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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.

Local Teletype Aids Mass Dissemination

A LOCAL public weather service teletypewriter circuit began operating at Chicago on November 20, 1952. Negotiations and discussions had been carried on between telephone company and Weather Bureau officials for more than a year and one-half prior to this time. At the beginning, connections to the weather circuit were installed in offices of the following organizations: United Press, International News Service, Radio Station WIND, Radio Station WBBM (Columbia Broadcasting System), Peoples Gas Light and Coke Company, and the Chicago Motor Club.

As soon as equipment becomes available, the Chicago Transit Authority, Radio Station WGN and the Chicago Board of Trade will be added to the circuit. The operation of the teletypewriter circuit at Chicago is expected to relieve much of the present telephone congestion and will permit the public service forecasters to give more attention to local forecast problems.

The policy governing the type of information transmitted is that weather forecasts, warnings and other weather data regularly prepared for public dissemination may be sent to subscribers on the circuit, but not specialized forecasts for individual private organizations. Material carried on the circuit at Chicago includes the state forecasts for Illinois and surrounding states; detailed local forecasts for Chicago and vicinity; warnings for Chicago, the Great Lakes, and various states in the Chicago Forecast District; five-day forecasts on Tuesday and Fridays; shippers forecasts in winter; Chicago Harbor forecasts in summer; and other local data such as degree days and precipitation.

Chicago becomes the ninth U. S. city with a public weather service teletypewriter circuit; others are Baltimore, Boston, Cincinnati, Houston, Los Angeles, New York, Pittsburgh, and San Francisco. Instructions on setting up a city-wide circuit are found in Circular Letters 88-48 and 63-49. ■

"Weather Forecasting" Revised

RECENTLY the revised edition of "Weather Forecasting" was received from the Government Printing Office. This is a revision of the publication formerly issued as Bulletin No. 42 under the title "Weather Forecasting with Introductory Note on Atmospherics." Since a number of field offices may be interested in the content of the new publication, one copy was supplied each office. ■

African President Praises Bureau Man

IN a speech by President William V. S. Tubman of Liberia to the joint session of the Liberian national legislature on November 26, 1952, C. K. Vestal, Point 4 meteorologist, was especially mentioned. Mr. Vestal is from Greensboro, N. C., and Washington, D. C., and is now back with the Bureau's Climatological Services Division.

Speaking of the meteorological work started by Mr. Vestal, the President said:

"Twelve new (weather observation) stations have been established in various sections, in addition to the previous six, and thirteen observers have been employed and trained to operate second-order stations.

"This training," President Tubman added, "has been carried on by Mr. C. K. Vestal of TCA (Technical Cooperation Administration), who heads the service, and Mr. William Phillips, his assistant."

Approximately 69 American technicians presently work in Liberia's Point 4 development program, which seeks primarily to improve the educational, health, public works and agricultural facilities of the century-old West African republic.

A Joint Commission for Economic Development, composed of Liberians and Americans, meets weekly to discuss and plan the over-all direction of Point 4 development activities. ■

The Weather Bureau's Principal Accomplishments in '52

Progress and accomplishments in the Weather Bureau since January 1, 1952 make this one of the outstanding years since the Bureau's establishment in 1871. Although the Bureau's effective appropriations have lessened each year since 1949, we can point with some pride to new developments and outstanding achievements. The following is the first installment of a resume of the Bureau's major accomplishments, under general topical headings, which was prepared at the request of the Department of Commerce. This installment covers Research and Basic Data. Future installments will include sections on Service Programs, Inter-agency Cooperation, Facilities, and Administration. We are publishing it in TOPICS because we feel it is of interest to field employees, and because it contains information that should be helpful to MIC's and others called on for talks about the Bureau.

RESEARCH

It has long been recognized that progress in meteorology must be associated with basic research. While research is carried on to a much greater extent by meteorologists in the universities, the Weather Bureau has contributed in no small measure through the work of its research groups. A giant cloud expansion chamber in Globe, Arizona, has provided the laboratory for collecting quantitative information on the behavior of clouds, and has made it possible to study stability and cloud characteristics under controlled conditions. In this laboratory, measurements of droplet evaporation and growth are being made to determine basic mechanisms responsible for the conversions of clouds to precipitation. Studies are also being conducted on the electrical properties of the airwater interface. New methods have also been worked out for the continuous production of controlled artificial clouds in the laboratory by mixing hot and cold saturated air. Research has also been centered on the development of instrumentation for the determination of cloud properties and atmospheric electricity. The foregoing research in the physical properties of the atmosphere is one of the avenues through which the Bureau expects to advance its forecasting and service programs. Articles dealing with the physical research have been published in the Journal of Applied Physics, Journal of Geophysical Research, and Journal of Meteorology.

Special attention was given to evaluating results from numerous rainmaking projects conducted by commercial rainmakers. As a result of studies of rainmaking projects and all other aspects of cloud physics work conducted to date, the Bureau is to start a cloud seeding project in the State of Washington in cooperation with other government agencies, which it is hoped will throw additional light on the scientific and economic aspects of cloud seeding. Attention has also been given to the development of quantitative forecasting systems needed for determining the weather associated with given flow patterns. These methods are being designed for use with electronic computers which are expected to be available in the future.

Work has been done to critically evaluate and extend the theory underlying the formation and movement of gravity waves on inversion surfaces in the atmosphere which cause sharp, pressure changes at the surface, and to apply this theory to the forecasting of severe storms. The results gleaned from a special tornado and severe storm observational network in the midwest have indicated the strong probability that the theory can be used in forecasting and analysis centers on a current basis and also provide a basis for further research.

Under the sponsorship of the Air Navigation Development Board (ANDB), the Weather Bureau has been conducting studies at Washington National Airport and at Silver Hill Observatory, Silver Hill, Maryland, looking to the evaluation and calibration of the available transmissometer and ceilometers. By means of a beam projected through the air, the transmissometer measures the degree of attenuation of light produced by the atmosphere over a given horizontal path. Results thus obtained are useful in determining the visibility, which is an important factor governing the safety of aircraft approaches and landings especially under foggy conditions. The ceilometers measure the height of the bases of clouds of low and medium elevation. Heights of cloud bases are significant in regard to the problem of safety of aircraft approaches because low clouds may obscure the tops of tall buildings, towers, hills, and mountains. On eight different periods, each of six hours' length, during the interval from March 12 to April 10, 1952, a television camera pick-up system was tested at Washington National Airport to determine its effectiveness as a means of estimating visibility remotely. The TV camera was mounted at the end of the instrument landing runway (no. 36) at Washington National Airport while the TV receivers were installed in the Administration Building.

As mentioned above, this type of research is essential to the future development and the application of meteorological knowledge to the known requirements of agriculture, industry, and com-

merce. In the past year more than fifty scientific papers were published by Weather Bureau personnel in periodicals of scientific societies. An additional fifty papers were released for publication of outside journals. This is an indication of the stimulation to meteorological research which is being provided by the research and development program of the Bureau.

BASIC DATA

Observations of the atmosphere at the surface and at elevations up to 100,000 feet form the basis of practical meteorological knowledge and provide the operational data essential to forecasting and aircraft operation. Of particular importance the past year has been the emphasis placed on the improvement of the techniques of taking observations, and on the development of new instruments for recording weather elements. The National Air Transport Coordinating Committee, the Air Transport Association, and the Civil Aeronautics Board have recommended a new program of runway observations on a national basis as being an important contribution to the safety and efficiency of aircraft operation. A pilot project of runway observations has been begun at Washington National Airport. In addition, the Air Navigation Development Board, in cooperation with the Weather Bureau and the Sperry Gyroscope Corporation, is sponsoring an experimental project at MacArthur Airport, New York. This project has as its objective the evaluation from the pilot's standpoint of the Bureau instrumentation (viz., transmissometer and ceilometer of 12-second cycle) as an aid in safe approach and landing of aircraft during low ceiling and visibility conditions. Visual, photographic, and photometric observations will be made both on the ground and in the aircraft when low clouds or fog are present.

By readjustment of priority of functions, the Bureau is able to report as a major accomplishment the implementation of a radar network designed to provide better information on severe storms of the type of hurricane line squalls, tornadoes and thunderstorms. Surplus equipment obtained from the Department of the Navy several years ago has been modified and reconditioned in the Bureau's Instrument Division and sets are now installed at Wichita, Kansas; Wichita Falls, Texas; Norfolk, Nebraska; Amarillo, Texas; North Platte, Nebraska; Dodge City, Kansas; Goodland, Kansas; Tampa, Florida; Miami, Florida; Burrwood, Louisiana; Pittsburgh, Pennsylvania; Brownsville, Texas; New York City, and Havana, Cuba. The Bureau's radar weather observing network is further expanded by the installation of radar equipment by private enterprise and by universities to provide additional radar observations at such places as Chicago and points along the Gulf Coast. Through the cooperation of the Air Force a set is in operation in New York City. In practice, careful examination of the radar scope gives reasonably accurate indications of severe weather as much as 100 miles in all directions from the instrument.

During the year the Ocean Station Vessel Program in the Pacific was expanded by the establishment of one additional station, and the Bureau cooperated with the Office of Naval Research and the Scripps Institution of Oceanography by taking special upper air and surface observations throughout the summer in an area southwest of lower California.

The network of nearly 10,000 weather stations that are attended by part-time observers, over 6,000 of whom are unpaid, requires specially designed methods and techniques to maintain records of the location, exposures, installation of instruments, and other descriptive material concerning each individual station. Outstanding progress was made during the year in the development of ways and means of simplifying the handling of the many details in connection with these substations. In brief, much of the information is being placed on punched cards and the data are now available for relatively simple extraction for analysis. The substations are inspected by inspectors travelling within assigned areas for the purpose of maintaining uniformity in the observational program and to keep equipment in good repair. Plans for the rehabilitation or rebuilding of much of the instrumental equipment used at these substations have been placed into effect with resulting savings in the operating costs of the program. Of the 10,000 substations, approximately 3,000 are supported by a transfer of approximately $500,000 by the Corps of Engineers and Bu- of Reclamation. In addition to providing data for the climatological history of the U. S., the data are used by the foregoing agencies in the design and construction of conservation projects. ■

Station Omitted from Map

IN the latest revision of the map of Meteorological Services in the United States (Map No. 1806) which was recently distributed, the name of the Elkins, West Virginia, Weather Bureau Airport Station was inadvertently omitted. On all Meteorological Services Maps, the name ELKINS should be printed in red block capitals in the lower portion of the space under "West" in the name West Virginia and just above the words "Municipal Airport." ■

Career Development and Overseas Service

From time to time TOPICS has carried articles on various aspects of Career Development. Recent articles have touched on the MIC's responsibility for helping his staff, the responsibility of each individual to help himself, and the relationship of such factors as education, experience and personal characteristics to an employee's career. In this issue we wish to explore some of the values of experience, with particular emphasis on overseas work.

