principal steps in the preparation of weather forecasts by conventional methods are: (1) analysis, (2) the prognosis of the field of motion aloft and the resulting surface pattern, and (3) the prognosis of the weather. The Norwegian school during and after World War I gave great impetus to weather analysis and satisfactory progress continues, although much is still unknown concerning the physical processes of the atmosphere. The second phase involves broad-scale features and requires facilities and computations often beyond the facilities of individual district forecast centers and, logically therefore, is largely the function of analysis centers. Problems in this particular field have engaged the attention of meteorologists to a significant degree in recent years, and the rate of progress has increased although current techniques still leave much to be desired. The third phase and probably the most complex and difficult of all, forecasting the weather, has received less attention and is still in an undeveloped stage. It is generally conceded that the most experienced meteorologist, given a perfect prognostic chart (which is not available in actual forecasting), will not infrequently make a poor weather forecast. Thus, it is imperative that more emphasis be placed on the development of improved techniques to assist the forecaster in the transition from the prognostic chart to the actual weather.

While many methods for the preparation of pressure charts, surface and aloft, have been tested by the Analysis Center and the Extended Forecast Section, there is no comparable facility for testing techniques for forecasting the actual weather. While any such facilities at the Chicago center will be quite limited, at least a modest beginning in this direction can be made.

This project will bring a well qualified research group closely in touch with the practical problems of weather forecasting on a day-to-day basis. On the other hand, a group of Weather Bureau forecasters will have the constant stimulation of an outstanding group of research personnel under the direction of a recognized leader in synoptic meteorology. ■

Base for Forms Available

A SUPPLY of oil board, size 9-3/4" x 12", has been forwarded to the regional supply depots and to WBO, Honolulu, and WBO, San Juan. Stations having need for oil board to provide a hard base upon which to prepare WBAN 10A-B, 11 A-B and 12 should submit a request for the required number of pieces. ■

The Budget Process

Much has been written regarding the complexity of the budget of the United States. When the budget is announced to Congress annually it is the signal for a rash of editorial comments that are liberally sprinkled with superlatives, ridicule and exaggerated similes. This is partly due to the inherent complexity of the budget and partly to the general lack of understanding concerning the budget formulation process.

PRELIMINARY estimates of revenue and expenditures pertaining to a given fiscal year are developed approximately 15 months prior to the beginning of the year in question. At this time the President confers with cabinet officers, top officials in the Bureau of the Budget, and the President's Council of Economic Advisers. The national economy is appraised in terms of domestic and international conditions, and forecasts of revenue under existing tax laws are made. Simultaneously, "flash estimates" of expenditure requirements are collected from all branches of the government and summarized. After comparing the "flash estimates" with estimated revenues, broad decisions are made relative to the spending policy. Interpretation of economic and political conditions determines whether a balanced budget or deficit spending will be recommended to the Congress.

Preparation of the estimates is a long and arduous task. It begins within a Bureau's organizational units which determine work programs for the budget year and the amount of funds required to support them. Division chiefs examine, review, and modify the original estimates of their sections; bureau chiefs work over the combined estimates of each division; and the various Departments screen and adjust the estimates of the individual Bureaus. The estimates also include explanations of the essential reasonableness and urgency of the proposals. These documents are known as the "justification sheets".

During this process, which lasts for months, there goes on a competition for survival and relative strength during which every part of the administrative programs and organization is reexamined. On the appointed day, approval is given to the adjusted estimates by the Department head and the surviving items are reworked for presentation to the Bureau of the Budget.

After preliminary study by the budget examiners, formal hearings are held between the Bureau of the Budget and the Departments at which the latter are given opportunity to explain and defend their estimates, now under fire. It is the thankless task of the Bureau of the Budget to assure that the total estimates stay within the maximum amount the President has indicated he will recommend to the Congress. As estimates inevitably exceed this maximum, they must be reduced in varying degrees. At this point, the relative merits of competing claims for funds on the part of different departments are weighted and determined. Formal allowances on approved program items for each Bureau follow. Appeals may be made to the Director of the Bureau of the Budget.

The combined estimates as revised by Bureau of the Budget action constitute the President's Budget which is submitted to the Congress with a message conveying executive recommendations, summary statements, detailed exhibits of proposed expenditures, explanations of increase, and proposals for revenue adequate to meet the anticipated expenditure or as an alternative to increase the national debt. The budget is, in short, a complete and detailed financial plan and work program, so arranged as to facilitate comparison with the current fiscal plan. It enables the Congress to act on the basis of a definite program carefully considered by the executive branch and specifically recommended by the Chief Executive.

The tentative selection of items and the achievement of a balance between revenue and expenditures by the executive branch give the Congress "something to work on" and protects them in some measure against importunate demands for bigger grants. The value of the President's budget as a starting point for the Congress becomes apparent when it is realized that the range and variety of appropriations have grown far beyond the ken of all except the most experienced representatives.

The Congress has full authority to modify, increase, diminish or abandon the budget estimates submitted by the Chief Executive. The Appropriations Committees of the House and Senate are divided into subcommittees each of which considers the budget of specified agencies. Agency officials are given a hearing during which they are subjected to very close questioning, and further information is often requested to support the estimates. Cuts in the estimates imposed by the House may be appealed to the Senate. If Senate support is obtained, some portion of the cuts may be restored in Senate-House conferences.

Appropriations are usually made in a lump sum, which means that the specific items or programs covered by the appropriation are

not indicated. Experience has proven that this can be done safely, especially in view of the existing "gentleman's understanding" that the detailed estimates presented in the budget are the guide to the general allowances authorized by the Appropriation Act. Furthermore, the general laws with respect to employment of personnel, purchase of supplies, making of contracts, custody of funds, and the like, provide sufficient safeguards to ensure orderly and equitable use of funds.

The budget fortunes of the Weather Bureau are deeply influenced, if not controlled, by this environment. Guide lines are promulgated governing the formulation of the President's Budget and these are intended to accomplish the economic objectives agreed upon at the White House level. Hence, individual bureaus seldom gain acceptance of estimates that are incompatible with the overall objectives of the President's Budget. For several years the policy has been to reduce expenditures for civil functions in order to cushion the impact of military requirements. Accordingly the budgets of a majority of the bureaus discharging civil functions have been reduced.

The Weather Bureau is among the few civilian agencies that have received increases. It is true that the increases have been insufficient to pay for increased costs and as a result numerous economies have been necessary. Nevertheless, we are relatively fortunate that the actual dollar amounts of Weather Bureau appropriations have increased from year to year. This year we have again been favored with a small increase totalling $274,775, but, as in the past few years, the increase is little more than the amount required for increased costs.

The amount of additional funds required to support desirable new programs during fiscal year 1953 was originally represented as $15,717,000 in the "Flash" estimate submitted in May, 1951. This amount was modified in the formal submission to the Department in July to $15,233,548. The estimates of increase were subsequently reduced to $3,315,000 by the Department in September, and to $1,024,000 by the Bureau of the Budget in December. This is the amount that was represented to Congress in the President's Budget. In April, 1952, the House reduced the increase to $30,000, and an appeal for restoration of the full amount of $1,024,000 was immediately made to the Senate. On the basis of the strong justification presented during the appeal, the Senate approved an increase of $530,000. A compromise figure of $280,000 was finally agreed upon by the House-Senate conferees and included in the appropriation act. Supplemental appropriations were also requested during the fiscal year for Alaskan housing and improvement of the rawinsonde network. No allowances for these programs were received from the Department.

Two amendments to the 1953 Department of Commerce Appropriation Act placed limitations on the monetary amounts that may be spent for specified purposes. The first of these, the so-called "Jensen Rider" prohibits the filling, except by transfer within a department, of more than 25 percent of the positions which become vacant during the fiscal year. The second amendment, in effect, reduced each appropriation by 10 percent of the amount requested in the budget estimates for (1) personnel payments above basic rates, which cover night differential, overseas differentials, etc.; (2) transportation of things, other than by mail; and (3) travel of employees.

In recognition of the severe effect of these general restrictions on Weather Bureau service programs, operational personnel were specifically exempted in the Appropriation Act. Thus, the restrictions apply only to those Weather Bureau positions and expenditures included in the budget under the activity "Administration".

The following table of planned expenditures during fiscal year 1953 points up the significant fact that nearly 77% of the entire appropriation is required for the employment of personnel, and nearly 10% for expendable supplies.

Purpose of Expenditure	Amount
Personal services	$20,901,950
Travel	441,680
Transportation of things	633,356
Communication services	1,246,635
Rents and utility services	513,979
Printing and reproduction	151,450
Other contractual services	328,579
Supplies and materials	2,688,962
Equipment	302,024
Tuition of Weather Bureau students	5,000
Employee suggestion awards	350
Social Security Tax Contributions	30,810
Total expenditures	$27,244,775

■

Inspector Positions

ALL letters received in reply to the request for applicants for Substation Inspector positions have been reviewed and will be utilized as vacancies occur; applicants will not be replied to individually unless they are being actively considered. All Substation Inspector positions are presently filled, but vacancies are expected from time to time. ■

COOPERATIVE OBSERVERS

Keeping It in the Family

The July, 1952, issue of the COOPERATIVE OBSERVER, newsletter issued to all cooperative observers of the Utah and Nevada Climatological Sections, is dedicated to those observers who have kept their stations in the family, passing it from one member to another through the years.

Eleven such stations are listed, with Deseret, Utah, showing 53 years of records, begun by Mr. S. W. Western and now carried on by his daughter, Miss Berniece Western. Five other stations have a record of over forty years; the one at Heber, Utah, has been kept up by three generations of the Crook family--the present observer, Lindsay Crook, took over from his uncle, H. G. Crook, who, in turn, took over from Lindsay's grandfather, John Crook.

We mention this dedication with the thought that other section directors might like to do likewise; also, we should be interested in knowing what the longest "family station" record is. ■

INTERNATIONAL COOPERATION

Bureau Assists in Greece

The REHABILITATION and reorganization of the Royal Hellenic Meteorological Service, which has been underwritten by the Mutual Security Administration (formerly ECA), was announced in the May 1949 issue of TOPICS. Originally two Weather Bureau meteorologists, Norman R. Hagen, Meteorological Attache, London, and James M. Beall, supervising airway forecaster, Billings, Montana, were assigned to work with the technical advisory mission, which is under the supervision of the International Region of the Civil Aeronautics Administration.

The Italian and German occupation and the following Communist revolution had reduced the Greek Meteorological Services, equipment and personnel, to a point of virtual non-existence. In order to improve these services to international standards, it was necessary to survey what meager instrumental equipment was salvageable; decide the number, type, and locations of the observational and forecast stations required to meet the needs of the national meteorological service; make arrangements for meteorological communications; procure the necessary instrumental equipment; select and train the observational personnel and competitively select a group of Greek engineering students for graduate training in meteorology.

All of these phases of the operation had to be coordinated with the respective requirements of aviation, the military and civilian branches of the Greek Government, with the optimum objective of implementing the Eu-Med. regional air navigation recommendations of I.C.A.O. During the past three years these problems have been capably and effectively dealt with by Messrs. Beall and Hagen. Mr. Hagen has already returned to the States, and Mr. Beall plans to return by the end of 1952 at which time the greater portion of the project will be completed.

Charles K. Shafer, Prognostic Analyst at the WBAN Analysis Center, has been assigned to the Athens office in order to conduct formalized classroom instruction of dynamical and applied meteorology to a select group of fifteen Greek engineering students. At present there are only five airway forecasters in the Royal Hellenic Meteorological Service. This specialized training combined with on-station forecast experience at Ellenikon International Aerodrome will assist the Greek Government to meet its meteorological obligations to international civil aviation. Upon Mr. Beall's return to the States, Mr. Shafer will also assume the remaining meteorological responsibilities of the M. S. A. Mission to Greece.

Prior to his detail at the Analysis Center, Mr. Shafer had been assigned to Washington National Airport as aviation forecaster; to Montreal as a meteorological expert with ICAO; to New York University as a Weather Bureau scholarship student; to Dayton, Ohio, as an airways forecaster; and to Raleigh, North Carolina, as an airway observer. ■

ON MAPS AND TABLES

Identifying Cincinnati Data

CINCINNATIANS recently made a good point that their weather reports were being rather generally published as Covington, Kentucky, rather than Cincinnati. Action has been taken to change the designation of both the index number and call letters to identify them with Cincinnati, Ohio (Greater Cincinnati Airport) instead of Covington. Local officials are requested to make a similar change for any tabular matter in newspaper or other local bulletins.

Weathersticks, Stars, and Balls

The Central Office has received several inquiries in recent months regarding proposals to use signs, beacons, or other devices to display weather forecasts. The displays are usually intended to be part of an advertising stunt with the objective of attracting attention (but in a dignified way) while providing a public service. Unfortunately, it is not possible to condense our usual daily forecasts satisfactorily into the severe limitations imposed by such signs, and as far as possible we wish to discourage such displays. In many ways they are a throwback to the days when whistles, bells, and flags were used to disseminate the daily forecasts, and are a resumption of a system we have long abandoned in favor of press, radio and television.

The Weather Bureau does not wish to become officially associated with such displays, either in their design or operation, or in connection with the advertising. We believe that public opinion is as likely to react unfavorably as favorably to the sponsor of such displays and we do not consider them to be a public service.

It is possible that the agents for some of these displays may use the cooperative activities of the Weather Bureau as evidence that the government favors the use of these devices, and in some cases the bank or other institution contracting for one of the devices may be under the impression that a worthwhile public service is being rendered. If the Meteorologist in Charge has an opportunity to express an opinion, he should say that the Bureau considers this form of distribution obsolete and does not favor such arrangements.

While it is, of course, desirable that any public display or release of forecasts be based on official Weather Bureau information, we should not make arrangements to deliver special abbreviated forecasts for the purpose of such displays, nor should we take official part in or direct the choice of lights or the operation of other display devices. The local office may furnish the latest applicable forecasts upon request, but the responsibility for condensing or abbreviating them for displays of this character must rest with the sponsor of the display. ■

Revised Form WBAN 10-D

WHEN WBAN 10D (Surface Weather Observations - Record of Instrumental Exposure and Equipment) was revised approximately six months ago, instructions on the reverse side of the form were also revised to eliminate routine monthly preparation of the form. WBAN 10D is now prepared annually as of December 31, unless there has been a change in instrumental exposure or equipment. It is suggested that first-order stations that do not have revised copies of WBAN 10D containing these instructions request a small supply from the Regional Office. ■

More About the Standard Briefing Displays

A LITTLE more than a year has elapsed since the first of the standard briefing display units was shipped to the field, and station reports on them have been very favorable. To supplement the initial order of 60 units, a contract has been let for another 60 units and we plan eventually to equip all airport stations with the units.

Reports from Central Office personnel on field trips indicate that in some instances component parts such as glass panels, aluminum strips for the station identifier lists and some of the explanatory charts have not yet been installed.

Stations that do not have the glass panels are reminded that these were to be purchased through local sources since the higher freight rates that would have applied had the fragile glass panels been shipped with the units would have been substantially greater than the value of the glass. Therefore, action should be taken to purchase these locally. There has been some delay in certain areas in installing the aluminum strips for modifying the units to contain the station identifier lists, but it is expected the strips will be received at all stations concerned from the RO within a short time. Also, regional offices now have a small stock of the explanatory posters and charts; stations whose standard briefing displays are incomplete in this respect may request appropriate charts from their regional offices. ■

MEET THE REGIONAL DIRECTOR

Glen Jefferson

GLEN JEFFERSON was born in the small pioneer town of Casey,* Iowa, January 25, 1901. At an early age, he moved with his parents to eastern Nebraska near Omaha where he grew up amidst the rigors and austerity of early Midwestern life. It is a small wonder that he developed and carried with him to this day the philosophy expressed in his adopted motto "The difficult we do immediately; the impossible takes a little longer."

After completing his formal education in and near Omaha, Mr. Jefferson entered the Weather Bureau at the Drexel, Nebraska kite station, September 10, 1918. Here his characteristic energy and ability soon earned him a transfer to the Omaha city office.

As the nation expanded and new stations were constantly opening, the Bureau found it necessary to use all the technical talent it had available, and Mr. Jefferson was moved to the kite station at Ellendale, North Dakota, and later to Yellowstone National Park where he spent two years.

Soon, however, it was recognized that his experience and capabilities had outgrown his responsibilities, and he was assigned to the relatively new aviation weather service as a forecaster at Omaha, Nebraska. In this and the subsequent assignment to the Chicago airport station as Forecaster and First Assistant, his experience was well rounded out, and advancement was rapid thereafter.

Assigned to Atlanta, Georgia, for a few years as Airway Supervisor of the Atlanta District, Mr. Jefferson was the logical choice, by virtue of his experience and thorough familiarity with Weather Bureau practices, to assume the position of Acting Regional Director when regionalization was effected. Here he assisted in resolving the many administrative, supply, and personnel problems which were the natural products of decentralization and delegation of responsibility from the Central Office to the new regional offices. This was a challenging and interesting period, but even more was to come. In October 1943, he was appointed Regional Director of Region 8 - the Territory of Alaska - and moved to Anchorage. This residence he was destined to maintain for a longer period of time than any other.

The economy of the Territory was disrupted by the 2nd World War; the armed services requirements varied almost from day to day; it was extremely difficult to recruit and keep people in their jobs; and this, combined with the varied Bureau needs in all departments, must have presented a picture which might have discouraged many men. But Mr. Jefferson, drawing upon his reserve of experience, met all these challenges, and with his ever present capacity for work and his ability to pierce quickly and accurately the layers of dross and get at the heart of the problem, welded the first-order, CAA, and second-order stations in the Territory into what is today a smoothly and efficiently working team. Seldom does an individual enter the region without receiving a feeling of welcome and cordiality, together with a realization that his job assignment, whatever it may be, is important; few, if any, leave the region after a tour of duty here without a sense of accomplishment -- the satisfaction of a job done to the best of their abilities.

In 1945, near the end of the war, loneliness finally overcame duty, and Mr. Jefferson took leave long enough to return to New Jersey and bring back his gracious and hospitable wife Helen. She immediately took an active interest in the growing community of Anchorage, becoming Executive Secretary of the local Red Cross Chapter and engaging in various other forms of social work. Genuinely interested in other people, all Bureau personnel in Anchorage have always found her willing help available whenever needed.

Now, slowly settling down to the routine of a well administered region which he did much to create, Mr. Jefferson has substituted community activities and hobbies for the time previously spent in meeting the turbulent and at times baffling problems of the infant region. He was for three years chairman of the Anchorage Chapter of the American Red Cross, was the Section Emergency Coordinator for the Alaskan Amateur Radio Relay League, and is now serving as its Section Communications Manager; Civil Air Patrol Captain serving as Assistant Wing Communications Officer of the Alaskan Wing; member of Lions' International; and, from its inception, member of the Board of Directors of the Anchorage Cooperative Association, a retail sales cooperative organized and operated to provide competitive prices in the Anchorage area.