WORLD WAR II thrust upon the United States additional new and varied responsibilities in areas outside its continental limits. Some of these were temporary, involving reconstruction and rehabilitation, while others have reflected more permanent commitments growing out of the expansion of U. S. world trade and defense activities that have made it necessary to increase and maintain strength at many overseas locations.

As one of a number of government agencies affected, the Weather Bureau now has more than 300 classified employees outside the continental U. S. -- Alaska, Hawaii, Caribbean area, Europe, etc.; this is about seven per cent of all classified employees. Slightly more than a hundred or approximately one-third of the overseas jobs are in the professional grades. This means that about five per cent of the Bureau's professional staff is working overseas. If professional tours overseas are, on the average, three years in length, then about forty professionals must be recruited each year to keep those overseas jobs filled, and, over a ten-year period, about 400 individuals in the professional grades will have to go overseas. This is one out of every five professional employees now on the rolls.

"But, what is the connection between this need and my career?" you may ask. "How does this affect me?"

Other things being equal, advancement will be faster for those willing to move from one station to another, since consideration can be opened for vacancies at all stations rather than at only one station. Moving from time to time (but not too frequently) will increase the variety of experience and help broaden background. Remaining at one station permanently or for a long time does provide a valuable local experience, but after a few years the experience becomes repetitive; to a large degree each year's experience will come to duplicate the experience of the year before. Progressive professional experience is needed, and transfers must be accepted to gain this type of experience.

Overseas experience is particularly valuable to a meteorologist for a number of reasons. An overseas forecaster has an opportunity to study at first-hand large scale meteorological patterns and problems. Men overseas are, in most cases, working at a higher level of responsibility than they would have reached had they remained in the States. Transfers overseas, at least in the professional grades, are usually accompanied by grade promotion. While some of these promotions are for the duration of the overseas assignment only, they frequently are permanent, and even in case of reduction in grade, the highest possible salary status is usually maintained.

There is a much more tangible advantage of overseas service. The number of overseas jobs, compared to the normal turnover in the States, is so large that many of the vacancies in aviation forecasting will, in the future, go to men who are returning from overseas with broader qualifications. The total number of GS-11 and GS-12 overseas forecasting jobs will be about forty when the current reallocation program is completed. There are, in addition, a few MIC jobs, rather a large number of GS-9 and GS-7 meteorologist jobs, and a larger number of jobs in the meteorological aid series.

Let's consider only the forecasters for the moment: Suppose that each of the forty spent three years overseas and then came home to a forecast job; there would then be about thirteen forecasters, GS-11 and GS-12, returning each year. How many forecast jobs are there in the States? Twenty-five FAWS-Aviation centers have an average of seven forecasters each (one GS-12 and six GS-11); the district forecast centers have an average of four GS-12's each, international aviation would add another 25 or so GS-11's and 12's; this would give a total of about 250. (There are other jobs at the GS-11 grade and higher—Fire Weather, River Forecasting, MIC's, Regional Offices, the Central Office, etc.—but these 250 include the jobs for which the overseas forecasters would have broader qualifications.) We do not know just what the turnover will be in these jobs and we have no sound basis for anticipating the turnover—a few of the forecasters will become MIC's or be assigned to other work; a few will drop out; most are relatively young so that the retirement and "mortality" rates may be low. But suppose the turnover were five per cent each year; this would mean that about thirteen forecast jobs (mostly GS-11) would become vacant each year. Who will get these jobs? Other things being equal, the men who have had the additional experience of overseas forecasting will prob-

ably be considered by the Placement Board to be more broadly qualified.

Obviously, Stateside meteorologists in the GS-9 and GS-11 grades would benefit most directly from overseas assignments since they would probably receive grade promotions upon arrival at the overseas station. While the promotion might not be permanent, satisfactory completion of the minimum overseas tour would mean that, if reduction in grade were necessary due to lack of vacancies, return to the U. S. would be at the top of the grade held previously. The record of accomplishment at the higher grade level, the broader experience gained overseas and the willingness to help the Bureau meet its obligations, will all enhance the returnee's chances for advancement to and beyond the grade held while overseas, as vacancies occur. Although District and International forecasters now in the GS-12 grade would probably have to go overseas and return with no change in grade, they would still gain considerably since the overseas service would increase their opportunities for experience and would, in most cases, improve their standing on promotion panels.

Needless to say, we need good forecasters in New York, Chicago, and other centers, and also in many smaller cities of the U. S. We also need good forecasters at Anchorage, San Juan, Wake Island and other "out of the States" stations. Forecasters should be willing to participate in the overseas program; many will expect, at some time during their career, to be called on to accept a tour of from one to three years at an overseas station. While such participation must be voluntary, we hope that forecasters will recognize their obligation to help the Bureau meet its commitments. ■

Station Tabulation

From time to time, the need for a count of stations of one type or another arises. To meet that need, the tabulations that follow have been prepared as of January 1, 1953.

FIRST ORDER STATIONS

First-order stations are those staffed in whole or in part by full-time classified personnel and such classification does not depend upon the activities performed. WBAS indicates all first-order stations located at airports regardless of the presence or absence of other stations in the area. Since it is difficult in many cases to determine whether a particular functioning group is a separate station or an activity unit of another station, only the usual observing and public service stations with associated activities are included in the figure below.

Region or Area	No. WBAS	No. WBO	Total WBAS & WBO	No. localities with stations*	
1	52	31	83	66	..Includes Silver Hill,WNA
2	62	19	81	69	
3	64	24	88	69	
4	51	24	75	65	
TOTAL in U.S.	229	98	327	269	
5	14	2	16	15	
Pacific	5	4	9	9	
West Indies	3	2	5	4	.....Includes Swan Island
Arctic	0	6	6	6	
Grand TOTAL	251	112	363	303	

*For example, the WBO and WBAS at such places as Memphis, Tennessee are counted as one in this column since they are in the same local area.

In addition to the above observing and/or public service stations, there are the following first-order stations, administrative offices, or activity units: 4 Regional Offices in the States; 1 Regional Office in Alaska; 1 National Weather Records Center; 3 Weather Records Processing Centers; 2 Printing Plants; 4 Research Stations; 1 Radiosonde Reconditioning Center; 2 Factory Inspection Units; 1 Radio Weather Bulletin Unit; 6 Foreign Liaison Offices; and 2 Ocean Weather Project Supervisory Offices.

SECOND ORDER STATIONS

Second-order stations are those manned by observers who are not classified Weather Bureau employees but are certificated by the Weather Bureau. A few of the Supplementary Aeronautical Weather Reporting Stations (SAWRS) are operated on a seasonal basis and may be inactive at the present time. In the last column are shown the synoptic (S), aviation (A), and combination synoptic and aviation (SA) second-order paid stations.

(1)	SAWRS	CAA	S,A or SA
R-1	57	45	13
R-2	64	55	12
R-3	54	61	22
R-4	50	55	40
R-5	9	27	28
Pacific & Caribbean	8	2	0
TOTAL	242	245	115

Not included in above compilations are those stations which are closely related to the Weather Bureau or are supervised or operated by the Bureau, including military stations, Coast Guard stations, and several stations in Central America and the Caribbean area which are similar to second-order paid stations.

Approximately 267 of the first- and second-order stations in the United States make synoptic reports. The following is a summary of the number of stations (all are first-order Weather Bureau except as noted) participating in the various parts of the upper air program.

(2)	Radiosonde	Rawinsonde	Winds Aloft
Continental United States	17	28	141
Alaska	6	7	15
Caribbean Islands	1	1	4
Pacific Islands	4	5	9
Atlantic Ocean Stations	0	5-2/3*	5-2/3*
Pacific Ocean Stations	0	5	5
Cooperative Stations (not Weather Bureau)	7	5	19
TOTAL	35	56-2/3	198-2/3

*One ocean station is manned 1/3 of the time by a ship and personnel of the Netherlands government.

Radar storm detection equipment at 19 locations in the United States is operated by, or in close cooperation with, Weather Bureau first-order stations at these locations. ■

Bureau on Network Video

DURING the past year the Broadcast Television Unit (BTU) of the Central Office has continued to pioneer in the field of mass dissemination of weather information and forecasts through the use of television. The latest development has been Weather Bureau participation in the NBC-TV program "Today" with Dave Garroway. This program reaches 40 network TV stations from Miami to Boston and from Minneapolis-St. Paul to Dallas-Fort Worth five mornings each week between 7 and 9 A.M. (EST and CST). By this means the latest official weather story and picture are brought to millions of people.

The method of presenting the weather story as a part of the early morning television program is unique. The listener sees Mr. Garroway in New York and hears him discussing the weather with Mr. James Fidler (head of the BTU) in Washington, as the latter directs Mr. Garroway in drawing a simplified weather map. The presentation is based upon a reasonably accurate but "popular" translation of the information on latest WBAN weather map. The conversation between the two keeps the story at a pace suitable for general understanding, while presenting a synoptic picture that is acceptable to the public, although it is, of course, not complete from the standpoint of a meteorologist. In addition to the general synoptic picture and summary, a very general forecast is indicated. In conjunction with the list of current weather and temperatures seen at other times during the program, this generalized forecast provides weather information comparable to that generally available in metropolitan daily newspapers.

The purpose of this work is to relieve the pressure for local TV presentations, especially at Weather Bureau offices with small staffs and from TV stations in areas where there are no Weather Bureau facilities. This method of general presentation, allowing opportunity for the use of the local and state forecasts at the station breaks, has had favorable response from the public and the industry alike. As in the case of a previous test with nationwide radio presentations, it is not intended that the network program shall in any way detract from or supplant an effective local weather service, but rather that it should enhance and supplement such service.

All facilities at the Central Office together with the WBAN Analysis Center, Extended Forecast Section, and the Severe Weather Unit are utilized by the BTU in the preparation of its material; and every effort is made to coordinate the general forecasts with the latest state forecasts as received from the district forecast centers via teletypewriter. ■

Meteorological Balloons Are Tender

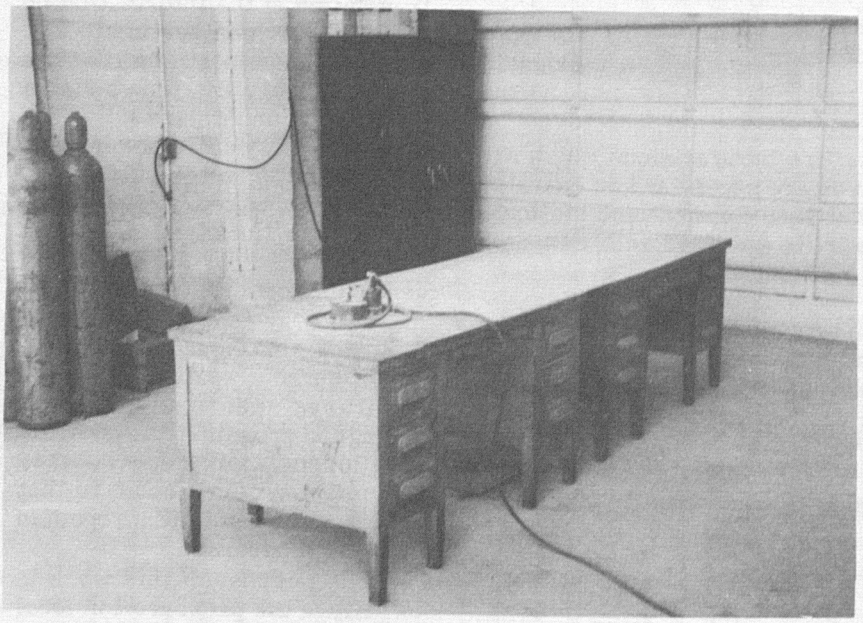
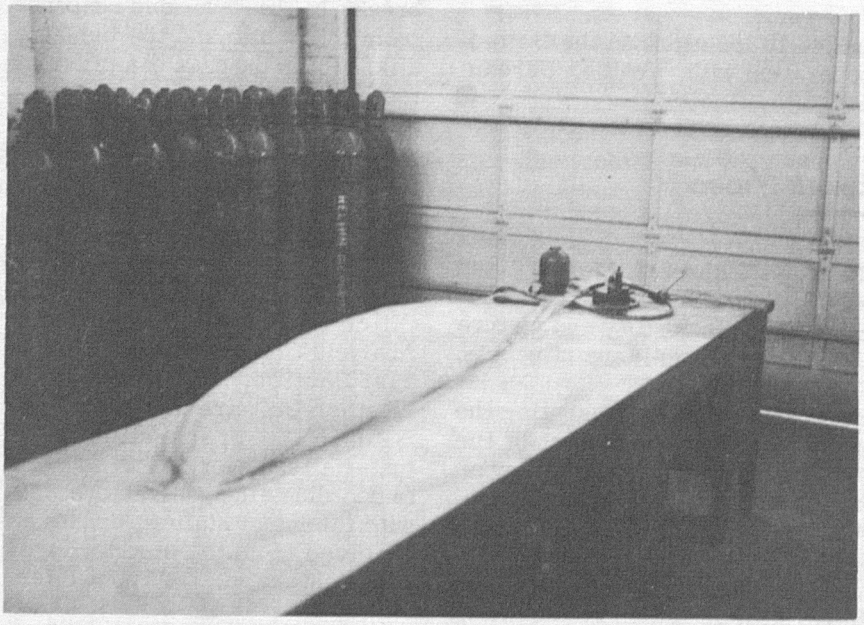


Fig. 1. Two desks set side by side have been covered with tempered masonite which has had its edges sanded round.

Fig. 2. The balloon has been laid on the table and the inflation process has just begun.



METEOROLOGICAL sounding balloons are extremely tender, especially when in a softened condition after the heat treatment and, therefore, careful handling is essential. Observers should wear clean, soft gloves and should handle balloons only by the necks. Balloons should not come in contact with grease, oil, abrasive material, or rough surfaces. Even the oil from an observer's hands or hair can result in a balloon's bursting prematurely.

In a small inflation shelter a balloon is exposed to many of the hazards just mentioned, e.g., rough ceilings, rough spots on exits, sharp objects in room, abrasion from observer brushing past the balloon, oil from observer's hair coming in contact with the balloon while it is being tied. In the large shelters now being used at many raob stations, balloon handling can be held to a minimum by laying the balloon out on a long table, as shown in the illustrations. With such an arrangement, the observer handles the conditioned balloon only while laying it on the table and at release. This procedure is recommended to stations having large inflation shelters. ■

Four-a-Day Rawinsonde Program

EFFECTIVE 0300 GCT, January 1, 1953, a four-daily rawinsonde program, using the rawin set GMD-1, was begun at Silver Hill. Further information on this program will be contained in a later issue of "Topics." ■

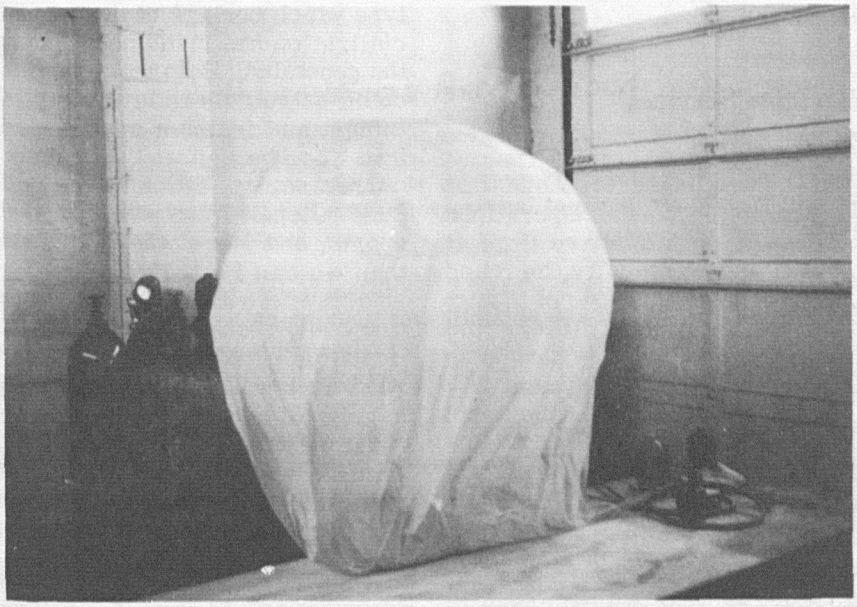


Fig. 3. The balloon is partly off the table.

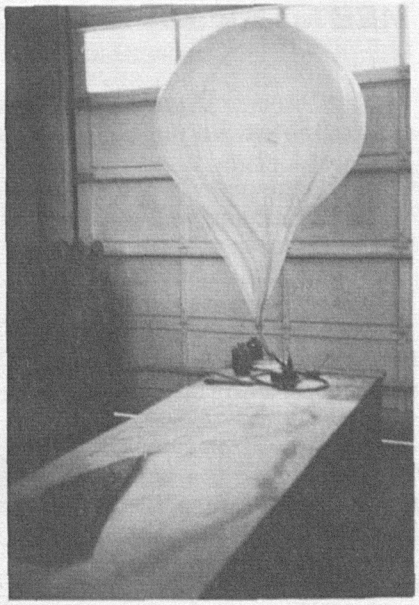


Fig. 4. It is completely off the table.

MAN AGAINST INFINITY

Wake Island Makes an Impression

FOR a long time the Navy has attracted adventurous young men through the slogan "Join the Navy and See the World." In recent years this seems to apply also to the Weather Bureau. A great deal has been written about the advantages of foreign assignments in the Weather Bureau and many folks have taken advantage of them. One interesting phase was recently emphasized in a report by Mr. Gordon D. Cartwright, who arrived in Honolulu just in time to inherit unusual responsibilities in connection with the Wake Island typhoon disaster. The following paragraph is quoted with his permission:

Your comments to me in Washington about Wake being a good place to study astronomy came back abruptly the first night there. It is almost a frightening experience for a newcomer. The island is so small that you can just about see every part of it from any one spot, and even during the day time this fact is always near the surface of your thinking, as you look in every direction out into the Pacific. But when the sun disappears and darkness comes on swiftly as it does in these latitudes, you have the feeling that the island is shrinking to nothing and you are left between the dome of stars—which seem to lower within reach, they are so brilliant—and the sea that roars incessantly over the reef. The practical fact of living on it must finally dispel these queer feelings, but the people who were there the longest said they never got over the fascination of the sky and sea—and this is quite understandable, for the infinitesimal piece of land beneath your feet is as nothing by comparison. You feel that it exists at all only as a matter of chance and that it could disappear on the slightest whim of wind or sea. I'm sure there were grave doubts by many on September 16 that it would hold out against these two forces. ■

REGION ONE

Safeguarding the Taxpayers' Money

DURING recent negotiations for renewal of a service contract, the lessor's representative was endeavoring to justify his claim for an increase in rates. The Weather Bureau representative continued to present our side of the picture as to why the increase should not be allowed. After a lengthy discussion in which he lost some ground, the lessor's representative graciously commended the Weather Bureau representative by remarking that although he represented the lessor in trying to obtain an increase in rates, as a taxpayer, he felt much better about the way we (Weather Bureau) are safeguarding the expenditure of Government funds. ■

MEET THE DIVISION CHIEFS

Division of Administrative Services

ON December 5, 1952, Roland R. Hamann was made Chief of the Division of Administrative Services; he has been acting in this capacity since the retirement in May, 1952, of Mr. William Weber. Prior to assuming his new responsibilities, Mr. Hamann was Assistant Budget Officer of the Bureau. From Junior Observer (equivalent to the present GS-2 level) to Division Chief took not quite a month less than twenty-two years.

Born in Macoun, Canada, on July 19, 1909, Mr. Hamann accompanied his parents when they moved to Minneapolis three years later, and thereafter divided their time between Canada and the U. S. for several years. (Those who know and have worked with him are sure that the decision to accompany his parents was his own, made after a quick but careful weighing of all the available factors.)

After graduating from high school in Minneapolis, Mr. Hamann tried out a number of occupations—some of them simultaneously—before coming to the Weather Bureau as a Junior Observer at Huron, S. Dak., in January of 1931. Among other things, he was a railroad mechanic, a file clerk, a punch press operator, and Minneapolis sales manager for a publishing company specializing in physical development. His interest in business and management began early—before joining the Bureau he was associated with a relative in a retail meat business, managed a baseball team, and at the same time led his own dance orchestra.

In 1937 Mr. Hamann, then principal assistant at Huron, was transferred to Rapid City, and in 1944 he went to the Regional Office at Kansas City as an Operations official. In his spare time at Huron and Rapid City, he found time to pursue his love of music; and, working with college and civic organizations, he served as Concertmaster, Assistant Director, and President of the Rapid City Symphony. The love of Euterpe, however, did not keep him indoors—Mr. Hamann also loved nature in the raw (he at one time was a Deputy Sheriff of Pennington County, S. Dakota; and held a license as an outdoor guide in the national parks), and he is an enthusiastic trout angler and deer hunter. In fact, one of his extra-curricular activities that paid off was manufacturing (tying) dry flies.

Detailed in 1945 to the Management Planning Office of the Bureau, Mr. Hamann had an important part in preparing the basic data on which specifications covering the Bureau's field positions were based; officially transferred to the MPO, he initiated plans and projects leading to the organization of a classification section in the Division of Personnel Management, and, in 1946, became the first head of this section. After classification of field jobs was well established, he moved on to the Budget Office.

"Rol" Hamann is best classified as an example of that emerging type which our age of over-specialization has made necessary: the generalist. He is well grounded on an extremely wide variety of things, and trains a speculative mind on the general sciences; current topics, both national and international; literature; outdoor sports, and more other subjects than we can list. He is equally at home in a church choir, the prow of a canoe, a Canadian blizzard, a lumber camp, a railroad track gang, the violin section of a symphony orchestra, the prize ring (as a referee, by now), a seminar on forecasting, a budget hearing, or a debate on foreign policy.