In the few leisure hours re-

*Casey is also famous as the birthplace of "Casey" Jones of "roundhouse fame."

maining after all official and civic duties have been met, Mr. Jefferson is busy with amateur radio activities, remodeling his home, or comfortably listening with his wife to his extensive classical musical library. A man of no little modesty, he will not admit to any superior achievements; but when queried on the past, will get a reminiscent look in his eyes and start talking about his good friend, V. E. Jakl, who was his OIC on entry into the Bureau and with whom he further served at the Chicago airport station. Even though he will not admit to any meritorious accomplishments, one who has had the privilege of reviewing his career cannot escape the conclusion that it has been one of considerable accomplishment and outstanding success. As he has shaped and welded the entire region into an integrated team, and presently administers the smooth flow of coordination between the Central Office and the field stations, the words of his motto take on new meaning, for here is a man to whom the difficult has really been commonplace and "impossible" only a word. ■

OPERATIONS PROBLEMS

The Weather Bureau in Alaska

AT the mention of "Alaska" most people visualize ice, snow, howling winds, and dog teams. These we have at times and in some sections, but we also have summer temperatures ranging up to 100°, and precipitation that varies from less than 2 inches to more than 250 inches per year. It is interesting to note that the Field Services Section of the Weather Bureau in Alaska is probably as much concerned with weather and its vagaries as any other user of meteorological data. Weather and vast distance combined present the major problems in successful conduct of operations. Whether it be the installation of new equipment or a routine station visitation, each project entails detailed, meticulous, long-range planning. Of the 90-odd stations in the region, only 11 can be reached by automobile; the remainder are visited by airplane, boat, and, on infrequent occasions, by dog team. Travel must be adjusted to conform with the season. For instance, during the spring break-up as the snow cover is retreating progressively from the Pacific Ocean northward to the Arctic, the transition from skis to wheels or aircraft presents a very difficult problem in bush air travel. Since there is usually a two- to three-week period during which neither skis nor wheels can be used, travel must be scheduled to follow behind the snow line at just the right interval if inordinate delays are to be avoided. It is not unusual for a traveler leaving Anchorage to depart wearing summer clothes and carrying mosquito lotion to shift to fur parka and boots at the end of the first day's travel.

Meteorological and administrative communications present

an entirely different type of problem. There are no MEDIS or SECO facilities in the Territory; in fact, the northernmost circuit reaching south from Barrow to Fairbanks is still a hand-key operated "CW" circuit. However, VHF radio-teletype is fast replacing slower methods. A missing weather report may be due to circuit outage; poor radio signal conditions; or as has happened at least once, a village ran out of meat and the Eskimo observers, abandoning their observational program, went whale hunting. Mail service is understandably slow; therefore, all instructions or explanations must be as accurate and complete as possible if a slow and tedious exchange of correspondence and/or radio messages is to be avoided.

If each challenge becomes an opportunity, however, then the Field Services Section in this region has unlimited opportunities. A number of humorous (in retrospect) situations have developed during field visits. A technician was attempting to install a length of thermoplastic cable across a station roof in temperatures of -50° to -60°. He would heat the cable inside, then run frantically up the ladder and try to push it through a condulet. Each time the thermoplastic would cool so fast that the least bend would cause the insulation literally to explode. This was finally solved by the technician's thrusting the warmed cable into his wool undershirt while he scrambled up the ladder and successfully made the installation. And, of course, there is the Field Aide who stopped at an isolated village and, upon ordering what he thought was a safe meal of fried eggs, having them served in a setting of congealed seal oil. This problem was easily solved, he just didn't eat.

The tales are endless: there is the ex-Navy Field Aide who (although he stoutly denies it) became seasick while in a tossing whale boat on his way to a Coast Guard station, and then, only six weeks later, had to hire a dog team to get to a usable landing area or else remain at a second-order station for a month.

A unique combination of Facilities and Operations and the Field Aide programs in other regions, the Field Services Section continues to meet many varied and interesting problems in assisting the field station to an efficient performance of their assigned duties. Despite the difficulties, and at times outright hardships, it is an interesting and educational experience not soon to be forgotten. ■

Procurement and Supply Notes

A STATEMENT was recently made to the effect that there were no inaccessible stations in Alaska. This came as somewhat of an anti-climax, since we have only recently started recovering from the effects of a near-disastrous Maritime strike which tied up thousands of tons of cargo at Seattle ports, some of which was essential Weather Bureau equipment and supplies. Fortunately, occurrences of this sort do not happen often enough to shake our faith in the belief that shipments do (eventually) arrive at their destinations. However, all things considered, it is believed that this statement was made with tongue in cheek.

Experience with consigning shipments and thereafter hoping for the best with fingers crossed, leads to the opinion that accessibility in Alaska is measured not only in terms of distance but also time and seasons of the year. Distances are, of course, considerable in Alaska, and that fact alone can account for corresponding length of time from departure to arrival if surface transportation is used. With respect to seasons, a station which, during certain times of the year may be as easily reached as the building across the street, will at the time of the ice break-up be completely out of reach except by para-drop. Insofar as transportation and communication are concerned, Alaska is dependent on the airplane, and there are more of these in the Territory, per capita, than anywhere in the United States.

Most routine bulk shipments into the Territory are handled by one of the two steamship companies serving the area from the west coast. This method of shipment works rather well with the station in southeast Alaska, which points are within easy shipping distance of Seattle. Anchorage itself, located as it is 150 miles above Seward and tidewater, requires a combination of ship and rail. Stations on the outer or western and northern coasts of the Territory, can and are reached during the summer months by steamship from Seattle several times a season. These are the busy months for these stations, since it is then that all heavy freight, such as helium, is brought in. During the long winter months, when ice covers the Bering Sea, transportation reverts to the old standby, the airplane.

Airline routes criss-cross Alaska in all directions, and equipment ranges from "Cubs" on floats to luxurious Stratocruisers. Space in some of the small planes is so cramped that it may be

necessary to break up a shipment in order to transport it by means of several successive flights. The Civil Aeronautics Administration, which operates a fleet of its own planes, is an ever-present aid in reaching isolated stations. These planes will land and take off on anything; and the pilots are as familiar with landing conditions on ice covered lakes and rivers as they are on paved runways, bringing commissary supplies and all types of operating equipment, plus news from "Outside," to CAA and Weather Bureau stations alike. Stateside, the Federal Supply Service performs unusual feats of cooperation in obtaining and shipping items which are unobtainable in Alaska. Everything considered, cooperativeness, which may be a figure of speech "Outside," is an essential working factor in the far North and is indeed what holds the Territory together. ■

Standard Winds-Aloft Procedures

DURING a recent field trip, one of the Central Office officials noted that some stations are not following standard operating procedures in the following respects:

(1) Some stations have not removed the white paper backing from the new transparent winds-aloft graphing scales Nos. 20 and 21. This should be done for ease in reading the height values from WBAN-20A.

(2) A few observers still use ink to draw the speed and direction curves on WBAN-20A. A 3H drawing pencil should be used for this purpose. ■

ALASKAN FORECASTS

A Challenge to Meteorologists

THERE are few, if any, areas on earth where the average citizen is as weather conscious as he is in Alaska. There are many reasons for this interest, but the most important one undoubtedly is the fact that most Alaskan activities are utterly dependent on the weather for their success or failure. Another compelling reason is the rapid and pronounced changes in the weather itself.

Because of the vital interest, the challenge to the Alaskan forecaster is enormous; it is further complicated by the geography of the area. To the south and southwest of the Territory is the vast Pacific, where regular weather observations are few and scattered, and where irregular reports from ships and planes rarely succeed in filling in the huge areas from which no regular reports are available. To the west is the great, sprawling land mass of Siberia; some reports are received from there, but frequently they are missing or unreliable. To the north is the forbidding Arctic, where the only regular reports are too far to the east to be of much value to the forecaster, although occasional and irregular reports are received from weather reconnaisance planes. Because of the many areas from which few or no weather reports are received, it is obvious that the Alaskan forecaster must utilize to the maximum every available report.

A further complication to add to the forecaster's difficulties is the fact that meteorological problems in the Arctic and sub-Arctic are vastly different from those of more southerly latitudes. It has often been said that the first thing a forecaster should do upon his arrival in Alaska is to throw away his meteorological text books. While this is, of course, an exaggeration, there is a modicum of truth in it.

Only the most important three types of Alaskan forecasts will be mentioned. First are the aviation forecasts. Alaska is known as the "flyingest" area in the world. This is largely due to a shortage or utter lack of other means of transportation. To demonstrate the air-mindedness of Alaskans, a single example should suffice. Anchorage is Alaska's largest city, although the permanent population of the city proper is only about 15,000. Merrill Field, a small municipal airport located on the outskirts of the city, had, by actual count, 25,100 aircraft takeoffs and landings in May 1951. Only one field under the American flag, the Cleveland airport, recorded a greater volume of traffic. Even this does not tell the full story, since flights by carriers operating from the nearby military field, military flights, and float plane operations at Lake Hood, about five miles from Merrill Field, were not considered in the tabulation. By means of comparison, almost one tenth of all the float planes registered in the U. S. and its territories are based at Lake Hood!

Another major responsibility of the Alaskan forecaster is the fire weather program. There are more than 125,000,000 acres of forests in Alaska. Much of the forested area receives less than fifteen inches of rain per year. The fire hazard, particularly in dry years, is tremendous. Obviously the fire weather program

represents a most important service.

The third major responsibility is the preparation of marine forecasts. These are utilized by all the large steamship companies that operate in Alaska. Nevertheless, service to these large concerns is dwarfed by service to the fishing industry. The value of the products of the Alaskan fisheries has averaged, for the last ten years, $100,000,000 per year. Much of the work involved in catching the fish, shrimp, crab, and other forms of sea life, is accomplished through the use of small fishing boats. There are literally thousands of these small craft and they are scattered all along the western and southern coasts of Alaska. When it is realized that the Alaska coastline is almost double the length of the coastline of the United States, and that practically every skipper in the coastal waters utilizes the twice-daily marine forecasts issued by the forecast centers, it is quite evident that the program is of vital importance.

Other responsibilities of the Alaskan forecaster are similar to those encountered in the States. Included are extensive briefing services, direct radio broadcasts, general forecasts for many of the larger communities, an agricultural forecast program, and a rather impressive forecast service for the construction, road building, and mining industries. The fruit-frost program in Alaska is of little consequence, as is the river and flood problem.

The three forecast centers in Alaska, located at Anchorage, Fairbanks, and Juneau, handle most of the principal forecast requirements for the region. Each center, and each forecaster, is responsible for the preparation of a large variety of forecasts, not usually necessary elsewhere. Because of the diversity in the types of forecasts, the necessity for maximum utilization of every available scrap of information, the extreme weather consciousness of the population, and the geographical position, Alaska offers an opportunity second to none for an ambitious meteorologist to quickly acquire a broad and well rounded experience and a competent skill in his chosen profession. ■

HOBBIES OF MANY VARIETIES

Alaskan Time Is Too Short

THERE is an old saying to the effect that a busy person is a happy person, which is especially true in the case of personnel in Region Five. Even in the larger communities, our people feel the separation from families, relatives, and some forms of entertainment which they enjoyed in the States. Most of our stations, moreover, are remote outposts, and we are invariably impressed by the fact that the employees who manage to enjoy rather than endure life in the Territory have developed interests outside their work.

Outdoor activities of our people vary with the location, from salmon fishing in southeastern Alaska to whale hunting along the Arctic coast. There are "shooting weathermen" all over the region, and more than one moose has fallen to well-aimed hand-load ammunition. They hunt white bear "up north" and black bear "down south" and even bag an occasional "brownie"—a privilege for which Outsiders pay a high sum indeed. The streets in Alaska are not paved with gold (in fact, not many of them are paved at all), but the efforts of some people have panned out to the extent that they are wearing jewelry of genuine dust or nuggets. A spirit of competition has developed among the gardeners, aided and abetted by friendly bush pilots who carry samples of prize vegetables from one distant station to another. Then when winter sets in, there are the trap lines, and at least one WB wife is wearing a muskrat coat of pelts her husband gathered.

Personnel have met their transportation problems both for convenience and recreation in interesting ways. The pilots among our group are many; several of them own their planes and others participate in flying clubs. Boat building ranks high on the list of worthwhile hobbies, with final products reflecting excellent workmanship. Weathermen have raised and trained dog teams that are on a par with any found in the North.

Collections of native handcraft abound in the homes, but of even greater personal interest are the pieces of ivory which employees have carved from walrus tusk and polished themselves; the jade that has come from local deposits and has been finished for attractive settings; and the Eskimo dolls fashioned by Weather Bureau wives, complete with native garb.

Personnel often remark that they cannot find time for all the things they would like to do in Alaska, for many, in addition to carrying a heavy work program, are taking correspondence courses, participating in community enterprises, attending social gatherings of people who perforce create their fun, and working at one or more of several hobbies. Those who get on well view their tour of duty, not as a period of great sacrifice, but rather as an opportunity for activities and experiences which are not possible elsewhere. ■

Observer Gets Salary Increase

JOHN C. STOKES, Observer in Charge, WBAS, Alamosa, Colorado, has been notified that he is being given a one-step increase in salary for meritorious service performed on January 13, 1951.

Upon arising that morning, Mr. Stokes heard a plane circling overhead. It was snowing, and there was no plane scheduled for that time. Acting on the assumption that the motors he heard belonged to a lost plane trying to locate the field, Mr. Stokes hurried to the airport ahead of time, and turned on the field lights. When a C-46 military transport with thirteen men aboard landed safely a few minutes later, Mr. Stokes' assumption was proved correct.

In making the award, the Employee Awards Committee considered that "this act was related to Mr. Stokes' official position, but was well beyond the normal position requirements."

TOPICS for September, 1951, carried the story of an award for a similar action on the part of Paul L. Naylon at Norfolk, Nebraska, on February 27, 1951; the delay in making Mr. Stokes' award grew out of the fact that he did not think his action outstanding enough to report, and the Central Office became aware of it only indirectly after an advertisement in a national publication gave a somewhat erroneous story of the incident.

The Voice with the Smile

"IT'S not what you say, but how you say it," has become very trite, but as proof that it is still true, we quote the following letter received by the MIC, WBO Detroit, who identifies the young lady mentioned as Mrs. Phyllis Bishop:

"Dear Mr. Oak:

Please be advised that some few days ago I phoned your office in order to ascertain the weather condition on the night of October 15th, 1949, in connection with passing upon a motion for new trial in the above entitled cause.

The young lady who answered the phone in your office was very courteous and cooperative and forwarded me, under date of July 11th, certificate and meteorological summary, which were materially helpful to this Court and the Prosecuting Attorney of Wayne County.

My purpose in writing this letter is only to extend my appreciation for the courtesy extended, as I have found from my experience of 22 years on the bench that we do not always obtain full-hearted cooperation from governmental agencies.

Again with thanks, I remain,

Sincerely,

/s/ John P. Scallen

Judge of the Recorder's Court"

Warning Networks Praised

THE FOLLOWING letter appeared on May 3, 1952, in the Port Arthur (Texas) News, over a signature we suspect to be a nom de plume: "Arthur Port."

"To The Weather Bureau:

One thing I've always noticed about you fellows—you're consistently on the lookout for ways and means of improving your service to the public. One recent outstanding example was your inauguration of a type of warning I'd never heard of before—that against tornadoes. I'd always figured that, striking with all the vicious suddenness of a hit-and-run driver, those durned things were unpredictable.

Of even greater benefit to our coastal area, however, is this new network of volunteer observers you've organized to watch out for severe local storms. Under the setup, if such a storm is noted as far distant as Anahuac or Liberty, you'll be notified by telephone—and spread the word around.

It all comes under the heading of competent, conscientious public service. I'd like to say, Thanks."

All Weather Bureau personnel can take a modest bow for Mr. Port's kind words in the last paragraph of his letter. ■

EMPLOYEES' INTERCOM

Editor, TOPICS:

We are very much interested in the article "Mostly Verbal." (TOPICS, June, 1952) It seems to be rather common for numerous words to be either misused or mispronounced in Weather Bureau offices and over Weather Bureau broadcasts. So far as we can determine, temperatures are not "hot," "cold," or "moderate," but can be "high" or "low" and weather can be "moderate." The word "data" is quite frequently mispronounced with the short "a"; the same is true of the words "strata," "strato-cumulus," and "apparatus."

Archer B. Carpenter,
MIC, WBAS, Boise, Idaho

Editor's note: We agree, except on the word "moderate," which, meaning "within reasonable limits," can be appropriately applied to temperature.

Ionotron Static Eliminator

INFORMATION has been received regarding a device known as the T-35 Ionotron Static Eliminator. Its purpose is to remove static charges from teletypewriter paper. (See TOPICS, February 1952, page 27.) It employs a minute quantity of radium salt on a strip of metal. The resulting radiation ionizes nearby air so as to make it conducting, thus discharging static as it is formed.

The American Telephone and Telegraph Company can install the device in AT&T machines, where needed, at no extra cost; the Western Union Company indicates the device probably can be furnished also for W.U. machines, if requested.

Weather Bureau stations interested in obtaining this additional service facility should contact the local office of the company furnishing normal teletypewriter service. ■

ST. PAUL ISLAND

4,000,000 Seals and No Coat

WEATHER records began at St. Paul Island in October, 1869, and were fragmentary until August 8, 1915, when a special meteorological station was established in the village of St. Paul. This station was operated by the U. S. Navy until July 17, 1920, at which time a second-order station was established, and observations continued more or less on that basis until June, 1942, when the program was discontinued due to the war.

In November, 1943, the Air Weather Service resumed weather observations at the Island, and continued that operation until October 15, 1945, at which time the Weather Bureau relieved the Air Weather Service of the operation and commissioned a first-order station occupying a small residence building in St. Paul Village. Here the observational program was carried on until July 2, 1947, when our installation was moved to a point near the airstrip 3.4 airline miles ENE from the Village of St. Paul. The Weather Bureau occupied a vacant Coast Guard building originally commissioned as a direction finding station, which had been inoperative over a period of several months and, as a consequence, required a substantial amount of rehabilitation. Early in June, 1947, Messrs. James F. Rink, Chief Field Aide; Stanley B. Hillman, Electronics Technician; and George H. Luetkehans, Field Aide, flew to St. Paul to rehabilitate the building and relocate Weather Bureau equipment and personnel.

The effort expended and the ingenuity exercised in the process of rehabilitation deserved commendation, but at that time was considered rather routine by the individuals involved. The target date for occupation and operation was met, and rehabilitation has continued over a period of several years. The program now proceeds in an orderly and efficient manner, but represents a marked departure from the usual station routine.

Comfortable living quarters are provided for all personnel in the same building that houses the office, the communications unit, and the power generating plant. There being no commercial facilities on the Island, the water supply and sewage disposal facilities are also Weather Bureau responsibilities, along with maintenance of a fuel oil dump and storage tanks, antenna "farms" and other units necessary for the operation and maintenance of the complete station.

St. Paul Island is the largest island of the Pribilof group which are visited annually by approximately four million fur seals. During July and August, the Fish and Wildlife Service kills some 50 to 60 thousands of the bachelor seals and the skins receive the initial processing for shipment to the States. A count of the animals and a careful count of the skins are kept during the process, and none of the skins is available for public use until sold at public auction many months later. Four million seals and no sealskin coat. The summertime period is one of tremendous activity in the Pribilof group and every occupant of the Island is drawn into this activity. Weather Bureau personnel are involved in issuing forecasts for the marine activities and, with increased service to visiting aircraft, all to the tune of the bellowing of the several million seals occupying the nearby rookeries.

Approximately eleven miles long and three miles wide, St. Paul Island lies just north of the route from Anchorage to Shemya. The Island is served by a certified air carrier at least weekly throughout the year, and by non-scheduled aircraft at intervals throughout the summer months. Supplies are received annually by Navy vessel, and several Fish and Wildlife vessels make frequent visitations throughout the summer season and intermittently during the winter months. Radio communications are operated by the Weather Bureau. Scheduled reports are transmitted daily to the mainland, regular schedules are maintained with numerous points on the Alaska Peninsula and the Aleutian Islands, and radio contacts with aircraft operating in the area are a part of the daily routine. ■

NEW METEOROLOGISTS IN CHARGE

Pueblo, Colorado

MR. LOREN J. N. ALLISON, recently returned from military service to Wichita, Kansas, has been selected for the MIC vacancy at Pueblo, succeeding Mr. Glen H. Phillips, deceased.

Mr. Allison is 43, entered the Weather Bureau in October, 1937 at Valentine, Nebraska, and transferred to Wichita in November, 1938. He remained there until September, 1950, when he was recalled to active military duty. During the latter part of June, 1952, he was released from active duty and returned to his former position as Principal Assistant at Wichita.

San Diego

ALFRED W. ANDERSON, Field Aide at Los Angeles, has been selected to succeed Mr. Dean as MIC at San Diego, effective August 1. Mr. Anderson is 52, has been in the Bureau for over 27 years, and has served at Phoenix, San Antonio, Oakland, San Francisco, and Los Angeles. He has been assigned to Field Aide work since 1937. ■

RETIREMENTS

Dean Blake *Mark T. Nesmith*

IN July two men, each with fifty years of service at one Weather Bureau office, began well-earned retirement in opposite corners of the United States.

Dean Blake, MIC at WBAS, San Diego, for the past thirty years, still vividly remembers his beginnings as a messenger boy at the San Diego office, where his first duties included delivering the daily forecasts by bicycle. Working his way up to the postion of Meteorologist in Charge, Mr. Blake spent his entire Bureau career at San Diego, where he did important work in the early days of aviation meteorology; work which was acknowledged in a telegram from the Chief of Bureau, read by Floyd D. Young, Western Special Projects Director, at a banquet given in the retiring MIC's honor.

By comparison with Mr. Blake, Mark T. Nesmith, Section Director for New England at Boston, led a nomadic life, having spent five months of his Bureau service at Providence, R. I. Weather has given him some exciting moments, too, as when, in the hurricane of September, 1938, a large tree fell across the space from which he had driven his auto only moments before. Mr. Nesmith intends to keep busy improving his home and with his hobby, photography; his staff having presented him with wide angle and telephoto lenses for his movie camera upon his retirement.

Mail in the future will reach Mr. Blake at 1820 Dale Street, San Diego 2, California; and Mr. Nesmith's address is 16 Sunset Road, Stoneham 80, Mass. ■

DEATHS

Charles A. Belt

CHARLES A. BELT, who retired in November, 1946, from WBO, Pittsburgh, Pennsylvania, passed away June 27, 1952, in Pittsburgh, where he had lived since his retirement.

His service with the Bureau covered 38 years, 37 of them at Pittsburgh.

Walter J. Bennett

WALTER J. BENNETT, 73, died June 22, 1952, in Jacksonville, Florida.

At the time of his retirement from the Weather Bureau in 1949, Mr. Bennett was OIC at Jacksonville WBO, a position he had held for 17 years, and had served more than 49 years with the Bureau. A sketch of his life will be found in TOPICS, October, 1949, page 489.

J. R. Lloyd

Following several months of uncertain health, Mr. J. R. Lloyd, Senior District Forecaster and Meteorologist in Charge at Kansas City, Mo., passed away at his home there during the night of August 12, 1952. Born in 1899, Mr. Lloyd entered the Weather Bureau at St. Joseph, Mo., on July 1, 1921, and served there until his transfer to Duluth in 1926. In Duluth, owing partly to an excellent record already achieved at St. Joseph in practice forecasting, he was given responsibility for the organization and conduct of the work of Fire-weather District No. 6 for the Great Lakes States. Later (1928) when this District headquarters was transferred to Chicago, Mr. Lloyd went with it. His next ten years, spent partly in direct association with Prof. H. J. Cox who was already aware of Mr. Lloyd's skill at temperature forecasting, were probably the most important of his career in the developmental sense, and he left Chicago in 1939 for two years as supervising Forecaster at Kansas City. From Kansas City he transferred to the Central Office in 1941 to serve as Acting Chief of the Station Operations Division and later as head of the Forecast Advisory Board. In 1944 he returned to Kansas City, again to head the Bureau's forecasting activities there and he continued in the conduct of that work at a consistently high level of efficiency until his recent illness hospitalized him.

As a member of the Weather Bureau and public servant, his attitude and performance at all levels were marked by a steadfast devotion to the Bureau and the public service. The three categories into which his work fell mainly were the Fire-weather service, General Forecasting, and Tornado Warnings, and he served in an outstanding way in all three. In General Forecasting especially his natural skill and industry served the public well, and in the tornado-warning work his contributions are attested by published articles on the subject. His co-workers will remember his very real capacity for hard work, before which disappointments and bad starts always proved to be something less than his ability to square away for another try.

Among the many important truths and signs of character that make up the personal importance of a man, Mr. Lloyd was known for his deep devotion to his family and home and religion. These interests were like his conscience, direct, unequivocal and complete. His pride in Mrs. Lloyd and their daughter and four fine sons was less a pride than it was a facet of his gratitude. Like many other good men, he will be remembered most kindly for those fine qualities in his nature. His untimely death brings a sense of deep personal loss to his many friends. ■

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WEATHER BUREAU

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WEATHER BUREAU TOPICS is published monthly to inform all employees about newsworthy operations and work programs of the Bureau; to give background on instructions; to carry news of new personnel assignments, retirements, deaths, and similar information about employees; and to serve as a medium through which ideas and views may be exchanged to promote efficiency and teamwork in attaining our common goals. While the contents, unless otherwise specified, reflect the Central Office viewpoint, they are not instructions but are presented for information. Opinions, discussions or comments by readers are invited; they should be marked for the attention of the Editor, TOPICS. WEATHER BUREAU TOPICS is distributed for official use only.

"Mobile" Briefing Services

AMONG the larger private pilot meets held in recent months were the National Convention of the Flying Farmers Association at Auburn, Alabama, and the Annual Flight of the Aircraft Owners and Pilots Association to Rehoboth Beach, Delaware.

To meet the weather service needs of the pilot-farmers who brought more than 200 personal type airplanes from many parts of the nation to Auburn, a weather briefing unit was established at Auburn-Opelika Airport for the duration of the four-day convention. Hurricane Able caused some concern but later changes in the storm's course made evacuation unnecessary. In addition to providing weather service for flying, a daily weather bulletin was issued to keep the farmers apprised of weather developments, including those of importance to farming operations. Through the cooperation of the stations at Montgomery and Birmingham, Alabama, and Columbus, Georgia, one man was detailed from each of these stations to staff the temporary weather briefing office. They were assisted by WBAS, Atlanta, which provided special forecasts and advices.

For the AOPA flight to Rehoboth Beach, Delaware, two employees of the Central Office's aviation staff flew there in the Weather Bureau airplane, carrying all necessary equipment, and operated a weather briefing unit for the benefit of pilots attending the two-day Meet. Approximately 1200 persons representing 20 states and several foreign countries made the flight in more than 450 personal type airplanes. ■

Boston Begins Local Teletype Service

ON August 29th Boston began operating the 7th local public service teletypewriter circuit in the country. This city-wide hook-up connects the WBAS with the major newspapers, radio stations, AAA and a towboat company so that up-to-the-minute weather forecasts and information can be given these recipients simultaneously. The MIC comments as follows:

> In addition to providing more rapid transmission of warnings, forecasts, and summaries to the subscribers, we are now able to transmit more material than ever before. We have noted an appreciable decrease in our telephone load since the network was established....

In addition to Boston, city-wide public service networks of this kind are in operation in Baltimore, Houston, Los Angeles, New York, Pittsburgh and San Francisco. ■

Useful Information

IT has been pointed out that some Weather Bureau personnel may not be fully aware of all the information contained in the Flight Information Manual and the Airman's Guide about the availability of weather services.

The Flight Information Manual contains a list of the telephone numbers that should be used by pilots in calling Weather Bureau offices for flight weather information, as well as the telephone numbers of all CAA communications stations. In most instances, the Weather Bureau numbers listed include the "unpublished" numbers -- that is, those which do not appear in the local Directory and which telephone operators are not at liberty to release.

The value of this information to Weather Bureau personnel making important long distance calls to other offices is obvious. Also, it should be noted that the list of airports in the Airman's Guide has the letter "W" entered in the "facilities" column to designate places where weather information can be obtained from a Weather Bureau station or a CAA station on the field.

The Flight Information Manual and Airman's Guide are distributed regularly to all airport stations and to other Weather Bureau offices having need for them. ■

ASHEVILLE, NORTH CAROLINA

National Weather Records Center Established

The following report from the Supervisor of the National Weather Records Center lately established at Asheville will give some idea of the size of the job of transferring the records and equipment from New Orleans. In addition, 35 employees were transferred from the old NOTU to the new NWRC and a considerable recruitment requirement had to be met to bring the staff up to operating level. Of the total 161 now working under Weather Bureau direction at Asheville, 103 are on projects financed by other agencies.

Moving the New Orleans Tabulating Unit to the Grove Arcade Building in Asheville, N. C., was started late in September 1951. At that time only a few offices in the building could be made available for occupancy by the National Weather Records Center, but by October 1st the entire fourth floor was made available. On October 15th the RAVU Section of NOTU was transferred to Asheville, and on January 26 the RAVU unit in Washington moved to the Arcade. The Climatic Bulletin & Publications Unit moved from New Orleans on October 29, and on January 14, 1952, the Northern Hemisphere Unit was transferred from New Orleans.

During the first two weeks in November, a small key punch unit and the nucleus of a Record Service Unit were started.

Eighty-one van loads of equipment, furniture, and supplies were moved from November 1st through March 25, 1952, at the rate of one to nine van loads per week. Records from numerous stations, including those that were stored and on file in the National Archives and in the Weather Bureau Central Office, have been transferred to NWRC and are being stored as rapidly as possible.

By January 1st, 1952, the first floor of the Arcade was made available to NWRC. This space, 47,635 sq. ft., is being used for the punching card files, photolab, and printing plant. Also by January 1st, 50 per cent, or 17,200 sq. ft., on the second floor was made available. This space is being used as machine rooms for IBM equipment, and administrative offices. During the next 2 1/2 months, tabulating equipment was shipped to Asheville. Production on operating jobs continued due to the fact that the equipment was installed and placed in operation immediately upon arrival at the Arcade and each job was picked up and the work continued.

During March 1952, the microfilm unit, printing plant, and photolab were transferred from New Orleans, and in July the Climat Information unit moved from Washington to the Arcade.

In order to house the activities of the NWRC, some changes in the building were necessary. A new electrical wiring system for the IBM machines was installed on the second floor, acoustical tile was placed in the machine rooms, and some partitions removed. Partitions were built, electrical wiring installed, and additional plumbing added in the photolab and printing plant. Also, fluorescent lighting fixtures are being placed where needed for clerical and tabulating work.

Since the opening of the NWRC, 361 work jobs have been assigned and 253 have been completed, plus numerous jobs that are continuous and recurring. These jobs vary from four man hours of work to several thousand machine and man hours.

■

RAVU Verification at NWRC

RAOB forms and punched cards are reviewed by the Radiosonde Verification Unit at the National Weather Records Center, Asheville, North Carolina. In general, this review consists of approximating the pressure height computations using IBM machines and comparing results with those obtained on-station, machine com-

(continued on next page)

ANNOUNCEMENT

On Monday, October 27, 1952 there will be a meeting in the Central Office of the Bureau in Washington to discuss further possibilities in applied meteorology in some of the representative fields of business and industry. The theme of the meeting will be the back-log of unfilled needs for meteorological services beyond the scope of the Weather Bureau. Among other aspects of the subject to receive attention will be the future development of the services of private consultants in meteorology and industrial meteorologists including cooperation between industry, private meteorologists and the Bureau in bringing out the practical applications in synoptic meteorology and climatology.

Representatives of industry, private meteorology and some of the related fields of engineering and other professional activities have been asked to take part in the discussion.

An announcement of the meeting was published in the September issue of the Bulletin of the American Meteorological Society, and a tentative agenda listing speakers and their general topics will be given in the October issue of the Bulletin.

Station officials who have new information to present on this subject are invited to write the Central Office to make their views available for the discussion. As stated in Circular Letters 22-48 of March 29, 1948 and 37-49 of April 11, 1949, the Bureau desires to aid the development of applied meteorology and a sound private practice in this field as a means of mutual assistance in meeting the growing requirements.

parison of other selected items for consistency, re-evaluation of baseline data, visual comparison of data for consistency and approximate accuracy, and review to see that all phases of instructions are followed by the stations. Relatively few items are verified by exact re-evaluation, so RAVU routine verification does not obviate the necessity of any part of the station verification.

The results of the RAVU review are furnished to the stations, the regional offices, and the Central Office to be used as an aid in recognizing outstanding performance or the need for further review of certain phases of the work. In general, errors are listed when inaccuracies, omissions, or disregard of Central Office instructions affect results as much as, or in excess of, the following limits:

1. Any definite error in baseline data or release pressure data.
2. Pressure height computation, 10 meters.
3. Temperature, 1.0 degree C.
4. Relative humidity, 10%.
5. Wind entries in incorrect units in CPD blocks or in coded message.
6. Identification entries on any form incorrect or incomplete.

Observational errors are listed to individual observers, but punching errors are listed without identification of employees, since station practices in assigning punching vary. Comments such as "no error charged" or general notes covering the period reviewed are used for minor discrepancies. RAVU employees engaged in raob review are cautioned to make full allowance for differences in personal judgment.

Recorder records that appear unusual or abnormal are forwarded to the Central Office by the RAVU for further review, with comments on any evidence of instrumental malfunctioning; and other special reports are forwarded as necessary to keep the Central Office informed of any unusual aspects of the records. ■

Certification Examinations

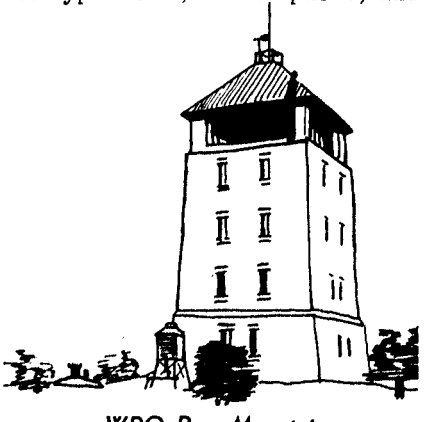
SEVERAL recent instances have been reported in which new employees at first-order stations were not given certification examinations for aviation or synoptic observations. In accordance with Chapter I-D-38 of the Weather Bureau Manual, all new employees (and certain other personnel as specified in this chapter) are now required to take certification examinations before being assigned routine observational duties, even though the regional office does not issue certificates to Weather Bureau employees. It is suggested that Meteorologists in Charge review local procedures to insure that instructions in Chapter D-38 are being complied with. In general, the responsibility for determining that certification examinations are administered where needed rests with the Meteorologist in Charge. ■

Lightning Invades Station

DID you happen to see and hear William E. Kennedy, Jr., MIC at WBO Bear Mountain, on television August 7, as he told a coast-to-coast audience how his forecast verified a little too well?

When Mr. Kennedy put thundershowers into his local forecast for the morning of August 6, he was aware that there was a good chance of lightning striking the forty-foot stone slab Perkins Memorial Tower atop 1,100 ft. Bear Mountain, in which our office is located. This is a frequent occurrence, but the charge had previously followed, more or less meekly, the lightning rod circuits to the ground.

On this morning, however, the bolt was larger or more aggressive than usual, and jumped from the regular channels through the teletypewriter, the telephone, and the recording instruments. All the electrical circuits went out, and Mr. Kennedy, who had been but a few feet from the instruments, was left incommunicado and somewhat dazed, although unhurt. A reporter for a New York City newspaper tried to call the station immediately after the bolt struck; and on discovering that the telephone was out, got in touch with the Park Police, and telephone service was restored shortly.



WBO Bear Mountain

Mr. Kennedy reports that instruments and teletypewriters are undamaged, and that the only remaining evidence of the occurrence is a blackening of part of the office wall and some carbon deposits on a teletypewriter. ■

Commission for Maritime Meteorology Meets

The first session of the WMO Commission for Maritime Meteorology was held in London from July 14 to July 29, 1952. It was the first commission meeting of the eight technical commissions established by the WMO at Paris in 1951. Meteorological services of eighteen maritime countries, as well as the International Air Transport Association and the International Telecommunication Union, were represented.

Mr. W. F. McDonald, Assistant Chief of Bureau (Administration), was designated by the State Department as chairman of the United States delegation. Other members of the delegation were Captain R. O. Minter, USN, Head of the Navy's Aerology Branch; and Mr. A. E. Sik, Chief of the Radiomarine Section of the Bureau's Division of Synoptic Reports and Forecasts. Captain J. C. S. McKillip, U. S. Naval Attache, London, and Mr. Arthur W. Johnson, U. S. Meteorological Attache, Geneva, joined the delegation in London. Mr. McDonald and Captain Minter are permanent members of the Commission.

Major accomplishments of the session were as follows: Drafting the Commission's Technical Regulations and adoption of an International Ice Nomenclature; plans were laid for preparing and publishing climatological data of the oceans in forms standardized as far as practicable for all maritime meteorological services, and for improving collection of ships' radio reports and the distribution of weather information and storm warnings to shipping throughout the world. The actions comprise 12 Resolutions and 31 Recommendations, all of which were approved unanimously by the Commission, and forwarded to Geneva for consideration by the Executive Council of the WMO. ■

And One Makes Ten

FORECASTS by automatic telephone answering equipment became available in the tenth United States city when the service started at Pittsburgh on August 29. Within the first half hour of service, over 1500 calls had been received with some callers receiving busy signals.

To avoid conflict with other code numbers, the Pittsburgh designator was made WE 7-1212. As in other cities, the telephone company provides teletypewriter equipment for getting the forecasts to the phone company, but at Pittsburgh the receiving drop is hooked up with the Local Public Service Weather Teletypewriter Circuit. A switch at WBAS, Pittsburgh cuts in the telephone company receiver at times when data for use on the answering service is being transmitted. ■

Management Improvement Program

ABOUT this time each year the various Government agencies are requested to submit to the Bureau of the Budget reports on their Management Improvement Programs. As during the past several years, the report recently prepared in the Weather Bureau contains two sections. The first section includes a digest of management improvement activities for fiscal year 1952. Prominent among the accomplishments were the establishment of a National Weather Records Center at Asheville, North Carolina, thus giving easy access to climatological data that formerly were widely dispersed among various agencies and field stations; increase in the number of facsimile installations at field stations; inauguration of a Severe Storm Warning Unit in the Washington Analysis Center to issue guidance material to field stations when conditions favorable for the development of hazardous weather occur; and effective progress toward consolidation of Flight Advisory Weather Service Units and other Weather Bureau activities in the areas concerned. This last program is now about 70% complete.

The second part of the annual report outlines management improvement projects selected for special attention during Fiscal Year 1953. Included are expansion of the lake warning service provided by stations bordering the Great Lakes; establishment of area climatologists to develop cooperative projects with educational institutions and act as liaison officials with agricultural interests, engineers, and industrial concerns; and increase in aviation forecast service by providing terminal forecasts for a number of airports which are not now receiving such service. Complete copies of the report are being furnished to all field stations. ■

HINTS FOR SERVICE IMPROVEMENT

Dissemination of Special Warnings

WITH the thought that some of our field offices in larger cities may wish to investigate possibilities in Western Union's duplicating and addressing service as an aid in dissemination of special warnings, we quote from a letter written by the MIC, WBO, New York City:

"This office is using Western Union's D&A Service for the dissemination of practically all types of weather warnings and advisories, which include small craft and storm warnings, cold waves, freezing rain and heavy snow, etc. It has operated satisfactorily for many years, and it is hard to see how we would be able to disseminate warnings without the use thereof. This office maintains control of the worded advisory which is disseminated to anyone on the lists which have been set up. Also we establish the various lists to be used, so that Western Union's D&A Service acts only as a distributing agency. The lists which have been set up so far are such that they take care of emergencies for the most part.....