Although a comparatively young man, he has been with the Bureau through the depression, seen the growth of the aviation service, the World War II expansion with its regionalization, the post-war retrenchment, and the current Korean phase with its defense implications.

Most recent extra-curricular activity has been his installation of his wife, Mable, and his two children, Leah Kay and Freddie, in a new rambler, the acquisition of which was, typically, preceded by a study of the local real estate situation which leaves him practically qualified to open an office.

The net result seems unreservedly to be a man with both the breadth of vision and the physical endurance needed to handle the mass of material coming into the Central Office marked: Attention Administrative Services Division. ■

WB Budget Digest Distributed

The Central Office is distributing copies of the Weather Bureau's Budget Digest for fiscal years 1952-53 to all field stations. Data contained in this document are primarily for the information of Weather Bureau field employees; information from the Digest may, however, be used in discussing Weather Bureau services with the public and other interests. ■

Forecasting a Record Flood

The following was prepared for the Secretary of Commerce to describe an example of outstanding public service by the Weather Bureau during Fiscal Year 1952. It is thought to be of sufficient general interest for reproduction in TOPICS.

LAST April the nation watched a spectacular battle to bolster the levees protecting Omaha and Council Bluffs from the greatest flood of record on the Missouri River. Many factors contributed to the successful outcome of that battle, but perhaps the foremost was the accurate warning by the Weather Bureau, far in advance of occurrence, of the flood stages to be expected. On May 6, Brigadier General D. A. Shingler, Division Engineer of the Missouri River Division of the Corps of Engineers, wrote to the Meteorologist in Charge of the Weather Bureau Airport Station at Omaha:

"I wish to take this means of expressing my appreciation for the extremely valuable assistance obtained from the Weather Bureau in conducting Corps of Engineers activities in connection with the recent unprecedented flood on the Missouri River.

"The official Weather Bureau river forecasts were an invaluable aid for making decisions for evacuation of areas and in the actual conduct of the flood fight. Your early telephone consultations with my staff on interpretation of both river and weather forecasts, and the expediting of the daily river forecasts proved to be extremely helpful. Your fine spirit of cooperation and keen awareness of the effects of the forecasts and the timing of forecast revisions on the flood fighting effort contributed greatly to their success."

The hour-glass constriction of the river at the Omaha-Council Bluffs levee site was only one point along the 1600-mile length of the Missouri that exceeded flood stage during the period. At almost all points along the river from Williston, N. Dak., to St. Joseph, Mo., the crests reached during this flood were the greatest of record. They were forecast accurately five to fifteen days before occurrence. Warning of impending flood danger was issued by the Weather Bureau more than a month before, that is, before it was possible to make accurate prediction of flood height.

Flood damages were inevitable but they were greatly reduced because there was ample time provided by the warnings to take such protective measures as were possible. All along the main stem from Williston to St. Louis not a single life was lost by drowning. Residents of the valley knew days in advance what was in store for them. There was the opportunity for orderly evacuation of people and property. Measures were taken to safeguard fixed installations. In the Williston area alone the dollar value of property saved by flood warnings was estimated at $ 500,000 by the Red Cross. The total saving along the whole valley down to Kansas City was estimated at the June 25, 1952, meeting of the Missouri Basin Inter-Agency Committee at Sioux City, Iowa, to be $ 100,000,000. Compared with this large return on the public investment in the River and Flood Services of the Weather Bureau, the annual cost of the Bureau's river services program for the whole country is about $ 1,000,000. The average per annum cost of these river forecasting and warning activities for each stage forecasting point—of which Omaha-Council Bluffs is but one—is about $ 1,000.

These savings were, of course, brought about by the action and cooperation of many agencies, among them the Coast Guard, the Red Cross and the Corps of Engineers, which marshalled and organized the machinery, the thousands of men and other facilities.

It was fortunate that in the Missouri Basin the Weather Bureau had over a long period perfected its techniques and organization to meet not only the daily river forecasting situation, not only the critical situation, but even the unprecedented flood. Budget limitations still prevent the extension of the same efficient type of operation to the country as a whole, but progress within these limitations continues on all the principal river basins.

The Act charging the Weather Bureau with "the display of ..... flood signals for the benefit of agriculture, commerce, and navigation, the gauging and reporting of rivers" is as old as the Weather Bureau. To meet this responsibility the Weather Bureau has integrated with its meteorological reporting and forecasting service, a river and flood forecasting service. There has been a natural evolution of technique and organization in providing this service, and in the last decade a concentrated effort toward technical and organizational improvement. The effort came to spectacular fruition during the past year.

The source of all flood waters is precipitation, either as rainfall quickly making its way to the river or snowfall piling up until melted by warm winds or rainfall. Much of the possible improvement in forecasting river flow therefore depended on the study of past precipitation and its consequences. These records were available in Weather Bureau files as the result

of years of systematic observations made by tens of thousands of voluntary observers as well as by regular Weather Bureau stations. Storms and snow-melt periods of the past were studied, their characteristics in time and area determined, the previous condition of soil and stream checked, and the subsequent behavior of the river clocked, so as to determine the set of relations that should be applied to any future combination of the same circumstances in order to predict accurately the effect upon the river. This is a simplified statement of the statistical, engineering, and meteorological techniques used in developing river forecasting procedures.

So that the forecaster should be provided with an adequate picture of the conditions up to date, networks of river and rainfall reporting stations were organized, in general reporting river levels and precipitation above certain minimum critical values and manned by observers providing these services for stipends of the order of $50 a year. A program for regular and emergency measurements of the water equivalent of the snowpack was inaugurated.

To make the best forecast, one needs organized past data, current data, special skills of analysis and synthesis, and then the time to apply them. But the best forecast is of no value if it does not reach the user in time for him to profit by it. In the case of flood, inhabitants can be evacuated, goods protected and moved, and levees strengthened if there is sufficient warning. Prompt and complete dissemination of these warnings is essential, and that is best done by the many local Weather Bureau offices at key cities. They are in direct contact with the problem and with the agencies and public to be warned. However, they need their staffs—and even more—to cope with the immediate dissemination problem. They are also providing all other weather services—continuous weather watch, aviation briefing, general weather forecasting—and the peak demand on all these services usually comes at the same time. Furthermore, no such office can be expected to take responsibility for so large a basin as the Missouri, the upper Mississippi, the Ohio, or the Columbia; yet the basin is best understood as a complete unit. It was from such thinking that there developed the present Weather Bureau river and flood forecasting organization for major basins. Special offices were established as River Forecast Centers, as at Kansas City for the Missouri River, staffed by men specifically trained in river forecasting procedures and their development, responsible for providing forecasts all along the streams to the local Weather Bureau offices for adaptation to the needs for warning in their assigned districts and for dissemination.

The River Forecast Center concentrates on the river watch and on the extension of the forecast, in terms as specific as the data permit, as far in advance as possible. They have time, in periods of low water, to develop, to check, and to refine their procedures. Every river change as it is reported is a further check on procedures—and even on the basic facts because the river channels and the flood plain are always undergoing changes, natural and man-made. Book is kept on the daily precipitation within the basin, so that the state of the soil and of ground water, as well as of the river, are known continuously. The latest development at hand this past year was an electronic flood routing analogue which eliminates extensive and tedious manual computations. Within a few minutes, this machine can automatically and graphically portray the changes in flow at the lower end of a portion of the river while the operator follows with a stylus the graph of flow at the upper end.

The big test at the Kansas City River Forecast Center was this year's record flood on the Missouri. It developed in April but it had its beginning in December when the river froze and snow began to pile up in the Dakotas. Reports along the river were collected by the local Weather Bureau offices and funnelled into the River Forecast Center while national teletypewriter circuits brought an hour-by-hour account of nationwide weather data and forecasts. A continuous account was kept of the water equivalent of the growing snow pack and estimate made of how it would affect the magnitude of the spring rise in the rivers when it melted. It could melt slowly or suddenly, so that the whole weather situation—spring rainfall as well as spring temperatures—had to be watched. This was to be a snow-melt flood but record accumulations of snow do not necessarily mean flood. In the West, for example, there were heavy accumulations of mountain snow this year. On the Sierra Nevada range, the snow depth by spring broke all previous records; but the Weather Bureau forecast no snow-melt floods on the major rivers of the region and there were none. In the Salt Lake City area, on the other hand, the Weather Bureau gave a two-month warning of the heavy and unusual flooding which occurred. The history of the river must be known and the melting weather must be watched.

The watch on the Missouri was manifold. Weather forecasters at Chicago and Kansas City made daily forecasts of precipitation and temperatures up to 48 hours in advance. Twice weekly

five-day forecasts were issued, and twice monthly a 30-day outlook of precipitation and temperature was made by the Extended Forecast Section in Washington. Along the Missouri, the local Weather Bureau offices—Bismarck, Omaha, Sioux City, Kansas City—responsible for alerting the public on the river situation in their districts, watched and had frequent discussions with the forecasters at the River Forecast Center at Kansas City. River district offices along the Mississippi kept the same kind of watch in their river districts and made frequent contact with the River Forecast Center for the upper Mississippi at St. Louis.

On February 29, one month before any flooding occurred on the Missouri, a first advisory bulletin was issued. It warned of the possibility of "serious flooding"—the heavy snow pack was still intact and flooding was still only potential, its magnitude depending on meteorological conditions that still could not be foreseen.

Another bulletin was issued on March 18. Winter temperatures were hanging on, little snow had melted, and more had been added. But the potential was serious enough to require general warning, and the repeated warning was the signal for preliminary preparations to meet the threat. As Col. Wright Hiatt, Office of the Chief of Engineers, wrote in the May 1952 issue of Civil Engineering: "Based on predictions furnished by the U. S. Weather Bureau, the Army Engineers, along with other responsible Federal agencies, took necessary steps, beginning early in March, to prepare for the potential floods. Preparations included the inspection of existing flood control works, planning of emergency flood-fighting operations, assembly of supplies, material, equipment, and tools for the floodfight, and the coordination of all preparations with state and local interests."

It wasn't until the end of March that the weather map indicated the rapid warming that had been feared. Temperatures were to rise to the fifties and sixties in eastern Montana. Computations of snow melt could be made now, and flood crest forecasts for all points along the Missouri from Bismarck to Omaha were released on March 31 and April 1. This was only a few days before the crest at Bismarck but 18 days before the crest at Omaha. As anticipated conditions became observed conditions upstream, as melting continued, and as levees were held or abandoned or as channel breaks occurred, the forecasts were continuously checked and revised if necessary. The two-to-three week advance notice of flood crest was maintained or bettered all the way downstream to St. Louis, below which the flood finally dissipated.