"The organization of our program for using D&A Service is rather simple, for we have established with Western Union certain lists, which are broken down for convenient distribution. For instance, List No. 1 is made up of small craft and storm warning displaymen who display signals day and night throughout the year. List No. 2 is made up of storm warning stations which display signals only during the boating season. List No. 3 includes all others who wish to be informed when any type of warning is issued. List No. 4 is made up of those who wish to receive only storm warnings or hurricane warnings. List No. 5 contains those who wish to be advised about heavy snowfall. List No. 6 includes those who wish to be informed about cold wave warnings. Whenever it is necessary for us to distribute warnings of any type, all that is required is that we call Western Union by telephone, state the list or lists to which we wish the message sent, and then read the advisory or warning.

"It seems that this takes care of the needs fairly adequately of those who need something more than can be obtained by listening to the commercial radio stations, or calling WEather 6-1212 to obtain the local forecast. Agencies or individuals which are placed on these special lists are advised that these warnings should be only a 'tip off,' so to speak, for them, and that they should then take the responsibility of checking further into the weather situation if they have something important at stake. The cost of this service is borne by the recipient in all cases, except regular displaymen and other government agencies."

"Precip" Measurement Kinks

SEVERAL recent employee suggestions have mentioned procedures whereby the usefulness of the weighing gage can be increased. These procedures are described briefly below, for the benefit of other stations that may have encountered similar difficulties. If further details are desired, they may be obtained from the Central Office.

1. A small piece of sponge rubber may be placed on the floor of the gage beneath the pen arm to act as a buffer and prevent the pen arm from sticking beneath the rotating drum. The rubber should be of such thickness that the pen arm will touch it before the pen point can pass off the chart. The rubber may be shaped to conform with the contour of the drum, but care should be taken that it does not touch the drum at any point.

2. Two spring clips may be attached to the handles of the weighing gage cover for temporary use in holding charts that are being changed.

3. A permanent light source consisting of a flash light battery and associated lamp and holder may be fastened to the bottom of the gage as an aid in nighttime readings.

Another employee suggestion pointed out that computation of water equivalent of snow could sometimes be simplified if the gross weight of the 8-inch overflow container used in making these measurements were marked on the can. The procedure is suggested for other stations that use spring scales in determining water equivalent and make these observations frequently.

Siren for Local Storms

A CLIPPING from the Watonga, Oklahoma, Republican says that the local fire chief has arranged for a special signal of four long blasts on the fire siren when storm warnings are issued for Watonga. The announcement emphasized that the signal would be used only "when danger is near."

This seems to be an idea worth investigating in the development of local storm warning networks. ■

ABOUT SUGGESTIONS

Codes and Contractions

A TYPE of Employee Suggestion frequently received in the Central Office proposes that additional contractions or codes be used in connection with the aviation weather observations. All of these suggestions are appreciated and invariably they reflect considerable thought and effort on the part of the employee making them. It has been possible to adopt only a few suggestions of this type, because of several factors that must be considered in determining whether a suggested new contraction or numeral code for use on Service A should be put into use; some of these factors may be overlooked by employees who contemplate offering suggestions along similar lines.

As meteorologists, we have become quite accustomed to using codes for many things. We have numeral codes for analyses and prognoses, for surface synoptic reports, and for upper wind and raob observations, to mention only a few. We make such general use of codes, symbols and contractions that it is sometimes easy to forget that not all users of our service are able to understand them as readily as we are.

In addition to the Weather Bureau and CAA offices connected to Service A, there are many hundreds of private subscribers -- airline offices, private airports or flying service operators, automobile associations, and many others. Service A is the aeronautical operational circuit in contrast to Service C which is used primarily to haul the "raw data" that are needed for forecasting purposes. As an operational circuit used by many persons to whom weather is but one of a number of subjects with which they must deal in their daily work, it is not only logical, but essential, that in sending aviation weather information on Service A the use of very brief contractions and of numeral codes be kept to a minimum consistent with communications requirements. It is not always easy to find that happy medium between keeping teletypewriter reports brief enough to stay within the communication schedules and having the information in a form that is readily understandable to the subscribers to the circuit. However, it is this need for making the circuit serve the greatest need and to encourage private subscribers as an aid toward alleviating the ever increasing demand on Weather Bureau offices for flying weather information that the Central Office feels itself compelled to regard cautiously all suggestions for additional contractions, symbols or codes lest their adoption for the purpose of saving teletypewriter transmission time result in a decrease in the value of the service. ■

Helium "Empties"

NUMEROUS communications have been received in the Central Office suggesting modification of present instructions covering the return of helium cylinders to take advantage of lower transportation costs. Transportation cost of cylinders, however, is only one of the factors that must be considered in the Bureau's helium supply program; another, in many respects a more essential, factor is the availability of cylinders to the supplying agency and demands on that agency for helium.

Increased uses for helium are being developed; for example, welding of magnesium is now possible because of a new method using helium in the process. These uses result in larger cyl- requirements.

Because the demand for cylinders is increasing faster than cylinder supply, it is necessary to return "empties" more frequently to insure the Weather Bureau having sufficient helium supplies to maintain its observational programs. ■

Highway Weather Service

SCARCELY a winter goes by without the Central Office receiving a suggestion from some source that the Weather Bureau collect and disseminate reports on the conditions of highways. Because of the relationship between weather and many dangerous highway conditions, this seems at first glance to be quite appropriate. However, a careful review of the matter has led to the conclusion that this is actually a service quite beyond the scope of the Weather Bureau and one which should be left to the automobile associations, highway departments and others who are so efficiently discharging the responsibility in many areas. The entry of the Weather Bureau into the field would serve only to confuse and duplicate what other agencies are attempting to do. The Weather Bureau properly does forecast and report on the occurrence of severe weather which might affect highway travel, and there is no objection to the occasional mention of local conditions in radio broadcasts; but the entry into a nationwide highway weather service of the scope indicated in these suggestions is not considered an appropriate Weather Bureau function. ■

Bureau Scholarships

THERE were 49 applicants for the basic meteorology scholarship this year, and 18 for the advanced scholarship. Messrs. Ferdinand C. Bates, Madison, Wisconsin, and William B. Chappell, formerly of Tulsa, Oklahoma, have been assigned to the University of Chicago for the basic training. Under the same program, Mr. Herman Newstein of Philadelphia, Pennsylvania, was assigned to New York University; and Mr. Halbert E. Root of San Francisco, California, to the University of California at Los Angeles.

One of the things noticed about applicants for the scholarship is that sometimes, after one or several unsuccessful applications, some applicants cease to try for the scholarship. This is easily understandable, of course, but it should be pointed out that success has sometimes crowned the efforts of half a dozen or more applications. Sometimes unsuccessful applicants are very close to being selected, and one more try next year might do the trick.

Mr. Joe Fulks, of the Analysis Center, has departed for Sweden to study with Dr. C. G. Rossby's group at the University of Stockholm. No other selections have been made as yet for the advanced scholarship program. Further information about this will appear in some future issue of TOPICS.

The Advanced Forecasters' Course will be conducted again at the University of Chicago and the Chicago Weather Bureau Office this fall. It is expected that the course will be better than ever after the Weather Bureau Office moves to the University campus. Those who will attend this year are Messrs. John M. Porter, James D. Ellis, and Virgil F. Hendricks, all three of Chicago, Illinois; and Roy L. Fox of Billings, Montana; Howard E. Hutchison of Albuquerque, New Mexico; and Frank W. Ernst of Los Angeles, California. The course begins September 27 and ends December 19, 1952.

Although there has never been a formal request for applications, anyone who is particularly interested in this special forecast course should feel free to write to the Central Office. ■

*Mr. Weightman's career was covered in detail in TOPICS, August, 1951, page 152.

Severe Storm Course

THE COURSE on severe local storms which was announced in the August issue of TOPICS will be conducted October 27 to November 7, 1952, at the Central Office. It was very gratifying to receive the large number of applications from the field offices. At final count, there were 91 applications altogether.

Unfortunately, because it is quite expensive to bring people in to the Central Office, only ten meteorologists from the field stations could be detailed to the course. The men selected are Messrs. Graham L. Allen of New Orleans; Marion E. Crawford of Atlanta, Ga.; Donald S. Foster of Kansas City, Mo.; George T. Gregg of Albuquerque, N. M.; John W. Hamilton of Des Moines, Iowa; Burton Handy, Jr., of St. Louis, Mo.; B. I. Miller of San Antonio, Texas; William M. Rowe of Memphis, Tenn.; and K. C. Tillotson of Denver, Colorado.

RETIREMENTS

R. Hanson Weightman

BIDDING goodbye to friends and associates in his office on August 29, 1952, R. Hanson Weightman, Chief of Station Facilities and Meteorological Observations Division, whose retirement began September 1, 1952, brought to a close a career* of more than 51 years with the Bureau.

He has no special plans for his well-earned leisure, but remarked that at least the first six months will undoubtedly be filled attending to personal matters which have been put off "until next week" for the last several years.

Mr. and Mrs. Weightman will continue to live at 5914 Wisconsin Avenue, Chevy Chase 15, Maryland.

DEATHS

Gerald L. Harris

GERALD L. HARRIS, Meteorological Aid at WBAS, Anchorage, Alaska, passed away from cancer July 17, 1952 in the Veterans Hospital at Portland. Mr. Harris was born in Ogden, Utah, on April 11, 1920. He served in the United States Navy from October 26, 1942 to October 28, 1945, and was appointed in the Weather Bureau at Bishop, California, May 20, 1946; was transferred to Northway, Alaska, in 1948 and to Anchorage in 1949. His widow, Mrs. Mary Lou Harris, is employed in the Climatological Section at Anchorage.

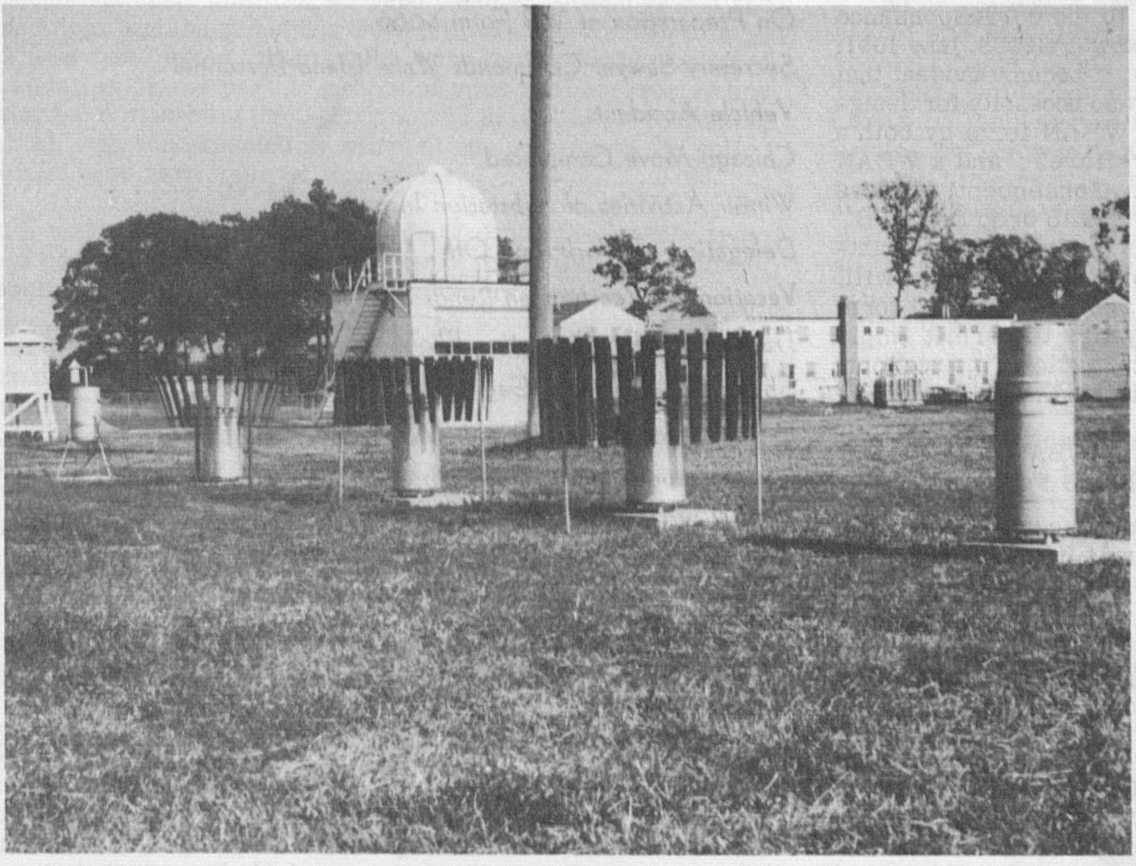
J. Conrad Huddle

J. CONRAD HUDDLE, 50, District Forecaster at Kansas City since 1948, died June 24, 1946. Mr. Huddle began his Weather Bureau career more than 22 years earlier when he was appointed at WBO, Davenport. He served also at Moline, and then went to Cleveland and later to Boston before going to Kansas City in 1942. He became an aviation forecaster upon his assignment to Cleveland, and worked in that capacity until 1948.

WEATHER BUREAU

TOPICS

OCTOBER
1952



Weighing Gage Shields

Volume 11 Number 10

WEATHER BUREAU TOPICS is published monthly to inform all employees about newsworthy operations and work programs of the Bureau; to give background on instructions; to carry news of new personnel assignments, retirements, deaths, and similar information about employees; and to serve as a medium through which ideas and views may be exchanged to promote efficiency and teamwork in attaining our common goals. While the contents, unless otherwise specified, reflect the Central Office viewpoint, they are not instructions but are presented for information. Opinions, discussions or comments by readers are invited; they should be marked for the attention of the Editor, TOPICS. WEATHER BUREAU TOPICS is distributed for official use only.

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THE COVER

Taken at Silver Hill, Maryland, the illustration shows three different types of precipitation gage shields being tested alongside an unshielded gage. This is one of numerous experimental projects being carried out at Silver Hill.

"WB" Numbers on WBAN Forms

IN the process of renumbering Weather Bureau forms to conform to the correspondence file numbers (TOPICS, June 1951, page 109), it became evident that there was no necessity for designating a WBAN form by both a Weather Bureau and a WBAN number. Consequently, it has been decided to drop the "WB" number as the forms are reprinted; the old "WB" number will, however, be shown on the form for two years to permit ample time for correction of instructions.

The designation will look like this:

WBAN 12
(Formerly WB Form 1130E also)

The forms catalog will carry WBAN forms in a separate category. ■

On Preparation of WB Form 5066

SEVERAL recent reports indicate that some first-order supervising stations are not reviewing observational records from second-order stations under their supervision and preparing Form 5066 (Corrections to Weather Records) on a routine monthly basis. It is recognized that it is sometimes necessary to defer these checking duties temporarily in favor of other tasks, but experience indicates that the routine inspection of records from second-order stations, especially SAWRS, is one of the most important means of maintaining the quality that is necessary in these observations if they are to be effectively and safely utilized in aircraft operations. Accordingly, first-order stations are requested to make every practicable effort to insure monthly inspection of the observational records for this type of station. ■

Secretary Sawyer Commends Wake Island Personnel

Copies of the following letter, written by Secretary of Commerce Charles Sawyer on September 21, 1952, have been sent to all Weather Bureau personnel who were on Wake Island when Typhoon "Olive" struck:

"I wish to extend to the Department of Commerce's Civil Aeronautics Administration and Weather Bureau, my sincere compliments for the manner in which personnel of those bureaus handled themselves during and after the typhoon which struck Wake Island last Tuesday.

"When the typhoon struck in the early morning of September 16, there were some 700 people on Wake. Of these nearly 200 were CAA people and their families, 40 were Weather Bureau people and their families, and the remaining were military and airlines people.

"There were three things which were particularly worthy of commendation on the part of people of your bureaus during and following the onslaught of the typhoon which, in addition to inundating the island, was accompanied by winds at one point up to 161 miles an hour. These particular actions were:

"1. Assistance to the military in the speedy evacuation by air within a matter of twenty-four hours of some 500 people from Wake to Honolulu. (These included dependents as well as personnel not required to remain at the island for emergency service.)

"2. The courage and alertness of the personnel who stood by their posts during the height of the typhoon and in the hours following to warn away any approaching aircraft from the unusable runways on the island.

"3. The good discipline which was shown by all personnel in protecting themselves during the height of the storm so that but four people of the 700-odd on the island suffered injuries. It was with great relief that I personally learned of the fact that there was no loss of life.

"The devotion to duty of the personnel of CAA, which has responsibility for the island, and Weather Bureau people as well, is consistent with the highest standards of public service in time of emergency. Special praise is also due the approximately 200 people who are remaining behind on the island, living and working under the most difficult conditions resulting from the almost complete loss of buildings and equipment. In this connection we would not be amiss to recognize also that the military representatives of the air carriers acquitted themselves in a most commendable manner and are among those staying behind for the emergency work. Special commendation is due all of these people for the speed and efficiency with which they are working at the moment so that normal operations may be restored by Sunday, September 21. In saying this I realize, of course, that detailed inventory and planning will have to be carried out so that the rebuilding of destroyed facilities and equipment may be scheduled under emergency funds in the months ahead.

"I am taking the liberty of making this commendation public and am asking that the heads of the two bureaus to whom it is addressed, please make sure that my appreciation and thanks are made known to all personnel who committed themselves so honorably and of whom we are justly proud." ■

A GOOD RECORD

Vehicle Accidents

WHILE working up an automotive accident report that is made annually to the President's Highway Safety Committee, we found that Weather Bureau-owned vehicles were involved in only nine accidents during the Fiscal Year 1952. This is an exceptionally good record since it is an average of about 200,000 miles driven for each accident.

In this connection, one driver's record of fifteen years without an accident came to our attention. There are undoubtedly other records of long periods of safe driving, but we have no automatic way of discovering them; we should appreciate it, therefore, if each employee who has driven a Government-owned vehicle for at least ten years without an accident would write the Central Office, stating the number of successive years without an accident, approximately the average number of miles driven annually, and the travelling assignment or assignments he has had, along with other pertinent and interesting facts. While it is realized that many who have been involved in accidents in Government-owned trucks and cars have not been at fault, this information is desired only from those who have been in no accidents involving repairable damage either to Government or privately-owned property. Letters should be sent through the Regional Director to the Central Office, Attention SF&MO Division.

Chicago Move Completed

THE MOVE of the Chicago Forecast Unit to the campus of the University (discussed in TOPICS, August 1952) was completed on October 18, 1952.

Winter Activities of Substation Inspectors

SEVERE weather and bad road conditions will, at times, during the winter season make it impracticable for Substation Inspectors to pursue their routine duties, especially in the northern states.

Section directors should give thought to progressive plans for application of the inspectors' services when they are confined to the base stations. Since the major support of the inspection staff is provided by cooperating agencies, the Weather Bureau is obligated to see that these employees devote their time to activities directly connected with the maintenance and improvement of the substation network; they should not be assigned to routine station duties.

The possibility of detailing inspectors from the extreme northern states to a regional office for periods of 30 days to assist with the rehabilitation program for recording precipitation gages is under consideration. It would also be appropriate for inspectors to assist with the preparation or checking of Substation History Forms. This would be a good opportunity for the inspector to review and bring up-to-date the descriptions of substations and prepare general plans for the next season's travel. A current log of substation visits, maintained by each inspector so that an up-to-date record of substation visits will always be available, will permit the section director or inspector to see at a glance when the last inspection of any station was made, and thus insure that all stations are visited each year if at all possible. Considerable time can be profitably spent in the repair or service of instrumental equipment on hand at the base station and in obtaining and arranging necessary supplies for future travel. Materials commonly used for installations, such as angle iron, steel posts, lumber, etc., can be procured, cut to proper size, drilled as necessary, and painted or treated with preservative.