The River Forecast Center at Kansas City (for the Missouri) and at St. Louis (for the middle Mississippi) were the hubs of the Weather Bureau river forecasting activity, maintaining all-out watch to the maximum of their capacity, but the local officials along the river were the means of continuous contact with the public, industry, and agriculture, and agencies like the Army, Red Cross, Coast Guard, Civil Defense, and city and State emergency organizations. Three of the offices along the river—Sioux Falls, Omaha, and St. Joseph—were themselves forced to evacuate by the flood waters but service to the public was maintained from emergency quarters on higher ground. A typical comment by a local recipient of the service comes from the Mayor of Sioux City, Iowa, who wrote in a letter to the Chief of the Bureau:

"Sioux City has just recovered from the effects of a very disastrous flood—the worst since the year 1881. That the tragedy was not much worse is due to the loyal and tireless work of many Sioux Citizens, including employees of this city, the Iowa National Guard, the Red Cross and other organizations.

"It is, perhaps, a mistake to endeavor to pick out any one person for praise in such a situation, but we cannot refrain from bringing to your attention the particularly fine work of your local weather observer here, Mr. _____. Mr. _____ called the writer early in the morning of April 7th or 8th advising that the flood was gaining impetus in the upper reaches of the Missouri River as it courses through Montana and the Dakotas. He predicted certain stages of the flood which were to be experienced in Sioux City within the following week or so and he continued to call my office and that of the Disaster Committee and the Red Cross daily and his prediction turned out to be accurate almost to the degree of being uncanny. On every hand we have had the most generous praise of Mr. ____'s hard work and accuracy.

"We want your department to know that he is entitled to every praise for the fine, efficient work which he performed."

These words of praise apply equally well and almost without exception to other offices on the flooded sections of the river and to the many cooperating agencies, local and national, who worked together to carry the flood warnings into practical use. ■

Standards for GS-7 Meteorologists

ALONG with the delegation of authority to Regional Offices to make promotions through GS-7, it was necessary for the Central Office to pass on to the Regional Offices qualification standards to be used. The basic qualification standards, of course, are those of the Civil Service Commission and we plan to publish them later, possibly as a part of the Weather Bureau Manual. These basic qualification standards are minimum standards and will not be detailed here; however, we believe the following elaborations might clarify certain features incidental with our promotion policy.

In selecting candidates for GS-7 meteorologist positions, the greatest care is taken to determine the level of technical and scientific knowledge and ability of the candidates. The important thing is that the employee meet a reasonably high standard of technical or professional knowledge and have the ability to apply this knowledge to the practical work of the Bureau. To evaluate the ability and knowledge of a candidate is difficult, but the following have been set up as acceptable evidences of ability:

Recognition in official efficiency ratings by two or more different Meteorologists in Charge (or higher supervisors), preferably at two or more different stations, as an employee with noteworthy ability, or a general recognition among his associates as an unusually able employee.

The following are considered evidences of knowledge:

*1. A record of creditable research papers or other tangible evidence of technical competence in meteorology, or

2. Satisfactory completion of courses majoring in meteorology at the professional level (usually a bachelor's degree), or

*3. College courses in mathematics through calculus, a year's course in college physics (not a survey course), plus 20 semester hours of meteorology which has included 3 semester hours in synoptic meteorology, and laboratory work in synoptic and forecasting, or

4. A passing grade in an appropriate competitive Civil Service examination, or

5. As qualified through the observer-briefer examination.

The one year of professional experience required for the GS-7 grade does not necessarily mean that the employee must have one year of service in a professional grade. Services creditable as professional experience are pilot briefing and other public services in which the employee actually engages in more or less independent work at the professional level. Meteorological Aid employees on assignments where such professional participation is not possible, but who qualify otherwise, may be offered transfer, when appropriate and feasible, to a station offering professional level experience for at least a year before they may be considered for promotion to GS-7.

It is our goal throughout the selection and promotion process to advance the best qualified and most promising candidates into the professional grades. Merely meeting the minimum requirements is not sufficient to get promotion if, at the same time, there are other employees who have qualifications which exceed the minimum requirements. ■

1 HOLIDAY = 1 STATION

"Reprogramming Existing Resources"

WHEN Aunt Mathilda drops in for a surprise visit, and you have to show her the town, or when the family auto needs repair, you are apt to say to your spouse, "We'll have to figure something we can do without to get our budget back on even keel."

When an unexpected and unavoidable expenditure is required of a Government agency, it must do almost the same thing, although the process is generally termed "reprogramming existing resources." In the Weather Bureau this is a continuous operation, because unforseeable expenditures are required almost daily. And the Bureau, like all other Federal agencies, must operate on a cash-and-carry basis; unlike the private citizen, it cannot pay for things on a down-payment-plus-installments plan.

An example of the type of thing we are talking about came in December, 1952, when the day after Christmas was declared a holiday. The extra holiday pay required for employees who had to work that day came to approximately $30,000—equivalent to the cost of operating a 5-man station for a full year. ■

* Cases of outstanding employees having fewer credits in the various subjects shown in Item 3, and all cases of employees attempting to qualify under Item 1, will be reviewed in the Central Office for evaluation and decision.

Out but Not Down!

F. EUGENE HARTWELL, who retired as OIC of the San Juan station in 1935, sent New Year's Greetings to the Bureau on a post card bearing a color photo of the Vermont State Capitol, at Montpelier, with the following message:

"Readers of TOPICS may be interested to know that, in my eightieth year, I am representing my bailiwick in the 1953 Vermont Legislature."

In the "Alumni Issue" of TOPICS (September, 1949), Mr. Hartwell describes the earlier years of his retirement, which seems to have been as busy as the years that preceded it. ■

RETIREMENTS

Miss Lula A. Ehringer

AFTER having completed 34 years and 5 months of service, all of which was in the Central Office, Miss Lula A. Ehringer retired from the Weather Bureau on December 31, 1952, at the age of 60. At the time of her retirement, she was Chief of the Fiscal Section, a position she had held since February 1945.

Miss Ehringer was born in Bennettsville, Indiana, and came to Washington in August, 1918, to begin her Weather Bureau career as Clerk-Bookkeeper in the Central Office. By attending school during her off-duty hours, she obtained her degree as Bachelor of Commercial Science in 1925 from the Southeastern University at Washington and her Master's degree from the same university two years later. During the next few years she progressed rapidly from Clerk to Junior Administrative Assistant to Administrative Assistant and, in 1945, to Administrative Officer in charge of Fiscal Section. Her work in guiding the Fiscal Section and devising methods and procedures for handling the Bureau's expanding fiscal program has been outstanding in many respects.

Miss Mabel G. Fillmore

MISS MABEL G. FILLMORE retired on January 29, 1953 after 34 years and 6 months of Government service. All but two years and 8 months of this was in the Central Office of the Weather Bureau. At the time of her retirement, she was an assistant in the Technical Investigations Section of the Station Facilities and Meteorological Observations Division, where she assisted with the preparation of barometric and other tables used throughout the Bureau. When she was first employed by the Bureau on May 2, 1921, she was assigned to the Aerological Division where she assisted with computing, tabulating and summarizing of "kite" data, followed later by work on "airplane" and other upper air data as methods for obtaining this data progressed. Her entire Weather Bureau career has been devoted to work of this nature, which she performed in an outstanding manner in respect to the speed and accuracy with which she performed her assigned tasks as evidenced by the "Excellent" efficiency ratings which she earned year after year.

She was born in Boxboro, Mass., on September 28, 1883; attended Hale High School in Stow, Mass., where she was valedictorian of her graduating class. She later attended normal school at Framingham, Mass., and after graduation taught school for a number of years prior to beginning her Government career with an appointment on August 23, 1918 to the War Department in Washington, D. C. She remained with the War Department until her transfer to the Weather Bureau on May 2, 1921. Miss Fillmore's new address is 88 Farnham Street, Belmont, Mass.

Marshall J. Chambers

MARSHALL J. CHAMBERS, 56, voluntarily retired on December 16, 1952, after having completed 32 years and 6 months of continuous service with the Weather Bureau. At the time of his retirement he was Assistant Chief of the Facilities and Observations Section at the Fort Worth Regional Office, a position he had held for the past three years. Immediately prior to that he served as senior Liaison Officer at the Atlanta Regional Office.

Mr. Chambers was born December 24, 1896 at Ogallola, Nebraska, and grew up on a farm. He attended school at Lander, Wyoming. During World War I he served three years in the 148th Field Artillery. He entered the Weather Bureau at Cheyenne, Wyoming, on June 1, 1921, as an Assistant Observer and later served at Denver, Santa Fe, Albuquerque, and Arlington.

In May of 1948 he was given an employee award for a suggestion for improving forms procedures.

Mr. Chambers may be reached at 2916 Louise Street, Fort Worth 12, Texas.

Charles M. Johnston

ON January 2, 1953, Charles M. Johnston, bindery worker in

Kansas City Reproduction and Printing Unit, retired because of illness. His retirement brings to a close nearly 29 years of service with the Bureau.

Mr. Johnston began his career at St. Louis in 1924, and continued there until June of 1949, when, upon the closing of the printing office at St. Louis, he accepted transfer to the Kansas City unit.

His address on retirement is 1528 Locust Street, St. Louis, Missouri.

William G. Staderman

WILLIAM G. STADERMAN, 61, foreman of the pressroom at the Central Office, retired on October 26, 1952, after nearly thirty years in the Printing Section of the Bureau at Washington.

"Big Bill," as Mr. Staderman was known to almost everyone in the Central Office, entered the service as a lithographer in 1923. He was a veteran of World War I, in which he served as a "sapper" in the A.E.F., and he was a member of the Disabled American Veterans.

A few months before ending his Bureau career, Mr. Staderman also ended a lifelong bachelorhood; he and his bride can be reached at 3412 Eads Street, N. E., Washington 19, D. C. ■

DEATHS

Frank H Ahearn

FRANK H. AHEARN, WBO Philadelphia, Pa., died December 26, 1952, after a short illness following a heart attack earlier in the month.

He was born in Burlington, Vermont on August 12, 1888. After graduating from High School in that city, he entered the Weather Bureau as a Messenger Boy in the Burlington Office in the summer of 1906. The salary was $360 per annum, and the Job Description would have included such items as tending the furnace in the Weather Bureau Building during the winter months and cutting the grass during the summer in addition to the daily task of hand stamping the forecast cards and delivering copies to business houses in town. All employees at Burlington were expected to be qualified telegraphers, as the observations were sent by direct wire from the Weather Bureau Office.

After qualifying in this branch of the work and passing the regular Civil Service examination, he was promoted to Assistant Observer at $600 per annum and relieved of his furnace and grass-cutting duties.

In 1916 he was transferred to Richmond, Virginia and became experienced in Section Center work. However, his love for telegraphy never left him and he completed a short tour of duty at Hatteras, North Carolina before coming to Philadelphia in 1919.

At that time a sub-station was maintained at the Philadelphia Bourse for marine work and he made many friends among the maritime interests while on duty there. He succeeded Mr. George Mindling as first assistant at Philadelphia in March 1924, and soon became a walking "Book of Knowledge" on Philadelphia weather. Largely at his request, a telegraph key was left in the office and the daily state forecasts were relayed from the Western Union Office by this method until 1943.

For many years he handled all local court appearances when the records were subpoenaed and was well known by all the judges as well as attorneys, both for his ability to present the data and his Irish wit.