Section directors should feel free to consult the Central Office on any particular problems that may be encountered in connection with the work of these employees during the winter. ■

Delegation of Work Pays Off

THE FOLLOWING excerpt from a regional director's travel report seems worth passing along:

".....The practice of delegating miscellaneous overhead work to other members of the staff, instigated by his (the MIC's) predecessor at the suggestion of the Central Office as the result of the P&PMO workload survey of 1950, is being continued. The net result is that all staff members take an active interest in all phases of the station activity and the MIC, although standing routine watches along with other personnel, has sufficient time to devote to study of local forecasting and service demands....." ■

ALWAYS ON CALL

Vacationing Weatherman Lends a Hand

A WEATHER BUREAU employee's work is never done, even when he is on vacation:

Mr. James M. Crosland of the Charlotte office was on annual leave in Wilmington, N. C., at the time hurricane "ABLE" created an atmosphere of apprehension in that city. Mr. Frost, the MIC at Wilmington, was swamped with telephone calls, one of which was from Mr. Crosland, who informed him that he was visiting in Wilmington and was calling to offer his services during the emergency. To the MIC, this offer was the ray of sunshine he needed at the time and he gratefully accepted.

Mr. Frost, when reporting the matter to the Regional Office, stated:

"Mr. Crosland worked from midnight to 9:00 A.M. (0000 to 0900) Sunday, August 31st. Many people living on the exposed beaches were frantic and hysterical. They continued calling the Weather Bureau Office all through the night. From the reports since then, it appears that Mr. Crosland handled the situation very efficiently. He is to be commended for his tact and judgment in helping to quiet the wrought-up citizens. We appreciate very much the assistance he gave us."

The fine spirit of cooperation shown by Mr. Crosland during this emergency undoubtedly eased the burden of the MIC and contributed greatly in calming the residents in the Wilmington area. In addition, Mr. Crosland's offer resulted in a saving of funds for the Bureau, since the MIC, in accordance with established plans, was about to call a nearby station for emergency assistance.

Mr. Crosland's offer of assistance at other than his official station during an emergency period, while he was on annual leave, is an excellent example of devotion to duty in the best tradition of the Weather Bureau. ■

Transatlantic Familiarization Flight

In May, 1952, David M. Bridgham, Aviation Forecaster at WBAS, Boston, made a trans-Atlantic familiarization flight through the courtesy of Air-France. Feeling that his observations on the flight and the French Meteorological Service would be of interest to others, we are printing excerpts from Mr. Bridgham's travel report.

The flight was quite uneventful, weather-wise. It was made at 700 mbs., to save on fuel, it being unnecessary to use the supercharger to pressurize the cabin at that altitude. Most of the flight was made on top of a strato-cumulus or alto-cumulus overcast, with nothing above except when we were opposite the two disturbances (opposite Newfoundland and Iceland), when we were between layers, with a very little time on instruments. I was able to get up front twice during the flight and talked to the captain, observed the various operations, and watched them making up the POMAR's. The plane was a Constellation, which AIR FRANCE uses in all its transatlantic flights, and I gathered they were very well satisfied with it. It carried a crew of captain and two other pilots (one qualified on w/t), engineer, navigator, hostess and two stewards. The meals were deluxe, and apparently were out to match the famous quality and service on French ships. The plane was set up to carry only 34 passengers, to allow plenty of room between the seats, and to allow for more individual service, but this flight was only half full.

At Shannon we were on the ground for an hour, and during a visit to the meteorological office, I talked to the official in charge and several of his assistants, one from the Bureau. I examined their maps and saw the plotting of POMAR's which had come from our plane. I also looked at the latest reports and forecasts, with everything still on a routine basis. The remainder of the trip to Paris took less than three hours, and we landed about 1500 Local Time.

I made contact with the station manager, who had been notified of my coming, and he took me over and introduced me to the acting head of the Meteorological Office at Orly. Both of these men spoke English, which helped, as my oral French is rather limited. I was taken around the office and shown the whole routine -- the raw material they receive, the various maps and charts they prepare, the folders and forecasts sent out. They seem to be limited to transatlantic forecasting at Orly, and forecasts for their own terminal and alternates; other European activity goes on at Le Bourget.

After this tour I went in on the bus (company-furnished transportation to and from the airport is included in European air fares) to the air terminal in Paris. Here, at their accommodation desk a hotel was found for me -- quite necessary since Paris was crowded.

The next day I visited the Central Meteorological Office in Paris. First I met Mr. Viaut, the director, who had been notified of my coming by AIR FRANCE. After a short interview he turned me over to one of his chief forecasters, Mr. Pone, who took me around the forecast section. One of my chief impressions was the amount of room available (in contrast to our limited quarters in Boston); this allowed for, among other things, an extended display system of working charts, for the present and immediate past ....

A tool new to me in analysis was a little graph based on each sounding, of (a) pseudo/potential wet bulb temperature versus pressure, and (b) the same if it were saturated. This is constructed on a large map, using rubber-stamped graph coordinates at each raob point to draw the soundings on, with varying colors to indicate temperature and moisture ranges. This is used as a guide for air mass analysis, and fronts are finally put in on the basis of these graphs. It often results in a very weird spiderweb of fronts, but my guide put an additional light on it. "If all the surface charts for say, 1200Z of a given day, drawn by the various meteorological ministries in Europe, were to be assembled and compared, they would all show different frontal analyses, having somewhat different criteria for placing fronts, and a different emphasis on their respective areas. But this chart would show all of them."

Another tool: the customary pressure-change charts for 24 hours and for 3 hours are drawn, and from them and certain theoretical and observed relationships, a 24-hour prognostic chart of pressure changes is made. This is then combined with the current surface chart to give the 24-hour prognostic chart. The method is extended, with reservations, for another 24 hours to give a 48-hour outlook.

In the forecast room they showed me recording instruments showing conditions at the top of the Eiffel Tower, pressure, temperature, humidity and wind, and a similar set at the base of the tower, thus affording a continuous skeleton sounding of the first 1,000 ft.

The Paris Office issues a

printed daily weather map, consisting of the current map of Europe (0600Z), and the one 12 hours previous, several auxiliary charts, and a day's forecast for all of France. Another important function is the issuing of "guidance forecasts" for district forecast centers; e.g., from the air mass analysis referred to above, a short summary is sent out giving the kinds of clouds which can be expected to develop in a given air mass, but no forecast of motion is indicated; that is to be obtained from the surface prognostic.

A note on the work schedules of senior forecast personnel might be of interest; it probably resembles scheduling that used to be in effect here. The chief forecaster, e.g., works a 13-hour day, 0700-2000, with one and one half hours for lunch; his week begins Thursday and ends Wednesday, but he has Sunday off (covered by junior personnel). Then he has almost a week off, to make up for the extra hours he has put in, and then spends two weeks on study and research, including the revising of his maps for publication, i.e., re-analysis, if necessary in the light of later developments. It is a four-week cycle with one week devoted to actual forecasting. During the night a similar cycle is employed, using junior forecasters.

After visiting the forecast section, including the plotting room, a visit was made to the communications section. Here I was taken around by a Mr. Rimbaud, who had been in Boston in 1946 and made a trip to Station Able. He showed me their very extensive teletype and radio rooms (Station FFMN), the former using much American equipment, and an experimental facsimile circuit. This was using radio instead of landline, and was monitoring its own transmissions by a broadcast to Oran, North Africa, and immediate re-transmission to Paris. In the course of conversation with Mr. Rimbaud, he mentioned the UFNH5 they are receiving on a regular basis from WSY, and that they would like to get the corresponding surface prognoses. They did not know the latter existed until they received one by error last April (it was headed UFNH5 but was obviously a surface prognosis)....

The trip furnished a valuable insight into weather and flying conditions aloft, and a chance to visit meteorological offices in foreign countries; I am very glad to have had the opportunity. ■

Shields for Weighing Gages

AS indicated in Par. A4420 of Circular N, weighing gages should be equipped with wind shields at stations where snowfall and strong wind frequently occur together. It is suggested that any station having an unshielded weighing gage and at which the above meteorological conditions occur frequently submit a requisition for a shield. ■

HEIGHT DATA

Evaluation of RAWINS and RABALS

IN an effort to speed up the computation of rawinsondes and rabals, several raob observers have suggested that height data be obtained from a mean pressure-height curve, or the one for the observation 24 hours previously, instead of from the pressure-height curve of the current raob.

When rabals were inaugurated, about 1940, the height data were obtained from the pressure-height curve of the current raob. Beginning in 1943, a mean monthly curve was used for this purpose. Tests had shown that a mean curve provided more satisfactory results than did one for the raob 24 hours previously. However, even the mean-curve method was abandoned in favor of the present system in order to meet the demands for more accurate wind data.

A recent comparison of wind data based on a 5-year-mean pressure-height curve with those based on a current observation made at Bismarck, N. D., showed differences in wind speed of from 0 to 9 knots up to 35,000 feet, and a difference of 32 knots at about 40,000 feet, a level at which jet planes frequently operate. The wind directions were practically identical from the surface to about 35,000 feet, but above that level differences of from 25 to 30 degrees were noted.

With airplanes now flying higher and faster than ever before, clear air turbulence has become quite a problem. Many meteorologists associate this phenomenon with marked wind shear. In an article entitled, A Meteorological Analysis of Reports of Turbulence Encountered by Aircraft in Clear Air.* Mr. Conrad P. Mook, Weather Bureau research forecaster, concluded that "turbulence that is encountered at high levels in clear air has been found to be associated with marked wind shear in agreement with Harrison, Bannon, Hislop, and others." He further stated that, "only a new and detailed survey of the jet stream using improved wind-measuring devices can properly settle that question."

It is evident then that the trend should be in the direction of greater accuracy, which can be achieved only through better techniques and equipment. ■

*Aeronautical Engineering Review, vol. II, No. 9, September 1952, pages 22-27.

BADLY NEEDED

High Altitude Temperature Observations

RECENTLY, two papers have appeared pointing out several cases of remarkable temperature increases last winter at elevations 25 to 30 km over Europe and Greenland. Scherhag (Berichte des Deutschen Wetterdienstes in der U. S. Zone, Nr. 38, 1952) and Willett (Bulletin, American Meteorological Society, June 1952) have each written articles describing this phenomenon. As Scherhag pointed out, for several weeks prior to February 21, 1952, temperatures at 20 mb(25 km) at Berlin, Germany, had been in the -50° and -60°C range and on that date the 0900 temperature was -61°C. Two days later on the 23rd, it was -30°C and continued to warm up until it reached -17° on February 26, after which it began to slowly cool and reached a "normal" temperature of -57° on March 6. At lower altitudes, no significant warming occurred until the end of the period and then to a much smaller degree.

A less marked case also occurred at Berlin January 25 - February 5; and at Thule, Greenland, where at the latter station the temperature rose at 40 mb from -81°C on January 22 to -50° on February 9 and to -36° on February 18. On the other hand, very high-altitude soundings at a low latitude station, White Sands, New Mexico, failed to reveal similar warming during the above periods.

Scherhag and Willett have ascribed these remarkable warmings to intensified radiation from the sun either in the form of more intense ultraviolet radiation or corpuscular radiation, and have pointed to magnetic storms and radio fadeouts which accompanied these incidents as proof of a common direct solar cause.

The problem is very important both from theoretical and operational points of view -- theoretically, because if it is proved that the solar explanation is correct, then this would be the most significant evidence for direct solar control of anomalous weather yet obtained. On the other hand, it is possible that a satisfactory explanation of these temperature changes can be found on the basis of advection and/or subsidence. Judgment as to the operational importance of these remarkable warmings would follow a study of their frequency, height, geographical location, associated synoptic situation, etc., with the objective of applying conclusions to operation and navigation of either manned or unmanned aircraft.

The problem deserves a good deal of further investigation; but, unfortunately, there are too few high-altitude observations on which to base an intensive study, especially in winter at high latitudes when this "explosive" warming is thought to occur most frequently. Some members of the Scientific Services Division have become greatly interested in this problem, and would like to do further work on it. To provide a useful body of data, it is hoped that all radiosonde stations will make a special effort to take soundings as high as possible during the coming winter season. This applies especially to the higher latitude stations. It is realized that at these stations low temperature and windy conditions make it very difficult to obtain high altitude soundings, but it is hoped that the use of more cold-resistant night balloons will assist materially in achieving greater altitudes. Radiosonde observers who can achieve altitudes above 25 km will contribute materially to the solution of a very baffling and important problem. ■

Norfolk WBO Uses Telefax

A WESTERN UNION Telefax (facsimile) machine was installed in the Weather Bureau office at Norfolk, Va., on August 12, 1952. It provides that office with a direct two-way facsimile connection with the main Western Union at Norfolk. Mr. Frank B. Whitney, the Meteorologist in Charge, reports it is highly satisfactory and has furnished the following description of the machine and its operation.

"The instrument was furnished, installed, and will be maintained by the Western Union Company. There will be no expense in connection with it so far as the Weather Bureau is concerned. Its operation is simple and WBO personnel have been instructed concerning its use. It eliminates messenger and tube service and speeds up the sending of our messages. The instrument, being no larger than a portable typewriter, has been installed in the small room with our teletypewriters.

"The machine has a buzzer in it and when Western Union has a message for us, they sound our buzzer. We, in turn, sound theirs and the message starts. The process is reversed when we wish to transmit a message to Western Union. It takes only a minute or two for a whole sheet to be sent or received. Long messages can be continued on a second sheet. We keep a receiving sheet on the cylinder of our machine to save time when Western Union has a message for us; otherwise we would have to put a receiving sheet on the cylinder before the message could start. It is necessary to use Western Union blanks for

receiving, but any paper of suitable size may be used for sending. The blanks are wrapped around the cylinder and held in place by a coil spring, which acts similarly to a rubber band, but it has additional functions."

Other Weather Bureau offices having a sufficient volume of telegraph business, or that now have a Western Union tie line connection, may wish to investigate the possible advantages of using Telefax as it becomes available in their areas. On the other hand, Telefax, owing to the small size of the blanks (about 3" x 5½"), may not be as satisfactory as tie line, tube or other methods at offices having a large volume of message traffic. It is suggested, therefore, that careful study be given Telefax before reaching a decision as to whether or not to request or agree to an installation.

Use of Telefax is limited to exchanges between the local Weather Bureau and the local Western Union office. Telefax is not available for interexchange service. ■

RETIREMENTS

Bernard B. Whittier

AFTER more than 48 years with the Weather Bureau, Bernard B. Whittier, MIC at WBAS Fort Wayne, Indiana, retired at the end of September 30, 1952. Mr. Whittier is 65, and entered the Bureau in 1904 at Boise, Idaho; in the 28 years before he went to Fort Wayne in 1932 his assignments ranged from coast to coast and included Portland, Oregon; North Head, Washington; Detroit, Michigan; Memphis, Tennessee; Cape Henry, Virginia; Lansing, Michigan; Green Bay, Wisconsin; and Royal Center, Indiana.

In recent years Mr. Whittier was a frequent contributor to the FORECASTERS' FORUM. ■

Outstanding RAOB Program

AT Gambell, Alaska, the average raob height at 1500Z was 28,556 meters for the 56 days between May 23, 1952, and July 18, 1952; at 0300Z it was 27,617 meters for the same period. The over-all average height for the 112 consecutive observations was 28,087 meters, or 92,149 feet.

At the same time, the quality of the observational work was excellent, there being only 4.3 errors per 100 observations for the months of May, June, and July.

Our congratulations and thanks for a very fine job. ■

NEW METEOROLOGISTS IN CHARGE

Fort Wayne, Indiana

SUCCEEDING Mr. Bernard B. Whittier, whose retirement is reported on this page, as MIC at Fort Wayne, is Robert C. Borders.

Mr. Borders has been MIC at Lewiston, Idaho, since December of 1946, and has been in the Bureau since 1930. Other Weather Bureau offices at which he has seen service include Detroit, Toledo, Billings, and Great Falls, Montana. ■

DEATHS

Herbert A. Cole

HERBERT A. COLE, 61, Meteorological Aid at WBO, New York, died August 24, 1952. Mr. Cole had served at the New York office for more than 34 years, and in addition to his regular duties, operated a climatological substation at his home on Staten Island.

According to his MIC, Mr. Cole's last act prior to his death was the taking of his regular morning observation. □

Mrs. Hulitt B. Duncan

MRS. HULITT B. DUNCAN, 61, Meteorological Aid at WBAS, Galveston, died August 15, 1952, after several months of ill health. Mrs. Hulitt entered the Bureau at Waynoka, Oklahoma, in 1943, and served at Mineola, Texas, and Baton Rouge, Louisiana, before going to Galveston in 1948. □

Peerless C. Gordon

Mr. Peerless Gordon of the General Services Section of the Central Office passed away suddenly on October 5, 1952. Mr. Gordon was born May 5, 1900 in Birmingham, Alabama. He entered the Weather Bureau in November, 1941 and served in the Central Office until his death except for the period June, 1943 to October, 1946 when he worked for another Government Agency. □

Loyd A. Stevens

Mr. Loyd Stevens of the Climatological Services Division of the Central Office died October 24, 1952 after a brief illness. Mr. Stevens was born October 11, 1899 in Alcester, South Dakota. He served in the United States Army in 1918 and in January, 1921 was appointed in the Weather Bureau at Ellendale, North Dakota. Later in that same year he was transferred to the Central Office. In 1928 he left the Weather Bureau to organize and establish a meteorological service for Transcontinental Air Transport, Inc., for their route from Columbus, Ohio to Los Angeles. After about a year and a half as head of this service he decided to return to the Bureau and after a brief assignment in Wichita, Kansas returned to the Central Office where he remained until his death. ■

WEATHER BUREAU

NOVEMBER
DECEMBER

TOPICS

1952

To Each Weather Bureau Employee:

Christmas Greetings

and

Best Wishes

For A

Happy

Nineteen

Fifty-three

F. W. Reichelderfer

Volume 11

Number 11

WEATHER BUREAU TOPICS is published monthly to inform all employees about newsworthy operations and work programs of the Bureau; to give background on instructions; to carry news of new personnel assignments, retirements, deaths, and similar information about employees; and to serve as a medium through which ideas and views may be exchanged to promote efficiency and teamwork in attaining our common goals. While the contents, unless otherwise specified, reflect the Central Office viewpoint, they are not instructions but are presented for information. Opinions, discussions or comments by readers are invited; they should be marked for the attention of the Editor, TOPICS. WEATHER BUREAU TOPICS is distributed for official use only.

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Could It Happen Here?

The following item appeared in the New York Times on October 26, 1952:

The Mayor of Valdiva, Chile, is suing the weather station of Santiago that had announced a rainstorm for the day on which Valdiva was to celebrate its 400th anniversary by staging a rowing competition.

The city administration had gone to considerable expense to prepare for the occasion but potential out-of-town visitors, on hearing the weather forecast, decided to stay at home, The Madrid of Madrid reports.

However, when the day came, sunshine graced Valdiva.

The city calculates the damage caused by the faulty forecast amounted to 10,000,000 pesos and wants the meteorological station to make it good. ■

UMIAT, ALASKA

Effective November 15, 1952, pibals were discontinued at Umiat, Alaska, and aviation weather observations were reduced to the hours from 2000 to 0400 GCT. CAA communications personnel have assumed the latter duties. ■

Another Local Teletype Service

The MIC of WBO Cincinnati calls our attention to the fact that we omitted his office from the list of stations which have a city public service teletypewriter circuit (TOPICS, September, 1952; p. 130). The Cincinnati circuit began operations January 28, 1952. ■

Policy on Promotions, Transfers and Reassignments

A chapter entitled, "Policy on Promotions, Transfers and Reassignments," has been prepared for inclusion in the Personnel Section of the Weather Bureau Manual. You should receive it shortly if you have not already.

Every employee is urged to read this chapter carefully since its purpose is not only to establish Bureau policy on the subject, but also to acquaint him with the manner of its operation and to provide him with background material which should be helpful in planning his Bureau career. ■

"Comparative Economy"

FIELD VISITORS to the Central Office sometimes ask why there are no funds for urgent improvements in field services or for employment of additional staff in field offices where public service demands are too great for a small staff. They sometimes ask why other agencies of government appear to have almost unlimited funds for expansion of new program while the Bureau is hard-pressed to maintain even the minimum of essential services. They point out opportunities for business and industry to reduce losses due to weather and increase production through better use of meteorological information that could be made available to the public if the Bureau increased its services in some places. This enthusiasm for improvements in meteorological services is commendable; in fact there would be cause for alarm if meteorologists failed to become enthusiastic over the potentialities in applied meteorology and the economic benefits to be gained through its services to the public. However, there are many sides to the use of economic comparisons to justify expansion of program.

Practically every department of government has plans for development and expansion to provide better services or facilities in the public interest. Certainly, the Federal Budget can never be large enough to finance all of the programs that appear worthwhile and could be justified from the viewpoint of public service. Even if all justifiable projects could be financed, neither the public as a whole nor the business and social structure of the country could absorb all such projects advantageously except over a very long period of years. A sound policy of balanced and reasonable development of public services is necessary whether they be public health programs, super-highway systems, or meteorological services, and it has long been the Bureau's policy to balance its pursuit of a progressive and growing meteorological program against a consideration of the comparable requirements and economic benefits from improvements in other fields. The Bureau always keeps in mind that there is practically no limit to the volume of demand that could be created for free public services such as the Weather Bureau gives in its daily reports, forecasts, and storm warnings. Whenever requests for new stations or new services are received, the Bureau tries to weigh the relative importance of these proposals in comparison with other waiting projects of high priority. The waiting list of new stations demanded by cities and towns interested in localized weather forecasts is always long.

On the whole, the facilities and activities of the Bureau have expanded very considerably during the past decade. Service programs and budget planning have necessarily been greatly influenced by the War and by the present defense program. In its presentation of budget estimates, the Bureau has emphasized the importance of projects relating to national defense, and in some branches of meteorological service the Bureau's estimates have been reduced because of the need for savings to provide funds for defense purposes. Some of the expansion in facilities that would normally have come to the Weather Bureau has gone into military meteorological material and activities. In several areas the latter have expanded into meteorological functions that would normally be performed by the Bureau and it is to be expected that these will eventually be transferred to the Weather Bureau. Coordination of civil and military meteorological planning in order to avoid duplication and to provide for each department to perform those services which it can do most efficiently and most economically is a subject of regular interdepartmental conferences. While the greatly expanded defense program continues, the funds available for even the most urgent civil meteorological developments are necessarily reduced.

In the August 1952 issue of TOPICS there was an article entitled "The Budget Process" in which procedures followed by government agencies in presenting budget estimates were explained. While the initial estimates presented by the Bureau are always restricted information, it is generally known that they include important projects which are subsequently disallowed during the sequence of hearings, first at the department level, then in the Bureau of the Budget, and finally in the House and the Senate of the U. S. Congress. One fact, perhaps not well known among field officials of the Bureau, is that the original estimates of the Bureau are presented at each subsequent hearing with the strongest justifications obtainable. Usually the merits of these projects are recognized by budget examiners at successive levels of hearings, but again the necessity for coordination with budget requirements of other agencies and the various arguments of "comparative economy" have to be weighed and many meritorious budget items are lost for the time being.

Excursions into comparative economy sometimes lead field employees to ask why Weather

Bureau grade levels in some cases appear to be lower than those of comparable positions in other agencies. A few years ago the grade levels of many Weather Bureau positions were relatively low and after a thorough review the Civil Service Commission approved the Bureau's recommendations for many reallocations to higher levels. In general, Weather Bureau positions are now consistent with Civil Service standards and a few cases are above the average for similar positions for the government as a whole. In comparison with civilian positions in the military services and in a few of the newer agencies, there are still several Weather Bureau positions for which the grade is relatively conservative, especially in positions involving highly technical and scientific responsibilities. The Central Office is endeavoring to obtain funds to improve the grade structure in positions where justified by Civil Service standards.

Most suggestions from field employees regarding program and grade structure involve increases in cost, but by contrast now and then a suggestion is received on the ultra-conservative side. For example, several years ago an official wrote the Central Office expressing alarm over the mounting public debt, a concern in which he is not alone, and offered to forego the benefits of a proposed reallocation of his grade. He hoped to provide an example by economizing in salary which would be followed by others and would thus help to reduce increases in government expenditures.

Occasionally, suggestions from the field propose expansions in service which would overlook the basic policy of the United States Government with respect to how far such services to the public should go in a democracy. In their enthusiasm over the economic possibilities of meteorological services, employees sometimes suggest activities that would carry the Bureau into non-essential welfare services or into the province of private enterprise. For the most part, however, suggestions from the field for improvements in services refer to worthwhile activities that are in accord with the basic statutory responsibilities of the Bureau. The continued interest of field officials in offering suggestions along these lines is solicited.

Employees probably would be interested also in knowing some of the ways in which the Central Office endeavors to reduce expenditures and reserve funds for things which give the best return for the money. Following are listed a number of the general items through which costs have been and are being reduced:

City and airport offices have been consolidated in 48 localities during the last ten years. The Bureau's offices are merged in one place whenever it is more efficient to do so.

Regional Offices have been reduced from 8 to 5.

Local offices have been closed in 25 places during the past five years where changing circumstances have reduced service requirements. In many cases the closings were accomplished despite strong protests from local interests.

Office staffs have been reduced in numerous places although workloads would in most cases justify higher staffs. This action has not been taken without careful consideration of workload and employee welfare, and it has been necessary in order to keep within prescribed ceilings and to place a practical limit on the growing demands for more and more service from the Bureau. Emphasis is placed on work in the higher priorities. The Central Office carries on a continuous review of workload and station staffs in order to make readjustments necessary to carry on the most essential services. In many places the Bureau's offices are numerically understaffed for the work required. Staff increases have not kept pace with new functions such as ocean weather stations, Arctic stations, more numerous radiosonde observations, etc.

Travel authorizations and long distance phone calls are carefully examined to eliminate those for which the purpose can be accomplished satisfactorily by correspondence.

Communication costs are under continual review to determine both necessity and method of transmitting messages. For example, the PBS system is used wherever possible to take advantage of the lower rate. The collection of weather observations from points not located on the teletype circuit is examined from time to time to determine whether telegraph or telephone is the more economical. Trunk telephone lines into principal city offices of the Bureau have been reduced both to curtail costs and to lower the number of calls where they have grown to exceed the capacity of staff. Broadcast methods of dissemination are urged in place of individual phone calls. This multiplies enormously the total service output of each employee.

Methods of transporting supplies, equipment, etc., are periodically reviewed and the most economical method used. In some cases economies are found in rerouting or other arrangements. For example, the Bureau has a cooperative arrangement with the Navy whereby helium is shipped in tank cars to compressing stations on the East and West Coasts. Distribution is then made in carload lots to Navy supply stations along the East and West Coasts and at selected points in the Pacific. The Bureau obtains helium from the supply centers, thus eliminating

the higher costs of transporting individual shipments from the Helium Plant.

Rents and utility services are reviewed every year at least. In all cases rent-free space for aviation activities at airports benefitting from provisions of the Federal Airport Act is obtained and the best possible rentals obtained for space required for other activities not strictly related to aviation.

The number of printing plants in the field has been reduced from more than 40 to 5. This consolidation of staff and equipment has resulted in considerable savings for this work.

Equipment costs are kept to a minimum by obtaining surplus equipment from the military and elsewhere, and also by special care given equipment by maintenance technicians, raob technicians, and other field staff. The Bureau prolongs the useful life of scientific equipment far beyond the standard established for such use. Cost of radiosonde supplies has been kept low only by special efforts of the Bureau in connection with competitive bidding.

These budgetary subjects are of interest to employees because of their bearing on the future of the Weather Bureau and thus to some extent on the career prospects of each employee. In years past the Bureau has tried to keep employees informed of principal budgetary items of interest. Without repeating the discussion in further detail here, a list of references to items in TOPICS bearing on the subjects of economy and budgetary planning is given below for reference of those who wish to review the subject. It is reasonable to assume that despite the current period of adjustment and consolidation of gains, the opportunities for further developments in the services of applied meteorology and the economic advantages through these developments will bring a sound future growth consistent with a policy of good progress in technical meteorological functions. ■

TOPICS ITEMS ON BUREAU ECONOMIES

Month	Year	Page	Title
November	1951	195	1952 Appropriations
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■

MAP STORAGE

GSA Records Depository

The following item from the "GSA News" may be of interest to stations which lack space for storage of such items as manuscript maps and which are located near a General Services Administration Records Depository.

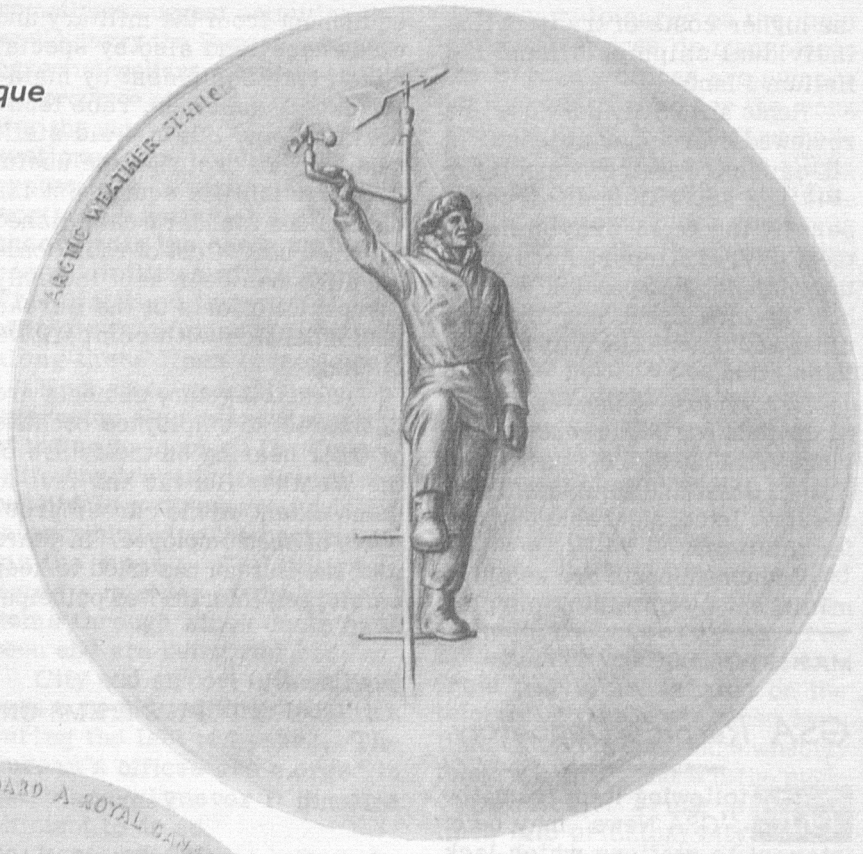
The Region I Records Depository in Dorchester, Massachusetts, has become an important part of the operation of the Research Staff of the U. S. Weather Bureau office which serves all of New England. Recently the Weather Bureau found it necessary to transfer valuable records which required occasional reference from the Airport Station at East Boston to the Records Depository. This was due to a lack of space for more current records.

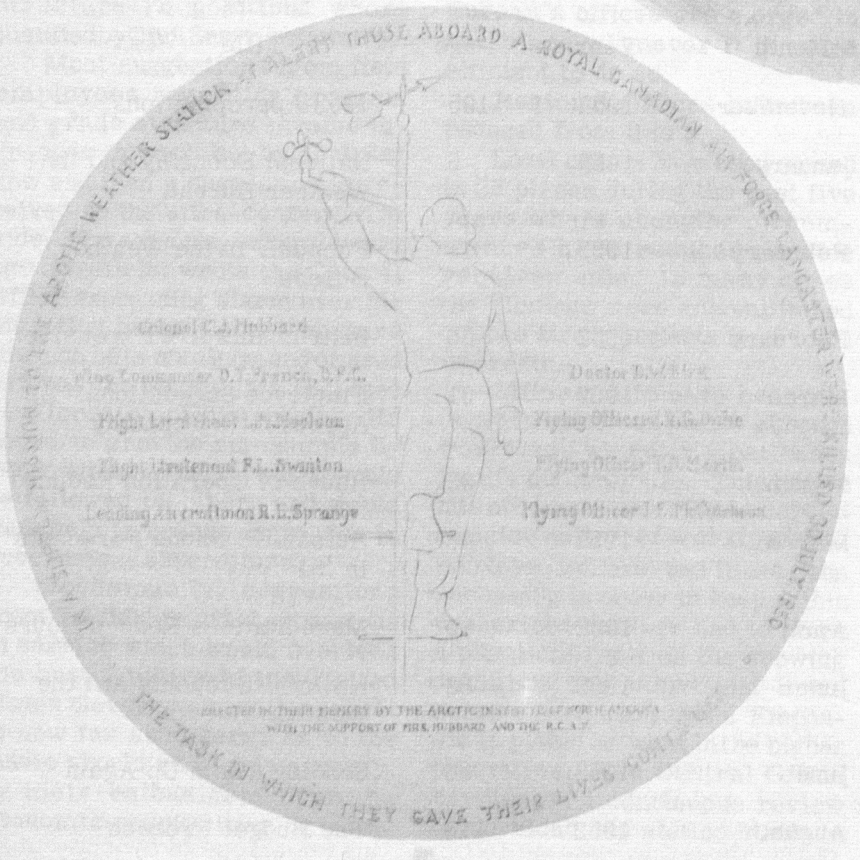
Arrangements were made to set up a special reference section in the Reference Branch at the Depository, and now regularly experts from the Weather Bureau do their research work day by day on their records at the Depository. Sometimes as many as three people have worked as a team for several days at a time. Meanwhile the space released at the East Boston Airport has been used for the records and the personnel involved in the day to day operations of the Weather Bureau. ■

Hubbard Memorial Plaque

DURING the Arctic resupply operations in the summer of 1953, members of the joint U. S.-Canadian Weather Services will erect a memorial to Mr. Charles J. Hubbard and the crew of the RCAF Aircraft who lost their lives at Alert July 31, 1950. (See TOPICS, August, 1950.)

Commemorating Mr. Hubbard and the Canadian Airmen, a bronze plaque has been cast by Dwight Shepler, noted sculptor and artist of Boston, Mass., whose drawings of the plaque are shown here. Mr. Shepler was a personal friend of Mr. Hubbard.





The memorial is being sponsored by the Arctic Institute of North America and by Mrs. Harriet Hubbard, widow of Charles J. Hubbard.

Mr. Hubbard inaugurated the Arctic Operations Project of the Weather Bureau in 1946. ■

Conference on Applied Meteorology

EIGHTY representatives of private meteorology concerns, public utilities, airlines, engineering firms, building advisory groups, the Air Force, Navy, and the Weather Bureau met in Washington on October 27, 1952, to discuss developments in applied meteorology.

Dr. Reichelderfer opened the meeting with a brief review of certain problems in the field of applied meteorology, and mentioned several large industrial and commercial activities where the demands for weather services are a challenge to the meteorologist. He emphasized that many beneficial weather services are in the nature of private enterprise and beyond the scope of functions of democratic government. It was, he said, the Weather Bureau policy to encourage and foster the development of applied meteorology in business and industry without entering the field of private business, and all Weather Bureau field offices are expected to cooperate with private meteorological consultants within the limitations prescribed for government agencies. The Chief's remarks are summarized in another article in this issue of TOPICS.

Mr. McDonald, Assistant Chief of the Bureau, spoke on "Some Applications of Climatic Information." He stressed the practical values to be gained from climatic information as a contribution to design in most forms of planning. He thought an excellent start had been made in establishing a national climatological center at Asheville, N. C., where the Weather Bureau is official custodian of the greatest collection of weather data in the world. This center processes records of 500,000,000 observations, 200,000,000 of which are on punched cards; and about 20 million more cards are added each year from the records of the Weather Bureau, the Air Weather Service, and Navy Aerology.

Mr. Miles Colean, Consulting Economist and Member of the Climatic Research Committee of the Building Research Advisory Board, spoke on "The Meteorological and Climatological Requirements of the Building Industry." He enumerated a long list of ways in which builders can use assembled weather data, and said he believed there has recently been a greater awareness of how weather variations affect comfort, economy, permanence, utility, and other important considerations in building design. He strongly urged the early completion of a climatic atlas for the United States.

In the discussion that followed, Mr. Pawley, Research Secretary for the American Institute of Architects, told of the architects' special interest in having suitable meteorological data readily available, and mentioned some special charts his Institute has published as an effort in the desired direction.

"Weather Engineering for Chemical Plants" was the subject of the talk by George F. Collins, a Meteorological Consultant in the Engineering Department of the DuPont Company. He mentioned the recently developed needs for more humidity information, frost data, soil temperatures to considerable depths, and the chloride content of air for corrosion studies. All of the ideas they present to DuPont engineers are on a "probability" basis.

Mr. J. J. George, Superintendent of Meteorology of Eastern Air Lines, spoke on "Recent Trends in Airline Meteorological Services." He noted that only small differences in temperature at critical elevations brought exceptionally large differences in planned pay loads of jet aircraft. He thought that meteorological statistics and improved forecasting were now considered to be absolutely vital in flight planning and load control activities for jet planes.

The afternoon session was opened by Mr. Robert E. Turner of the Susquehanna Electric Company, who spoke on "Weather as a General Problem Affecting Electrical Power Systems." The job of estimating peak loads in advance was especially important to joint hydro-steam power systems, and he showed how the predicted peaks could safely be reduced or increased under varying conditions of wind, temperature, humidity, light intensity, and snow cover.

More than a dozen meteorologists and utility men joined in the lively discussion that followed Mr. Turner's talk. Many of the meteorologists present felt that the special requirements of utility companies, as well as the real need for an hour-to-hour examination by professional meteorologists of the changing meteorological elements under actual conditions, amply justified the private employment of experienced synoptic meteorologists. It was brought out that many of the utility men who now make the operating decisions resulting from current or anticipated weather conditions are employed primarily as operation superintendents, but who nevertheless have to teach themselves a working knowledge of synoptic mete-

orology in order to serve their companies better.

Mr. W. J. Hartnett, President of Weathercasts, Inc., a private meteorological consultant firm in St. Louis, spoke on "Multiple Client Practices in Meteorology." He estimated that 95% of the revenue of meteorological consultant firms is derived from forecasting for business and industry. He told of the important economic advantages resulting to gas companies using both natural and manufactured gas when they are able to reduce or increase the amount of reserve gas storage in accordance with changing weather conditions and the resulting changes in customer consumption. He said the fees of meteorological consultant firms were largely devoted to salaries, and varied directly in accordance with the amount of professional time necessary to carry out the job required by the client.

"The Meteorologist on Television" was the subject of the talk by Mr. J. J. Foulkes, who conducts a television program on WTAR, Norfolk. He spoke on the great impact television had as a medium for reaching the people with information, and mentioned the importance of good techniques of presentation.

Mr. Tannehill, Chief of the SR&F Division, spoke on "What the Weather Bureau is Doing in the Field of Public Service." He spoke of the Bureau's efforts to distribute forecasts by mass distribution methods, and mentioned that on one day recently over one million calls for the weather forecast were answered by the automatic telephones located in ten major cities. He gave many examples where special weather information requirements of business and industry might best be served by the employment of private meteorologists.