His store of knowledge of the Climatology of Philadelphia and Pennsylvania will be missed by those who had contacts with him in their daily work.

His main interests in life were weather, baseball and his family; he is survived by seven children and eleven grandchildren. ■

WEATHER BUREAU

TOPICS

FEBRUARY
MARCH 1953

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Volume 12 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 12 Number 2

$6,000 A YEAR SAVED

Warnings to Radio Stations by Press Wires

IN recent years it has become increasingly apparent that the distribution of warnings to radio stations by telegram was growing inefficient and generally obsolete.

Several years ago the Chicago Forecast Center made a survey in order to determine whether there was justification for the transmission of warnings from the Forecast Center directly to radio stations located in cities where there was no Weather Bureau office. There had been a number of complaints of poor telegraph service and, in some cases, telegrams to remote locations were not delivered until the following day. Several radio stations had even objected to the use of taxpayers' money for the transmission of warnings by individual telegrams when the same warnings were received earlier by press association wires.

The survey indicated that most radio stations received warnings by the press services before the warnings arrived by telegram. Many stations considered the warning service by press wires completely satisfactory for their needs.

Two years ago those radio stations were dropped from the warning lists with their consent and approval. In many states up to two-thirds or more of the total number of radio stations formerly on the warning lists were dropped. No complaints were received as a result of this change and the system has continued in effect, at an estimated saving of approximately $6,000 per year in telegraphic expense. The comments received from the radio stations during the survey seemed to depend on whether or not the stations received forecasts and warnings by direct wire or by relay from some other press circuit. In cases where relays were involved, some delay in receipt of the warnings was possible. Since that time the Associated Press has placed the distribution of forecasts and warnings on a state basis. Each Weather Bureau office in our forecast district which is located in the same city as the principal press association office for its state has been specifically requested to make certain that all forecasts containing special warnings are received by the press association for relay to the radio stations on their circuits.

Few changes have been made in this experimental method in the past two years. The responsibility for the proper addresses being on the warning lists at the Chicago Forecast Center now rests with the local Weather Bureau offices since the inauguration of the county responsibility plan (WB Manual Chapter III-B-15).

I WOULD define pure research as work contributing to our stockpile of fundamental knowledge which a man himself wants to do. It is work undertaken largely because of the scientist's interest in it and the enjoyment he derives from working on it. On the other hand, applied research is work that a man does because someone else wants him to do it. In a sense, pure research is play and applied research is work. ---Lawrence R. Hafstad, in Public Administration Review, Winter, 1951.

CORRECTION

IN the item on "Standards for GS-7 Meteorologists" in the January, 1953, TOPICS, a line was inadvertently omitted. No. 3 in the list of "evidences of knowledge" should read "... plus 20 semester hours of meteorology which has included 3 semester hours in dynamic and 6 semester hours in synoptic meteorology ...."

Travel Reports

AN appreciable number of travel reports prepared by MIC's are being addressed to the Regional Offices instead of Chief of Bureau as prescribed in Chapter I-F-45, Weather Bureau Manual. Each employee when preparing a travel report should review Chapter F-45 to insure that his report is prepared in accordance with correct instructions.

The Weather Bureau's Principal Accomplishments in '52

This is installment No. 2 of the resume, begun in the January 1953 issue, of the Bureau's progress last year. Still to be published are sections on Interagency Cooperation, Facilities, and Administration.

SERVICE PROGRAMS

The TREND toward more extensive utilization of the daily and extended weather forecasts by commercial, industrial, and agricultural interests continued upward during 1952. While the giving of service in itself is not outstanding, the efforts on the part of all field offices to provide the best possible service with limited staffs by utilizing the medium of press, radio, television, etc., were noteworthy. Military requirements continued to place heavy demands on the Bureau's facilities. Notwithstanding, the Bureau was able to effect a number of improvements in its existing facilities and to broaden the scope of its public service programs. A total of 175 field offices are now equipped for direct radio broadcast over more than 460 commercial radio stations. A recent survey on the automatic telephone forecast service, now operating in ten cities, showed over 130 million calls during the year and a new daily record of 374,781 completed calls was established at New York City on June 26, 1952.

Although warnings of severe local storms, which at times were designed to include tornadoes, have been published by the Weather Bureau for many years, it was not until March 1952 that the 12- to 24-hour forecasting of tornadoes was begun specifically as a regular service throughout the country. This step was taken primarily as result of strong public demand in Oklahoma and agitation in the press. Because of the technical difficulties in forecasting tornadoes with sufficient accuracy, the service still has its experimental aspects.

This was followed by the routine issuance of a "round-up" of severe weather conditions over the nation to provide the public with up-to-the-minute information regarding the occurrence and progress of destructive local wind storms, hail storms, and tornadoes. Efforts were also directed toward the activation of local storm reporting networks through the cooperation of civic organizations and interested citizens who were given special instructions on reporting storm occurrences to Weather Bureau offices. News releases and specially prepared pamphlets were issued which contained instructions on what to do in the event of a tornado. This educational phase of the network program was aimed primarily at helping to save lives and avert panic during dangerous weather situations.

In the field of aviation, a marked advance was made with a full year's operation of the automatic radio broadcast of aviation weather forecasts in the New York metropolitan area. As a result of this experimental program, it is planned to install similar equipment in several of the larger cities throughout the United States. A major modification of the Bureau's aviation forecast program was placed into effect through the consolidation of the Flight Advisory Weather Service formerly associated with Air Route Traffic Control Centers of the CAA, and Aviation Forecast Centers. The new arrangement provides for 26 Aviation Forecast Centers located in the same cities with Air Route Traffic Control Centers, but they are equipped to furnish more detailed information for aviation interests. Combining the functions of these two programs permitted the diversion of approximately $ 60,000 to the maintenance of other essential programs. In order to improve pilot understanding of available weather services and to describe how to use them, a booklet on this subject was published and is available for distribution through the Government Printing Office.

International aviation received its share of improvement as weather reporting procedures were revised and additional forecast responsibilities were assigned to New Orleans where responsibility was assumed for the issuance of route forecasts for international flights arriving in or departing from all the Gulf states with the exception of Florida, which is handled by Miami. The international forecast office at Chicago was given additional forecast responsibility on the routes connecting Chicago with Canada and Newfoundland. The Weather Bureau also participated in the provision of international type meteorological service to two test flights of Scandinavian Airlines on the Trans-Arctic route -- Los Angeles-Edmonton-Thule, Greenland-Copenhagen, Denmark. Eighteen international aviation forecast centers provided written and oral flight briefing information for more than 7,000 transocean flights per month.

Major progress was made during the year on the installation of facsimile recorders connected on the national facsimile circuit at Weather Bureau offices. Approximately 50 field offices now have this equipment over which

plotted and pre-analyzed charts prepared in the Central Analysis Section in Washington are transmitted. Much duplication of charting and analyses work is avoided through the use of facsimile equipment; however, as installation costs are relatively expensive, a reduction in personnel at field offices is required before installation can be accomplished.

Specialized forecasts for agricultural activities were highlighted by a program designed specifically for cotton farming operations from the planting stage through harvesting. Extended weather forecasts for periods up to 30 days became increasingly useful to business and agriculture interests, and brought forth much favorable comment from using agencies. During the year 30-day forecasts on a routine basis were inaugurated for use by the United States Navy for its activities in the Mediterranean Sea. A series of average monthly weather charts for the surface and upper air levels over the Northern Hemisphere were published for use in aviation planning, meteorological research, and in forecasting.

Although river stage forecasts are issued regularly for about 1,000 locations on the principal rivers, continued development of procedures and tools for more exact and timely warnings was highlighted by the Bureau's performance in the record Missouri River flood in April 1952. General warnings were issued more than a month in advance, and special stage forecasts five to fifteen days in advance, thereby enabling evacuation, removal of goods, and levee protective measures. The electronic flood routing analogue now completing its first year of operation at all seven river forecast centers proved to be quite helpful in forecasting flood stages in the Missouri Basin.

A program of daily observations of the water equivalent of snow pack inaugurated this year was also of great assistance. Newly developed river forecast procedures were applied to additional basins in the forecast areas of Portland, Oregon; Tulsa, Oklahoma; and Harrisburg, Pennsylvania; and a new center at Knoxville, Tennessee, began natural flow forecasting in the Tennessee Valley Authority area. Aerial reconnaissance of snow cover as an aid in the forecasting of snow melt was conducted for the Columbia River Basin with the cooperation of the Air Force. The center at St. Louis began routine forecasting of minimum flow on the Mississippi, up to a month in advance, for navigation purposes.

Water supply forecasts for the period to September 30 were issued monthly from January through May for 340 points in the western part of the United States. One of the highlights of this activity this year was a within 2% forecast of peak flow on the Columbia River. Negotiations were completed for the Weather Bureau to publish in its bulletin next year the water supply forecasts of the Soil Conservation Service and of the California Division of Water Resources with prior coordination of the forecasts and with the ultimate aim of combining data, methods and facilities to improve the utility of a joint forecast. Two new river stations were authorized in a program to improve the hydrologic service in Alaska; and a program is underway to establish about 100 stations to improve the river reporting networks within the United States. An extensive report on the hydrologic and meteorologic features of the Kansas-Missouri flood of July 1951 was published, and work is well underway on a final report on the April 1952 Missouri River flood.

Owing to exceptionally high levels of the Great Lakes, a pilot study for long-range forecasting of lake levels was begun as a part of the more extensive study by the Lake Survey of the Corps of Engineers. Late in the spring all stations on the lakes were alerted to the dangers of high water and the occurrence of storm conditions, and special attention was given to methods and procedures for issuing timely warnings to business interests and residents along the lake shores.

The study of evaporation from Lake Hefner, Oklahoma, was completed, demonstrating the possibility of computing lake and reservoir evaporation from available meteorological data. The technique was used in the preparation of evaporation estimates for San Francisco Bay and the Panama Canal for the Navy Hydrographic Office and in generalized evaporation estimates for the New England-New York Inter-Agency Committee. The Bureau's observational evaporation program was intensified by equipping 24 stations to record the water temperature in standard evaporation pans. For use in construction planning by the Bureau of Reclamation, design estimates of precipitation and flood producing conditions were prepared for projects on the Snake River in Idaho; Little Truckee and Carson Rivers in California; and Blue Lake in Alaska. Similar estimates were prepared for projects for the use by the Corps on a Lake Okeechobee, Florida project. A supplement to the previous year's study of snow loads was prepared for the Housing and Home Finance Agency.

An outstanding accomplishment in the processing of weather records largely for climatological purposes was the establishment of a National Weather Records Center at Asheville, North Caro-

The Ground Observer Corps

The following announcement was received from the Department of Commerce:

The Secretary urges that Commerce Department employees volunteer for service with the Ground Observer Corps of the United States Air Force.

The Ground Observer Corps is comprised of civilian volunteers who form an integral part of our Air Defense System. It is the job of sighting and reporting aircraft that is not detected by radar. The importance of this job can hardly be overestimated when we realize that there are still some gaps in our radar screen and that radar alone cannot always give adequate protection against a low level attack.