After each of the introductory speeches during the meeting, brief but lively discussions resulted, covering a wide variety of views.

Mr. Ludlum, Chairman of the "Committee on Industrial Meteorology" of the American Meteorological Society, said he believed the papers and comments showed that applied meteorology is a promising and developing field. He felt that although there appeared to be no lack of clients, it was desirable to bring to a wider audience, possibly through speeches and exhibits at business conferences and by articles in trade journals, a greater appreciation of the possibilities of applied meteorology.

The general meeting on October 27 was followed by conferences of special groups the following day in the Weather Bureau Conference Room. Among those who found it worth while to return for one or more of these conferences were representatives of the building industry, representatives of the AMS, a public utilities official, and two or three consulting meteorologists. Many who attended both days expressed themselves enthusiastically about the worth-while discussion of the conferences and the importance of more meetings of this kind in the future. ■

First Area Climatologist Selected

MULTIPLE Address Letter No. 127-52 was mailed on November 4, 1952, to selected stations. It is printed here for the information of the remainder of Bureau personnel.

As an outgrowth of the plan announced in the June 1952 issue of TOPICS to improve our climatological program, Dr. Gerald L. Barger has been selected as Area Climatologist to serve the states of Texas, Oklahoma, Kansas, Nebraska, South Dakota, North Dakota, Minnesota, Wisconsin, Iowa, Illinois, Indiana, Michigan, Missouri, Arkansas, and Louisiana.

Dr. Barger is now assigned at Ames, Iowa as Weather Bureau liaison official with Iowa State College. He will continue in this assignment for a limited time with added responsibilities for the newly constituted Climatological Area and will serve as a staff member of the Climatological Services Division with sufficient flexibility of movement to:

1. Assist Section Directors in determining service requirements and developing climatological analyses to meet these requirements.

2. Serve as technical consultant for Weather Bureau-University Cooperative Climatological Projects and; in cooperation with the Section Director concerned, provide general guidance for each such project in his Area.

3. Assist section centers and WRPCs in problems involving quality control and processing procedures.

4. Advise the Chief of Climatological Services Division on problems of planning and development of constructive programs in climatological work.

5. Assist and advise regarding climatological requirements of interagency basin committees, working in cooperation with the Area Engineers of the Hydrologic Services Division in this connection.

Experience obtained through contacts with users of climatological data and in consultations with Section Directors, concerning all aspects of climatological service to agriculture, industry, etc., will be made available to the Central Office for program planning. ■

The Purpose of the Meeting

Following is a review of the introductory remarks made by the Chief of Bureau, at the Conference on Applied Meteorology held October 27, 1952, in Washington, D. C.

During the War many new applications for meteorology and climatology were developed. At first military commanders did not know what data they needed on weather and climate, nor how meteorological knowledge could be used. Meteorologists did not know enough about military requirements to see practical applications. The impasse was broken by placing climatologists on military staffs where they could live with the problems, analyze and define them, and bridge the gap between military requirements and the practical applications of the meteorologist.

During the BRAB meetings in January 1950, the building industry explored its needs for the services of applied climatology. Inquiries from business and industry elsewhere imply that there are many other fields in which weather and climate give rise to maintenance and operating problems that could be solved at least in part through the help of competent meteorological advice. Any business representative who inquires for a long range weather forecast day by day is pretty sure to be one who needs meteorological consultation. He would not inquire unless he had a weather problem of some kind, and he would not expect a definite forecast for a particular day several weeks in the future if he knew much about synoptic meteorology and its possibilities and limitations. Usually, what is needed in such cases is advice on the significance of the frequency of occurrence of certain elements of climate. The important questions for this meeting today is—how great are the undeveloped possibilities in applied meteorology and what can be done about them in a practical way?

Business and industry in general are interested in these questions because they relate to efficiency and economy of operating plans and activities. The meteorologist is interested because the answers should be an index to his future professional prospects. The Weather Bureau is interested because the subject is important in planning work projects, for example, in the scope of the proposed atlas of climates of the United States, and the data-card (Hollerith punched cards) library and machine tabulation facilities that make for efficient handling of large volumes of climatic data. Will the practical applications justify production of an atlas that would cost perhaps $ 100,000 over the next five years, or will growth of the science bring service applications in agriculture, commerce, engineering, industry, transportation, etc., that would in future years return a greater cost many-fold through economic benefits that could not be obtained without the knowledge represented in the atlas? Will weather data in form of frequency of occurrence of the different elements in various combinations be of sufficient value to consulting meteorologists and to industry that the Bureau should collect and maintain a very comprehensive library of data cards, or will the practical applications be limited, in general, to present uses? It takes years to build up such a library and it should be well planned in advance if it is required.

An example in synoptic meteorology —With prospects that within the next 5, 10 or 15 years improved daily prognostic charts will be produced by electronics computers, thus further centralizing the preparation of broad scale synoptic weather maps, should the Bureau plan supplemental charts for wide distribution by facsimile to industry and industrial meteorologists, or is the industrial demand unlikely to develop greatly? Are there other charts or other forms of the synoptic weather picture which would extend the industrial applications of meteorology either for use of company meteorologists or for direct use by the business community in general, and thus increase the "dividends" derived by the public from its investment in the costly network of surface and upper air observations?

There are other reasons why the Bureau is interested in obtaining a better estimate of the future developments and trends in applied meteorology. Some of them will be brought out by other speakers. These subjects have an important bearing on the work and future program of the Bureau.

In analyzing the situation and estimating the prospects, it is helpful to draw a distinction between applied meteorology for the public and applied meteorology for the individual industry. Meteorological service for the public and for the major general segments of the business community is a general service that applies to interests in common. Private meteorological service for business and industry seems to offer the greatest values if it is a highly specialized and individualized service giving consultation and advice to meet the unique problems of the particular corporation.

The airlines and the military services have shown that there can be individualized services of this kind and that the distinction between this and general public service is real. This difference is probably well recognized by all here but perhaps it is made more meaningful if comparison is made with an analogous situation in the medical field.

The Public Health Service can issue general advices to the public or to segments of the community concerned about what to do in an epidemic and, in a sense, these general "prescriptions" are analogous to the bulletins, forecasts and warnings published by the Weather Bureau. Everyone recognizes, however, that the individual patient needs a personal diagnosis by a competent physician; and few people would expect to be cured of an illness with all of its individual variations by a general "prescription" published in the press, over the radio, or repeated by telephone to individual callers. The future of applied meteorology may lie in analysis of individual requirements and development of solutions to meet the unique circumstances of each case. More important, these developments would in turn promote progress in the science of meteorology just as similar developments have done in other professions. Progress in engineering has come largely from the inventions of the individual engineer stimulated by the necessities and opportunities in private enterprise. In medicine much of the progress has come from research work of the individual physician under the incentive of his interest in individual ailments.

There are doubtless many avenues for development of industrial potentialities in applied meteorology. Several different approaches have been tried. One way is to bring out a few case histories for study. Representatives of individual industries can be invited to state their meteorological problems as they see them, and then meteorologists can be asked to describe the services they have to offer and, if possible, analyze and "prescribe" for the particular weather "ailment" in the case at hand. This is one of the

things we hope to do in the present meeting. This exploratory meeting to probe the possibilities by the study of case histories may lead to collection of enough cases to publish a guide or handbook on applied meteorology which would illustrate both to industry and the consulting meteorologist the possibilities open to development in various fields. A handbook of this kind should be extremely valuable to industry and the meteorologist alike. This meeting may also be preliminary to future meetings of this kind of greater scope.

We hope that you will bring out ideas which can be used to plan further discussions, perhaps in connection with the regular meetings of the American Meteorological Society from time to time where there can be larger representation from private enterprise and a larger number of consulting meteorologists.

The present meeting was proposed a year or more ago as a small conference. It was a logical suggestion growing out of the obvious need for common ground on which industry and meteorology could examine the possibilities of the applied science. It was not a job the Weather Bureau could do alone because it involves detailed analysis of individual business operations and their relationships to meteorological factors, a job for the consulting meteorologists.

This is not the first meeting for this purpose and certainly not the first effort to develop applied meteorology. The American Meteorological Society has had sessions devoted to the subject, notably the Philadelphia meeting in December 1948. Reference has previously been made to the BRAB meeting in 1950 and the very informative report based thereon. There have been many intra-mural conferences on the subject. The Weather Bureau cooperated with the authors of a monograph on applied meteorology published through the University of Chicago and the American Meteorological Society in 1946. In 1948 the Bureau assisted in preparation of articles for publication in trade journals on the possible values of applied meteorology. During the last ten years the Bureau has published a long series of articles on weather map-backs suggestive of the applications of meteorology to various fields of business and industry. Some of these were prepared with collaboration of private consulting meteorologists. Two of them give examples of the great variety of application of weather information, listing more than 150 different general fields where weather information is important. This series of articles is remarkable and, although they have found considerable interest among representatives of business and industry, they could be put to much greater use in suggesting the possibilities to business and industry throughout the country.

In some of these fields the Bureau could give considerably more detail about the nature of the problems, and the work and study necessary to analyze the circumstances and find a practical solution. In the field of AIR POLLUTION many cities have made costly mistakes because they have not had competent meteorological consultation. In the citrus industry, lemons and certain other fruits are regarded as critical market items. The demand and the profit or loss of a shipment depends primarily on the weather. A thorough operations analysis of meteorological factors probably would show that the services of an expert consultant in this field would be justified many times over. In the handling of perishable foods in general and in the commission merchant branch of this business, there are many losses due to weather and many opportunities for profit through sudden increase in market demand as result of change in weather conditions which could be anticipated and turned to advantage with the advice of a meteorologist experienced in recognizing the requirements.

The subject of artificial modification of weather is still too controversial to permit an estimate of the future possibilities. It is obvious that if this field goes beyond the orchard heating and the airport runway fog dispersal stage and gets into the field of precipitation on even a limited quantitative control basis, the need for analysis of the local conditions and expert advice would be enormously increased. We are told that in one instance where an inch of rain fell from a shower reported to have been artificially "encouraged" at a time when the crop was at a critical stage, the yield in one small locality was increased by an amount representing several hundred thousand dollars. Most of you are familiar with the specialized climatological applications in use at Seabrook Farms, New Jersey, an excellent example of individualized services. Other speakers will bring out further examples in their remarks.

We know that business organizations often mis-apply the substance of general weather bulletins and forecasts when they try to use them in their individual business plans and operations. Sometimes they read into these forecasts meanings not intended by the forecaster. The limitations of general weather advices applied to individual needs are suggested in an interesting article in the June 1952 AMS Bulletin. This study again indicates that the individual business corporation often needs meteorological consultation and advice, not a categorical weather forecast.

Your later discussion may bring out queries as to how much the Weather Bureau can do in industrial meteorology. The general relationship between industry and the Bureau is defined by the policy of the Federal government with respect to its relations with private enterprise. Services primarily for individual profit, personal or corporate, are the responsibility of private enterprise. Services to the public or to broad groups of the business community in the interest of public safety and general economic and social welfare may be provided by authorized government agencies under the terms of their organic statutes. Statements on the scope and limitations of the Bureau's services have been published on several occasions.

Scientific and technological advances sometimes lead the Bureau to amplify its services. Thus, television has provided excellent new channels for publication of the daily weather "picture." The Bureau tries to make use of new channels of this kind by cooperating as much as practicable with television commentators who desire to disseminate official weather reports and forecasts as a public service. Again, the prospects for commercial jet aircraft operation impose on the Bureau a responsibility for high altitude wind observations, and thus in another manner require amplification of services to one of the broad groups of the business community, namely the air transport industry. Although it is necessary for the Bureau to have a progressive policy of development in new technical fields, we have followed fairly conservative practices budget-wise. If we had exploited all the possibilities for expansion of budget, the staff and expenditures would be much larger than they are.

The Bureau has a two-way responsibility economically. On the one hand, it should be progressive in developing and adopting those services which are of proven value to the public; on the other hand, it should be reasonable in its aims and not forget other public requirements. There are many fields of public interest other than weather and climate—public highways to be built,

public health services to be maintained, veterans' hospitals to be kept going, etc., etc.—and public funds cannot be provided for unlimited expansion to give all possible "benefits" in all fields. In research, for example, the Bureau has always followed the rather conservative policy of pursuing only a few of the more immediate possibilities, and even in these has contracted with recognized research institutes for much of its work rather than plan a greatly enlarged research staff of its own. The contract program is more flexible for many research projects and is likely to be more economical of funds and staff in the long run. The Bureau thus has tried to be both progressive and reasonable in its practices in new project and budgetary planning. This is another reason for looking to private enterprise and industrial meteorologists for aid in developing applied meteorology, which, in turn, would contribute to general progress in meteorology as stated heretofore.

It is the policy for the Bureau to encourage all of its meteorologists here and in the field to foster development of applied meteorology in business and industry, and to point out to interests who have individual needs of a specialized nature that they probably would benefit from detailed studies of their meteorological problems under guidance of competent consulting meteorologists. Our offices are expected to cooperate with meteorological consultants in the effort to aid in developing applied meteorology within the limitations prescribed for government agencies. The Bureau is not authorized to engage in private consultant work. However, there are possibilities for pioneering projects in some sort of trust fund arrangements between industry, consulting meteorologists and the Bureau which we may examine later.

And so the purpose of this meeting may again be summarized by stating that we would like to bring out for discussion several specific cases in which industry recognizes individual meteorological problems for which no solution has yet been found. Then we would like to have illustrations of some of the services provided by meteorological consultants and their ideas on how to bridge the gap between business needs and meteorological services, including those now available and those which may be developed. The Weather Bureau is ready to enter the partnership, if and when needed, within the practical limitations cited herein. The purpose is to bring out constructive suggestions that will lead towards technical progress and cooperation in applied meteorology. The speakers who follow will provide a platform of concrete examples on which to build our "round-table" discussion. ■

Meteorological Experts Wanted

The World Meteorological Organization announces that there are several prospective vacancies for experts in the general field of meteorology, most of them to be filled early in 1953. The jobs are under the United Nations Technical Assistance Administration, and are listed briefly below by countries.

Salaries will range from about $5,000 per year to $9,000 per year depending of the nature of the assignment and the qualifications of the selected candidates. Additionally, subsistence allowances will be payable in local currencies at rates appropriate to the various countries concerned. All salaries and allowances are free of tax. Experts appointed for periods in excess of one year are entitled to be accompanied by dependents at the expense of the Technical Assistance Program; experts appointed for 2 years or more may recover costs of removal of household goods, automobiles and personal effects.

Details may be obtained by anyone interested from the Central Office. Requests should be marked "International Section."

IRAN

Special Field: Climatology
Duration: Two months (possibly more)
Duties: Organization of a Climatological Section of the National Meteorological Service.

ISRAEL

Special Field: Indoor Climate Research
Duration: One month
Duties: To advise Israeli government and Haifa Technion on various indoor climate research programs.

Special Field: Synoptic Meteorology
Duration: Four months
Duties: Instruction in latest methods and techniques in upper air analysis applied to weather forecasting.

LIBYA

Special Field: Training of Assistants
Duration: One year
Duties: Training meteorological assistants, visiting stations and maintenance of equipment, assistance in development of automatic weather stations.

SAUDI ARABIA

Special Field: Climatology
Duration: Twelve months with likelihood of further extension
Duties: Establishment of a network of surface observing stations and training of observers; evaluation of conditions leading to precipitation in specific parts of country.

YUGOSLAVIA

Special Field: Synoptic Meteorology
Duration: 18 months
Duties: Instruction in latest methods and techniques in upper-air analysis as applied to weather forecasting.

Special Field: Agro-Meteorology
Duration: Two months
Duties: Advice on the organization of an agro-meteorological branch of the Federal Hydrometeorological Service.

Special Field: Meteorological Instruments
Duration: Three months
Duties: To study the requirement of the Yugoslav Meteorological Service for meteorological instruments and the development of the Instruments Section. ■

HINTS FOR SERVICE IMPROVEMENT

FOR several years weather forecasts and information by media that serve large portions of the public rather than individuals has been stressed as the only solution to the requirement for providing weather services to millions of people daily. Two ideas that may interest other field stations are in use in South Dakota.

At Huron a three- to five-minute summary of weather conditions is prepared for inclusion on the State College Farm Forum radio program. Material consisting of a weather story, South Dakota forecast, and spot weather at certain surrounding points is phoned collect to the State College at Brookings from where it goes out over a network of stations in Huron, Mitchell, Sioux Falls, and Watertown. The program is broadcast from 11:45-12 noon each day.

To serve the needs of radio stations and newspapers in other South Dakota cities without Weather Bureau offices, WBAS Sioux Falls furnishes a summary analysis of weather over the state to the Associated Press daily at about 10:30 A.M. This analysis is sent to newspapers at Rapid City, Pierre, Huron, Mitchell, Yankton, Aberdeen, Watertown, and Sioux Falls; while radio stations at Aberdeen, Vermillion and Sioux Falls also receive the information. The AP furnishes WBAS Sioux Falls with high and low temperatures and precipitation at four locations in the Black Hills region as an aid in the preparation of this analysis.

The above two examples point to the potentialities in "bulk" distribution of weather information in lieu of individualized service.

MR. HOWE, MIC, Charlotte, North Carolina, reports a method of telephone briefing of television weather broadcasters which may be of interest to other Weather Bureau offices.

"We use an aid in the briefing process which you may have occasion to pass on. The fronts and central isobars are traced from the facsimile map on a piece of transparent plastic with wax pencils; then that is laid over the corresponding base weather map, WB 1773. We can then readily give the numbers of the stations passed over by the fronts to Mr. McClean, at the TV station, who plots them on the same size map."

A RECENT travel report from the Regional Director at Salt Lake City mentions a method for dissemination of minimum temperature warnings which greatly assisted in reducing the time required to distribute such warnings. His report said:

"Salem is the center of a rich agricultural region, as well as being located on the Willamette River. During the spring and fall an increasing demand has developed over a period of years for minimum temperatures, especially for the strawberry growers. This has developed to a point where about forty separate requests for individual notices of possible freezing temperatures were transmitted to interested parties. As a result of the number of these requests, the MIC arranged a meeting with the strawberry growers and has now developed a plan whereby he notifies approximately four growers, who in turn transmit the information to all other interested growers. This expedites the service to the growers considerably, and relieves the Weather Bureau of considerable work."

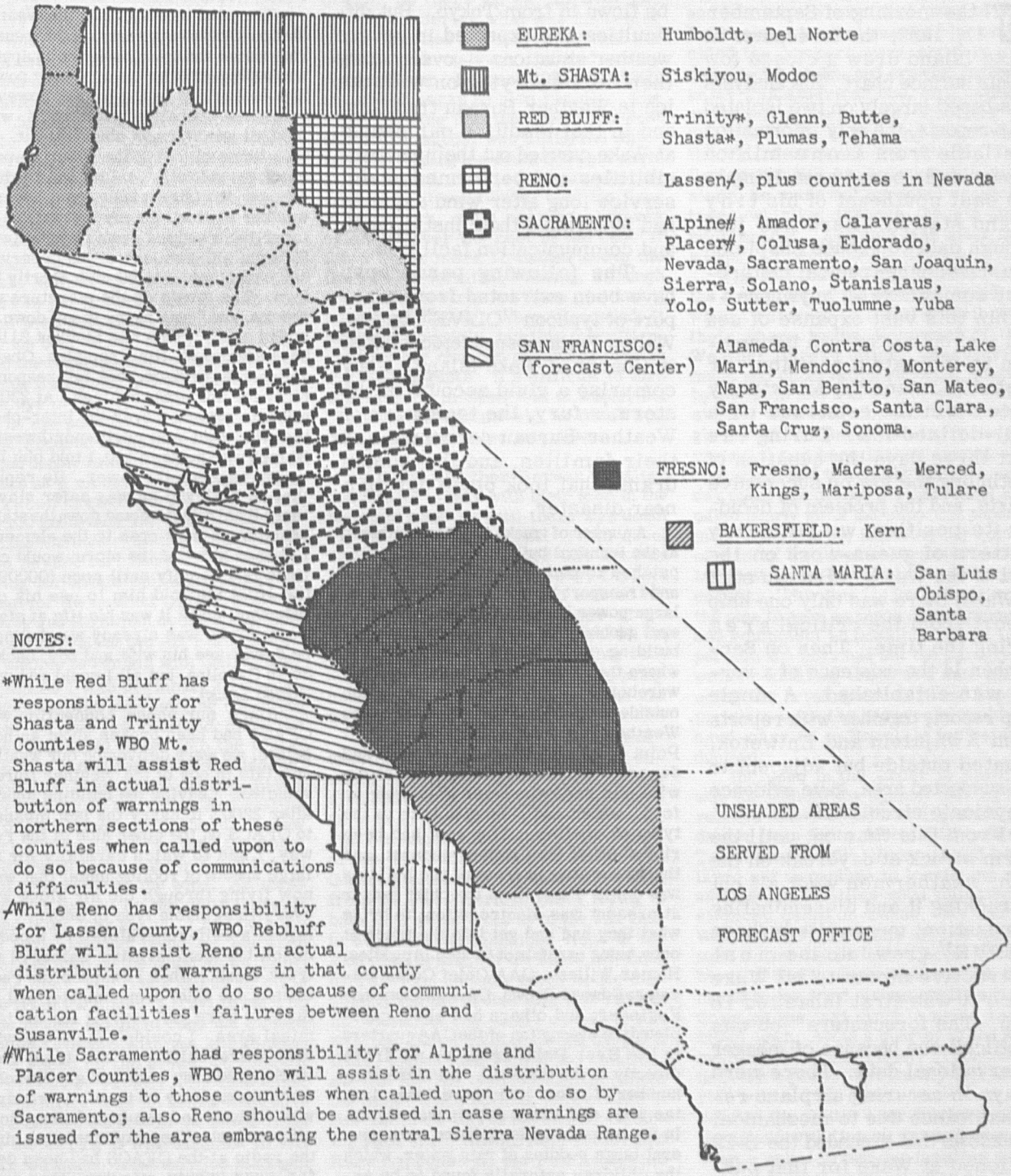
NOW that the county responsibility plan for arranging dissemination of warnings has been extended to the whole United States, the instructions, which were issued piecemeal, have been drawn together into a new chapter of the Weather Bureau Manual, III-B-15, which was on its way to the printer as this issue went to press.

While we were developing tentative assignments, an idea came in from the field which we should like to pass along to other offices. The San Francisco Forecast Center sent us a copy of a map used at that station which we reproduce on this page. The original map shows the areas for which each office is responsible by shading in different colors (represented on our illustration by different shadings and cross-hatchings) and notes of certain subsidiary arrangements are included on the map. The county names also show on the original, but were omitted in the illustration for the sake of legibility.

Sioux Falls also reports use of a colored map, showing the counties for which they have responsibility. In addition, the Sioux Falls map includes the areas adjacent to their own and, for use during emergencies, the telephone numbers of stations responsible for the adjacent areas are included on the map.

Such a colored map with areas and telephone numbers appears to be a good way of presenting this information for quick action where quick action is necessary, both at forecast centers and at stations which distribute the warnings.

ASSIGNMENT OF COUNTY RESPONSIBILITY FOR DISTRIBUTION
OF EMERGENCY WEATHER ADVISORIES AND WARNINGS



NOTES:

*While Red Bluff has responsibility for Shasta and Trinity Counties, WBO Mt. Shasta will assist Red Bluff in actual distribution of warnings in northern sections of these counties when called upon to do so because of communications difficulties.

/While Reno has responsibility for Lassen County, WBO Rebluff Bluff will assist Reno in actual distribution of warnings in that county when called upon to do so because of communication facilities' failures between Reno and Susanville.

#While Sacramento has responsibility for Alpine and Placer Counties, WBO Reno will assist in the distribution of warnings to those counties when called upon to do so by Sacramento; also Reno should be advised in case warnings are issued for the area embracing the central Sierra Nevada Range.

Typhoon "Olive"

ON the morning of September 11, 1952, the forecaster at Wake Island drew a closed low on his surface chart. His analysis was based largely on two isolated ship reports, the only information available from a one million square mile ocean area lying to the east southeast of his tiny island station. Here was just enough data to arouse suspicion of a developing tropical disturbance somewhere -- anywhere -- within this vast expanse of sea and air; but not enough information to indicate a position, or probable intensity, or actually to confirm the existence of a well-defined low. During the next three days the question of continuing the low on successive charts, and the problem of deciding its position, were mostly matters of guess-work on the part of the Weather Bureau staff at Wake; there was only one ship report from the critical area during the time. Then on September 14 the existence of a vortex was established. A single ship report, together with reports from Kwajalein and Eniwetok, situated outside but adjacent to the suspected area, gave evidence of cyclonic circulation.

From this time on, until the storm struck at daybreak on the 16th, weathermen went all out in tracking it and disseminating information; meanwhile typhoon "OLIVE" grew into the most destructive storm to hit Wake since it was first inhabited in 1935. The forecasters' job was a difficult one because of meager observational data. There were delays in securing airplane reconnaissance due to mechanical breakdown that grounded the B-29 stationed at Wake for that purpose until an engine part could be flown in from Tokyo. But difficulties are expected in severe weather situations -- overcoming them and carrying on with the job is Weather Bureau tradition, and in that tradition our people at Wake carried out their responsibilities and performed useful service long after wind and rain had inactivated their instruments and communication facilities.

The following paragraphs have been extracted from a report of typhoon "OLIVE" by Mr. Walton Follansbee, Meteorologist in Charge at Wake Island. They comprise a vivid account of the storm's fury, the teamwork of Weather Bureau personnel and their families, and the human drama that took place during a near disaster.

A number of trucks and jeeps gathered at the terminal building were being dispatched to pick up personnel at their and transport them to safe shelters. A large power line had fallen across several quonsets just north of the terminal building, and huge sparks were flying where they touched the Weather Bureau warehouse. After throwing the switch outside the warehouse, I drove up to the Weather Bureau housing area at Heel Point to pick up the families. All had departed for the terminal except my wife and son, who were gathering up food, water and linens to take to the typhoon shelter. The roof had been ripped off of the Chadsey quonset, and the power line in front of the building was down. I told them the chief danger at present was electrocution; to bring what they had and get into the truck at once, being careful not to step in puddles. Homer Willess, CAA Chief Communicator; Edward Brown, CAA Maintenance Engineer; and others had about completed the evacuation of the CAA quarters in the Heel Point area, so we drove directly to the terminal. An increasing number of power lines were down along the way, and some debris was flying. In the terminal building there were several large puddles of rain water, which the children naturally found to be excellent wading ponds. I advised the assembled mothers to keep them out of the water, since power lines were now draped across the building. I made two more trips to pick up personnel in the Pan American area, evacuating the last of the Weather Bureau bachelors.

The wind indicators in the Weather Station shorted out early, and expensive radiosonde and solar radiation equipment was badly burned by the run-away power. The indicators in the tower, however, remained operative until 2330Z, when the last weatherman abandoned it. We took turns climbing the tower steps to check the velocities, calling the readings off over the inter-phone from tower to weather station. On my last trip to the tower, the strongest gusts observed were 82 mph, although one of the observers had caught gusts to 90 mph shortly before. The strain on the structure was severe, and I was happy to get down the stairs safely. This was at about 2110Z. Soon afterward, Jim Champion, Observational Supervisor, took full responsibility for this unwanted task. At 2205Z, when he reported over the inter-phone that the wind was north-northwest at 80 mph with gusts to 110, I told him he'd better abandon the tower. He replied that he believed he was safer staying there than trying to come down the stairs, which were wide open to the elements. I warned him that the storm would continue to intensify until noon (0000Z of the 16th) but told him to use his own judgment, since it was his life at stake. No doubt he was already wondering if he'd ever see his wife and boy, back in South Carolina, but all I could add was, "Good Luck!"

Since our phone connection with OFACS had been broken about an hour before, we were delivering our weather specials in one of the Weather Bureau vehicles. Leaving the building shortly after 2200Z to carry the last message to OFACS on the other side of the runway, I had to watch carefully for the large sheets of roofing metal that were now flying through the air along with every imaginable type of debris. One felt in a self-congratulatory mood to reach the comparative safety of the truck's cab. When I reached the radio station, the chief communicator and Joe Roberts were just leaving for the terminal area. I couldn't make out what they were calling to me from their truck, so left my truck and got drenched working my way to them. Already it was difficult to keep from being blown off your feet. They explained that since the radio at the OFACS had been dead for over twenty minutes, they were going to try sending over the radio of

one of the planes parked on the ramp.

Hereafter, we took our weather reports out to the plane that was transmitting. Harry Hightman and I took the last report a 2330Z. It gave a precip ceiling of 600 feet, visibility 1/8 mile in heavy rain, pressure 964.8 mb, wind west northwest 85 mph with gusts to 110, altimeter setting 28.49, remarks: pressure falling rapidly. The most sensational feature was the pressure fall: .52 inch in one hour! The temperature and dew point, both of which read 77 degrees the hour before, were missing. The instrument shelter had been blown over and the instruments smashed.

I was driving, so Harry took the message and fought his way to the plane's ladder. Climbing inside, he gave the report to Joe Roberts and the two Air Force men for transmission. Then came the best luck so far: Roberts contacted the reconnaissance plane that had flown up from Guam and was now located in the eye of the typhoon!

The eye position was given as 19.7N 166.8E, about 35 miles NE of Wake. The typhoon center had moved within 45 miles of Wake as it moved by to the east of us! The recon crew reported winds well over 100 knots near the center, and said the plane was suffering structural damage in the severe turbulence. They were heading for Kwajalein, and advised us to head for the nearest typhoon shelter. Roberts and Hightman decided that was good advice, but the two Air Force crewmen elected to remain with their plane.

Just as I was beginning to wonder if Hightman was ever coming out of the plane, he and Joe climbed down the ladder and tried to get into the truck. I was just a few feet from the ladder, but both of them were nearly blown away getting to the truck and getting the door opened and closed. I saw Harry's face as he reached the door, and it looked like a rubber mask forced out of proportion by the wind. All three of us had to pull on the door to get it closed after they got in. I had both the hand brake and foot brake on, but when my foot slipped off the pedal as we tugged on the door, the truck began to slide away from the plane. I tried to back up to the ladder again, in case the airmen decided to leave with us, but as soon as I stepped on the clutch we took off and slid away rapidly. By this time, the visibility was no more than fifty feet, and when we slid off the paved ramp into the coral, it was difficult to tell where we were. However, Joe managed to identify a familiar landmark before the visibility dropped off to a few feet, and fixed our position as across the ramp from the terminal building. Still, it would have been foolhardy to attempt to reach the building in that blinding rain; we might be blown past it into the ocean. So there we sat for over two hours, wondering what was happening to our families and marveling that our half-ton pick-up truck managed to stay right-side-up. Between 2330 and 0000Z the water began to rise rapidly. The wind, blowing into the open northwest end of the lagoon, was piling the water up and engulfing the south and east parts of the island. At its highest, shortly after noon, it was flowing over the floor of our truck, while occasional waves splashed over the roof of the cab. It left a water mark 18 inches above the floor of the terminal building, although many people stranded there claimed it rose much higher. When it receded, it went down rapidly, but this merely increased our chances of turning over in the violent gusts. It's difficult to turn over a truck in three feet of water, but I'll never understand why we didn't roll over while the water was down.

All the Weather Bureau families had chosen to stay with their men in the terminal building until there was doubt the building would stand. Then, about 2240Z, they were loaded into the Pan American bus with Chadsey, Lippert and several other men, and started for the shelter on the south side of the island. On the way, they stalled on the east end of the runway, where they rode out the worst of the storm, the bus being bombarded by large rocks until the waters rose.

Saga followed saga in rapid succession; in fact, epics were being enacted in various parts of the island simultaneously. Jack Butler, Standard Oil's head man at Wake, and Jim Russ, Pan American radio maintenance man, drove up to the stranded bus to find Gibson Pullen and a couple of his pals from the Pan American galley trying to back their panel truck up to the bus door to evacuate the families. None of the kids were crying, but the dazed, strained expressions on their faces spoke eloquently for the ordeal they had endured for hours, but still hadn't ended. It was well that Butler followed when the panel truck, loaded with women and children, set out for the typhoon shelter; when the panel truck stalled, Jack pushed it the rest of the way to the shelter. Coming back from the shelter, Butler and Russ happened on the Pan American station wagon stalled in the water along a low stretch of the road. Joe Igelmann and two or three other Pan American men in the station wagon wanted a push, but instead the Standard Oil truck stalled trying to get them started. The men with Joe headed for the terminal building, crawling along on the ground. Joe and Jim Russ worked their way to old Jap bunkers located nearby. Jack decided the bunkers were entirely too close to the ocean, and crawled instead to the Pan American bus, still stalled on the end of the runway. Creeping to that bus in the screaming winds was the "hardest work I ever did," as Butler put it. As he made his way along, he made out uprooted scaviola trees whirling through the air like boomerangs. And this was after the winds had begun to die down a little!

The 150-odd men still crowded into the first floor of the terminal building when I returned to it had contributed their share to the disruption of the Weather Bureau office! Manuscript maps and observation records, soaked by the rain and sea water, were badly stained with tobacco, food and a conglomeration of small debris. Teletype material had been kicked around and trod upon, and it was not until the next day that I discovered our personnel had saved nearly all of the important papers, maps and records, including our copies of most of the dispatches quoted above. My first order to the staff was simple enough: "Survive." But with it went the plea to save as much of our records and equipment as possible. Most important, the boys had set the barograph with its amazing trace in a safe place under the briefing counter, and kept it inviolate until the barogram could be hand-carried to Honolulu for reproduction.

Included in the order to survive was the admonition against leaving the relative safety of the building while the danger from flying debris still existed. To set the example, Hightman and I delayed our departure to locate and reassure our families until impatience silenced common-sense. We had no Weather Bureau vehicle still in operation, so set out on foot at about 0300Z. Most of the time we walked with our backs to the wind, occasionally sitting down on the taxi strip to avoid being blown down. About a quarter of the way over, we were completely grounded in heavier squalls, but finally hitched a ride with a CAA maintenance man and reached the shelter after driving around the island with Jipp on several errands. What a relief to see our families safe, and to let them know we were all right too. My wife and boy didn't even know

where I had gone just before they left the terminal building, and I don't believe Anne Hightman knew what had become of her husband either.

At 0400Z of the 16th, Chadsey, Lippert and I were caught out on the taxi strip in increasing winds and heavy rain, following a definite lull in the storm. The winds became so strong again that we had to seek shelter in Jack Butler's truck, still bogged down in knee-deep water. We remained there until nearly 0800Z, and decided that the eye had worked around north of the island and was moving back toward us. We didn't believe it would move right across Wake, but would head off toward the west or southwest. The original path of the storm as it approached Wake from the southeast, was contrary to the usual behavior of tropical storms. A large high to the northwest of Wake should have forced OLIVE to move from east to west on the south side of the high, but instead the typhoon headed straight into the high. Now, we felt that it had apparently moved close enough to the high center to be diverted toward the west. Thus, we were not greatly worried when the wind and rain mounted in fury between 0400 and 0600Z. Fortunately, our confidence was justified, and from 0600Z on for the remainder of the night the wind abated steadily.

At 1015Z, while I was helping the Weather Bureau families get settled down for the night at the typhoon shelter, word came from the terminal area that a Flying Tiger crew had reactivated their plane radio and were transmitting. Elmer Chadsey and I caught the first vehicle leaving the shelter for the terminal and filed the following dispatch to our Honolulu office, our first message out since 2300Z of the 15th:

KAWK WB1 161107Z
FF KHNL WBAS
152330Z SURFACE OBSERVATION
WOXOR: PRES 28.12 INCHES SURFACE WIND NORTH 120 KTS WITH GUSTS TO 142 KTS.* LOWEST PRESSURE 27.90 INCHES AT 0000Z. WIND BECAME CONSIDERABLY STRONGER THEREAFTER UNTIL 160100Z, BACKING SLOWLY TO WEST. AFTER 0200Z WIND BACKED TO SOUTH AND WEAKENED SLOWLY. HEAVY RAIN SQUALLS CONTINUED UNTIL 0600Z. 161100Z SURFACE OBSERVATION 8000 SCATTERED ESTIMATED 25000 OVERCAST VISIBILITY 15 MILES PRESSURE MISSING SURFACE WIND SOUTH 20 KNOTS. ALTIMETER 29.70. WEATHER EQUIPMENT OFFICE AND HOUSING SEVERELY DAMAGED TO COMPLETELY DESTROYED. WILL RESUME WEATHER REPORTS SOON AS COMMUNICATIONS PERMIT. REQUEST WBAS HONOLULU ASSUME FULL RESPONSIBILITY FOR OUR NORMAL FORECAST PROGRAM.

*Subsequently, it was learned that the reading taken by Champion just before he abandoned the tower cab was 120 mph instead of 120 knots, with the gusts also in miles per hour. However, a more serious discrepancy crept into this observation somewhere along the communication route. Chadsey and I listened as the radio operator on Guam repeated the message back to the Flying Tiger operator beside us, and he had the entire message correct, including the wind velocity. Yet, the message as received at our Weather Bureau Airport Station in Honolulu read, "GUSTS TO 214 KTS".. This was an extremely unfortunate error, yet obviously a simple transposition of digits. ■

Tornado Education

THE station at Jackson, Mississippi, under the leadership of Mr. Fish, has been quite active during recent months in developing an educational program to acquaint the public with tornadoes. Much work has also been done at Jackson to organize tornado networks. The following item is quoted from a recent report by Mr. Fish to show the extent of his educational program:

Through the Rural Electrification Administration and Mississippi Power and Light Company organizations, nearly every Mississippi family will have an opportunity to become acquainted with 'TORNADO SAFETY RULES', and the plan of operation of the network. The 'SERVICE STATION NEWS' of the Mississippi Service Station Operators' Association; 'THE MISSISSIPPI CO-OP NEWS' and the 'MISSISSIPPI FARM BUREAU NEWS' will also spread our message in forthcoming issues. ■

NEW METEOROLOGISTS IN CHARGE

Lewiston, Idaho

JAMES W. GRANT has been selected to replace Robert C. Borders at Lewiston when the latter departed for his new assignment at Fort Wayne. Mr. Grant is 33, entered the Bureau on June 20, 1946, and all of his service was at the Portland, Oregon WBAS. On January 31, 1951 he was separated for military service with the Air Force, and returned to duty with the Bureau at Lewiston upon his release. ■

DEATHS

Raymond E. Maher

RAYMOND E. MAHER, MIC at WBAS Clayton, New Mexico, died suddenly of a heart attack on November 24, 1952, after completing his tour of duty that day. He was fifty-eight years old. Mr. Maher had two periods of service with the Bureau, the first from June 28, 1923 to November 30, 1926 at Royal Center, Indiana and Broken Arrow, Oklahoma. He returned to the Weather Bureau service on October 18, 1943 at Raton, New Mexico, and subsequently served at Clayton, New Mexico; Brinkly, Arkansas; and Victoria, Texas. His assignment as MIC at Clayton was effected on January 6, 1952. □

James M. Jones

JAMES M. JONES, who retired in March, 1945 as meteorologist in charge at Eureka, California, passed away November 13, 1952, at the age of 73. An outline of his service is in TOPICS for April, 1945. ■