You can become a member of this Civilian-Military defense team by volunteering to serve at either an observation post where you will assist in spotting and reporting aircraft, or at an Air Force Filter Center where you will help to plot and track the course of unidentified aircraft. These will then be promptly intercepted and identified by our fighter aircraft.

You are reminded that Russia has aircraft and the atomic capability to launch a tremendously destructive sneak attack on this country. Our ability to meet this threat is in a large measure dependent on the enthusiastic support of the Ground Observer Program by patriotic Americans.

You are urged to volunteer at your nearest Office of State Civil Defense or United States Air Force Filter Center and to give wholehearted support to this program, the success of which means so much to our safety. ■

11,756 Substations

A COUNT of Weather Bureau substations as of January 1, 1953, shows there are 11,756 substations in the United States and its possessions. A substation is an installation attended by part-time personnel who perform other than synoptic or aviation services. These substations may be divided into the following classes according to whether or not the attendants are paid by the Weather Bureau.

In Continental United States	
Paid	3,151
Non-Paid (cooperative)	6,562
Associate (substations not controlled by WB but whose data are processed at WB expense)	1,507
In United States Possessions	
Paid	2
Non-Paid (cooperative)	332
Associate	202
Total	11,756

lina. At this center operating procedures have changed from the earlier diffuse and relatively uncoordinated efforts carried on at hundreds of field stations to a centralized system utilizing modern machine facilities for servicing and analyzing meteorological data. While the National Weather Records Center is under the direct leadership and supervision of the Weather Bureau, it is sponsored jointly by the Air Weather Service of the U. S. Air Force, the Navy Office of Aerology, and the Weather Bureau. Records, equipment, publications, and facilities formerly scattered throughout the United States were brought together at the Records Center during the year.

Whereas the National Weather Records Center serves as the ultimate collector and processor of climatological data, the Weather Bureau also operates three smaller Weather Records Processing Centers to serve the Bureau's field offices in the more immediate purposes of maintaining quality control of the weather observational program and the preparation and publication by machine of routine current monthly and annual summaries for individual stations and by states. In order to meet the requirements of civil and military agencies, it is necessary for the WRPC's to process nearly 5,000,000 hourly and 6-hourly observations received from 518 airport stations; and another 3,500,000 daily weather observations contributed by the more than 10,000 cooperative observers reporting to the Bureau, most of them without reimbursement. Approximately 300 monthly and annual local bulletins containing climatological data are published and distributed. More than half of these bulletins are mailed to paid subscribers.

To aid in the development of the Bureau's climatological program, the first of three Area Climatologist positions was established late in the year. The incumbent of this position will assist the Climatological Services Division and Section Directors in his assigned area in the development of climatological analyses to meet service requirements; to serve as technical consultant for Weather Bureau-university cooperative climatological projects; to assist Section Directors and Weather Records Processing Centers on problems involving quality control of records; and to assist and advise regarding climatological requirements of inter-agency basin committees working in cooperation with Area Engineers of the Hydrologic Services Division. Through these contacts, it is believed that climatological data can be made more useful to agriculture and industry. ■

Thirteen in Bureau Honored

The Department of Commerce has approved Meritorious Service Awards for thirteen Weather Bureau employees this year. In a ceremony in the Department auditorium on February 16, those employees who were in Washington were presented their awards by the Secretary of Commerce and the other employees received theirs by mail. Each employee received a silver medal, a lapel pin, and a certificate citing the reason for the award.

Mr. Dean Blake, formerly MIC at San Diego and Miss Lula Ehringer, formerly in charge of the Central Office Fiscal Section, both of whom retired this year, received their awards for the outstanding competence with which they carried out their duties and responsibilities over a period of a number of years.

Mr. Louis Harrison, Chief of the Technical Investigations Section of SF&MO was given his award because of the enormous volume and high quality of work consisting of newly designed scales, meteorological tables and graphs, and technical reports which he accomplishes and for his service on a number of important technical committees of the World Meteorological Organization.

Mr. Sherwood Jones' award was for the unusual effectiveness of his work as Substation Inspector for North and South Carolina, resulting from the time, thought, and effort which he regularly devoted to his work in excess of what is normally expected. His station is Raleigh.

Mr. Robert List of the Scientific Services Division, Central Office, was given an award for his very valuable contribution to the science of meteorology in the form of a complete revision of the Smithsonian Meteorological Tables.

Mr. Paul Miller of the Plans and Program Management Office, Central Office, was approved for an award because of the major accomplishment represented by his work in planning and implementing the reorganization of the Aviation Forecasting and Flight Advisory Weather Services.

Mr. Leonard Olson's award was for the key part he played in the success of the automatic radio dissemination of aviation weather forecasts to satellite airports in the New York metropolitan area by voluntarily giving his own time and knowledge to the solution of electronic and other problems which arose.

Mr. Eugene Smith's award was for his superior performance as Observer in Charge of the St. Paul Island, Alaska, station, for three and a half years in improving both the standard of the observational program and the physical equipment of the station despite the very difficult supply, climatic, and other problems.

Mr. Gilley Stephens, now CAM at Memphis, received his award for extremely competent performance of his numerous duties as MIC at Dayton, Ohio, over a period of several years.

Mr. Karl Stettler, recently transferred to Nome, Alaska, was given his award for extremely competent performance of his duties as Observer in Charge in Galena, Umiat, and Barrow, Alaska, over a two-year period, developing and maintaining above average station programs despite the very difficult problems at these remote stations.

Mr. Joseph Strachila of Seattle was selected for an award because of extremely competent performance of his duties as Observer in Charge in Ketchikan, Alaska, from 1942 to 1948 and as Principal Assistant in Annette, Alaska, from then until 1952.

Mr. Ivan Tannehill's award was for the many contributions he has made to the science and technology of meteorology, his authorship, and his extremely competent performance of his numerous responsibilities as Chief of the Synoptic Reports and Forecasts Division.

Mr. R. Hanson Weightman, Chief of the Station Facilities and Meteorological Observations Section of the Central Office until his retirement last August, received his award because of the exceptionally high sense of the responsibilities of public administration and service which characterized his work throughout his 51 years of service. ■

Tornado Motion Picture Available

The tornado that struck the town of Corn, Oklahoma, in 1951 is shown in a 16 mm. motion picture, copies of which are available on a loan basis for educational purposes (but not for commercial use). The film, with a running time of about four minutes, shows the tornado approaching the town and portrays the resulting damage. A written statement accompanying the film contains details about the tornado's 15-mile path of destruction.

The picture is not only useful for educational purposes, it can also be shown at civic meetings to arouse interest and secure cooperation in the establishment or reactivation of severe local storm warning networks.

Requests for use of the film should be addressed to your regional office and should be made as far in advance as possible. ■

"If There Is Anything Else . . . ."

Cliches can be as dangerous as the gun that "is not loaded." A Central Office official points to one such here.

ONCE upon a time a kind-hearted gentleman, in an effort to be helpful, conceived the happy idea of ending a letter with the sentence, "If there is anything else we can do for you, please do not hesitate to call upon us." Obviously this sentence was intended for use in a special case for an addressee who was hesitant by nature and who, after long and deep communion with himself to overcome his timidity, had written a letter and asked for something or other. The thing to do, of course, was to give him assurance that we were willing, even anxious, to be of further service. This idea caught on and the expression has become common.

There is one danger. The recipient of the letter might get the impression that we have nothing to occupy our time and, like a young lawyer who has just hung out his shingle, are highly pleased to have a customer and are afraid he will get away from us. Then again, we may be wrong, and the addressee may not be timid at all. In fact, he might turn out to be a brush salesman, an auctioneer, or a professional wrestler.

Without any trouble at all, we can carry the "Please do not hesitate" stuff entirely too far. There are cases where it is not appropriate. For example, most people would agree that a note to the Internal Revenue Bureau, like that quoted below, would be slightly out of order:

Bureau of Internal Revenue
Corner Hitax and Greedy Ave.
Chicago 21, Ill.

Gentlemen:

Enclosed please find my income tax return and check for $1,695.21.

If there are any other little items on which I can make payment to your Bureau, please do not hesitate to call upon me.

Yours very sincerely,

Richard Roe
Corner Bankrupt and
Starvation Streets,
Poverty Junction, Ill.

Such a letter would bring a ray of hope to the office of the collector and encourage him to go forward with his difficult work of collecting funds for the United States Treasury. But it could be carried too far.

We have had letters from individuals who said that the weather forecasts are always wrong and it is a mistake for Congress to appropriate money for the maintenance of a Weather Bureau. It is respectfully submitted that in these cases we are quite right in formulating a courteous reply but it is not entirely appropriate to close with, "If you have any further criticisms, please do not hesitate to write." Don't worry; they won't. We will have to use discretion.

It is necessary, to be sure, to find some way to close a letter, and here is the rub. It is not proper to say, "You are lucky to get this much and we hope you will never write again." It is equally inappropriate to say, "We are always willing to furnish information, but please do not go to any trouble writing for more." Maybe the best plan is to bring the letter to a close without any effort to influence the future correspondence of the person who wrote the letter.

If you think the author of this note is wrong, please do not hesitate to write and tell him so. ■

Recent Facsimile Developments

A NUMBER of changes have recently been made in the schedule of transmissions on the national facsimile circuit which serve to increase the usefulness of facsimile equipment in normal station operation. These changes grew out of a conference of facsimile users held in Washington last fall. Some of the more important revisions are mentioned below: (For a previous discussion of facsimile schedules and equipment see TOPICS, February 1952, pp 22-23.)

In response to requests by Weather Bureau field offices, three separate composite charts are being transmitted for the first time on the facsimile network. These composite charts present several sets of data on one facsimile chart by using sections much like the winds aloft charts.

At 0956E one quarter of the facsimile chart is used to send a 1230 GMT twelve-hour surface pressure change analysis; another quarter is used for a 1230 GMT twelve-hour minimum temperature chart; the remaining half of the chart, approximately 6 by 18 inches, is used for a Caribbean analysis. At 2156E the same procedure is used except that the 0030 GMT twelve-hour maximum temperature data are sent. A third composite chart is transmitted at 1702E made up of four charts as follows: a twelve-hour surface pressure change chart for 1830 GMT, a twenty-four hour 500 mb. height change chart for 1500 GMT, a freezing-level chart for 1500 GMT combined with a snow depth chart for 1230 GMT, and a Stability Index chart for 1500 GMT.

Additional transmissions of constant pressure charts at 700 and 500 mb. are being made. The 700 mb. Canadian analysis twice a day along with an Atlantic 700 mb. analysis and the 500 mb. Canadian analysis once a day are new charts not previously sent. Winds aloft charts were also adjusted so that levels now sent reach up to 25 thousand feet twice daily.

The list of 34 stations having facsimile equipment printed in February 1952 TOPICS has been expanded considerably. Since that time facsimile has been installed or is on order at the following additional locations bringing the total number of Weather Bureau installations to sixty.

	Installed
WBU	Chicago, Ill.
WBAS	" "
WBO	Cincinnati, Ohio
WBAS	Cleveland, Ohio
WBAS	Denver, Colo.
WBAS	Detroit (Wayne Major Arpt.)
WBAS	Jacksonville, Fla.
WBAS	Kansas City, Mo.
WBAS	Los Angeles, Calif.
WBAS	Memphis, Tenn.
WBO	New Orleans, La.
WBAS	" " "
RWBU	" " "
WBAS	Oakland, Calif.
WBAS	Oklahoma City, Okla.
WBO	Pittsburgh, Pa.
WBO	Portland, Oregon
WBAS	San Francisco, Calif.
WBAS	Tucson, Arizona
	Ordered
WBO	Albany, New York
WBAS	Buffalo, "
WBAS	Burbank, Calif.
WBAS	Cheyenne, Wyo.
WBAS	Helena, Mont.
WBAS	Louisville, Ky.
WBAS	Madison, Wisconsin
WBAS	Missoula, Mont.
WBAS	Tampa, Fla.

For the last year facsimile equipment has been difficult to obtain and installations have necessarily been deferred. We hope that this situation will improve by June or July of this year. As in the past, facsimile can only be authorized at stations where an offset to cover the cost can be realized; in most cases this is through reduction in the authorized complement at the station. A trial plan, discussed in the February 1952 TOPICS article, can still be used. Stations wishing copies of the new facsimile schedule, sample charts or other details concerning this program are invited to write the Central Office. ■

Sectionalized Forecasts

SEVERAL months ago a representative of the Arkansas Associated Press Broadcasters requested that the Weather Bureau furnish a more localized type of weather service for the radio stations in that state. Most of the 44 radio stations in Arkansas are located in cities without Weather Bureau offices and are dependent on the press wire services for their weather information. At the time the request was made the only forecast information carried consisted of the Arkansas "state" forecast.

The Meteorologists in Charge at Little Rock and Texarkana were asked to assist in developing a program that would provide for improved distribution of weather forecasts without, at the same time, increasing current staffs. Proposals developed by this means were discussed with the radio people and the new service was inaugurated on October 13, 1952.

The localized service furnished by WBAS, Little Rock, consists of the following: Twice each day, in the morning and again in the late afternoon, sectionalized forecasts are delivered to the Little Rock office of the Associated Press. These forecasts cover the state in five separate areas; central, northeast, northwest, southwest and southeast. Essentially, the forecasts are adaptations of the state forecast received from the District Forecast Center, each localized to about one-fifth of the state.

After the first two months' experience with the new program, newscasters in Arkansas expressed their enthusiastic support of the service in the following terms: "We're happy about them, they fill a long standing need;" "They are fine, they really fill the bill;" and "They're just what the doctor ordered."

Similar state-wide programs are carried on in Georgia and New Mexico. Localized service programs are also provided in the states with State Service Centers—New York, Pennsylvania, Iowa, Texas and Oregon. A number of other offices provide the press services, for bulk distribution, localized services covering portions of a state. ■

Eastern Forecast Development Director Retires

THOMAS R. REED retired January 31, 1953, after having completed 45 years and 10 months of Government service. With the exception of 2½ years of military service with the Army Air Force during World War I, this entire period was with the Weather Bureau.

At the time of his retirement, he was Director of Eastern Forecast Development with headquarters in Atlanta, a position he had held since its establishment in August of 1950. Prior to that he was for nearly six years the Regional Director of Region II at Atlanta. He went to Atlanta from an important war-time assignment as official in charge of the Weather Bureau activities at Honolulu, where he saw the December 7, 1941 attack on Pearl Harbor which resulted in our entry in World War II. Mr. Reed was born at Clarmont, California on September 27, 1887, and entered the Weather Bureau as a messenger boy at San Diego on April 1, 1907. In his own words, "... whatever success I may have enjoyed in the intervening years has been largely due to the helpfulness of abler and more distinguished friends whom I have met along the way.

"The first of these in the Weather Bureau (1907) was Dean Blake, but before that my education (which had been begun in the precincts of Pomona College but never completed due to physical breakdown) had been enriched by boyhood acquaintance with, and study under, a group of the Pomona faculty whose caliber, cultivation and depth was such as to leave a lasting impression on their students.

"After leaving San Diego (in 1909 and once more in robust health), I saw duty at various stations in Nevada, Oregon and Washington, and settled down two years later to what proved to be a four-year stretch at the Portland forecast and river district center. Here, under the stimulus of Edward A. Beals, District Forecaster, I became absorbed in forecasting and was permitted the distinction of inaugurating under his supervision the first localized fruit-frost service in the West. This was in the Yakima Valley of Washington. It ultimated in a letter of commendation from the Chief of Bureau, and prompted me (with encouragement from Mr. Beals) to engage in practice forecasting. The competition here was doubtless mediocre for I managed to top the list, and there being need of an assistant forecaster in San Francisco, where Mr. Willson had been left alone ever since Professor McAdie's departure for Blue Hill, I was offered the job.

"This was in 1915. Two years later the war came on, and as there was at that time no meteorological opportunity in the army, I chose the branch which seemed nearest to it, enlisting in the Air Service and proceeding almost immediately to France, where I was inducted into the mysteries of flight, first in a French and afterwards in various American schools, the initial course being in a Wright type biplane which had neither fuselage nor ailerons. Another and more formidable lack was the absence of a wind shield to ward off the propellor blast from the 60 h.p. tractor-type Anzani motor. Training completed (after less than fifty hours in the air) and there being no American squadrons yet in France, I was doled out to a French (Breguet bombing) outfit, but rejoined the Yanks in time for the Argonne offensive and duty with the Army of Occupation in the Moselle Valley.

"Returning to this country, six months were spent in the Central Office, after which I returned to San Francisco, where my former friend and counselor, Mr. Beals, was now in charge. As a war measure the Center at Portland had been merged with San Francisco, and the district now extended southward from the Canadian to the Mexican boundary, and westward (for purposes of broadcast) to the 180th meridian. When Mr. Beals left to go to Hawaii in 1924, he was succeeded by Major E. H. Bowie, whose plea for leaving Washington was that 'sixteen years of hurricane watch were enough for anybody.'

"The period which followed was one of signal events and accomplishments for the San Francisco office. The most notable of these was the Guggenheim Experimental Airway Weather Service which was inaugurated with Weather Bureau help by an engaging young Swede who was known to us as Carl (surname Rossby) and shortly thereafter turned over in its entirety to the San Francisco office to operate. This we continued to do until its formal adoption fourteen months later by the Lighthouse Bureau. Prominent in forwarding this enterprise were two young men of promise known familiarly as Del and Ed. About this time, Major Bowie's health requiring him to give up regular forecasting, this responsibility fell wholly to Mr. Corday Counts and me, who managed this assignment between us until my transfer to Honolulu in 1941.

"The purpose of the Hawaiian assignment was to set up a forecast center for the mid-Pacific area, a project that was interrupted by the Pearl Harbor tragedy and the subsequent absorption of

many of our personnel into the Armed Forces. I remained in Honolulu as Coordinator of Civilian Meteorological Services until 1944, when the four years of exile were terminated by transfer to Atlanta as Regional Director. After the regional consolidation six years later I remained in Atlanta as Director of Eastern Forecast Development until the present time.

"The Atlanta sojourn, although rich in the new friendships it afforded and the experiences it entailed, never quite extinguished the longing for eventual return to the Pacific Coast, a hope which retirement may soon perhaps fulfill. Until it does, my address will be as at present, 821 Clemont Drive, N. E., Atlanta 6, Ga."

Mr. Reed is a member of the American Meteorological Society, American Academy of Arts and Sciences, American Geophysical Union, and Hawaiian Academy of Science. He published the following papers on Meteorology: Jan. 1926, Average Pressures for Oceanic Areas Computed from Daily Synoptic Charts; June 1930, Aviation Weather Hazards; Oct. 1931, Gap Effects of the Strait of Juan De Fuca; Dec. 1932, Weather Types of the Northeast Pacific Ocean as Related to the Weather on the North Pacific Coast; Feb. 1933, Some Aspects of the Free-Air Winds in the Far West; Nov. 1933, The North American High-Level Anticyclone; Oct. 1937, Further Observations on the North American High-Level Anticyclone; Aug. 1938, The Unusual Windstorm of February 9, 1938, at San Francisco; July 1939, Thermal Aspects of the High-Level Anticyclone.

His paper on the North American High-Level Anticyclone published in 1933 was the first to point out its existence and is considered to be an outstanding contribution to meteorology.

Waldo E. Whybrew

MR. WALDO E. WHYBREW will retire because of disability, effective March 31, 1953, after completing twenty-two years and four months of Government service, including slightly over a year of naval service during World War I. At the time of his retirement, Mr. Whybrew was head of the Atmospheric Electricity Section of the Physical Research Division of the Central Office. He transferred to the Weather Bureau in October of 1948 from the Naval Research Laboratory where he had been employed as a physicist since November 1931. He played an important part in the development of the processes used in the Atomic Energy Project and received a meritorious promotion in February of 1944 for his work in this connection. Since his transfer to the Weather Bureau, he has contributed to the cloud physics project, and his recent paper on Electrification of Bubbles of Air in Water has helped to clarify certain aspects of clouds and benefited the work of the Bureau in physical research.

Mr. Whybrew was born in Grant County, Indiana, July 25, 1898. He grew up and attended high school at Fairmount, Indiana. Following that he attended the North Eastern Missouri State Teacher's College at Kirksville, Missouri, where he was awarded a B.S. degree in education. He later took graduate work in physics and associated subjects at the University of Minnesota, at Minneapolis, the Catholic University, the George Washington University, and the Department of Agriculture Graduate School in Washington, D. C.

His early life was unusually varied and included the following occupations: ranch hand, glass worker, machinist, mechanic, merchant mariner and miner. During this period he traveled widely throughout the United States and Alaska. In August of 1925, he lost a leg as a result of an accident in a gold mine at Juneau, Alaska. It was after this accident that he entered college at Kirksville and began the training that permitted him to reach such eminence in the field of physics.

Mr. Whybrew can be reached at the following address:

5505 First Street, N. W.
Washington 11, D. C.

NEW METEOROLOGISTS IN CHARGE

Greenville, South Carolina

At WBAS Greenville, S. C., George Hatzenbuhler, formerly principal assistant at WBAS Newark, has been assigned as MIC.

Lewis Hayes, former incumbent of the position, has gone to the forecast staff at WBAS Anchorage.

Mr. Hatzenbuhler came to the Bureau as a FAWS forecaster at Boston in 1949; before that he had been in the AAF Weather Service, where he attained the rank of Captain.

Honolulu, Hawaii

GORDON D. CARTWRIGHT, returning to the Bureau after six years as Assistant Chief, Section of Meteorology, of ICAO (International Civil Aviation Organization), assumed charge of the Weather Bureau installations at Honolulu and in the Pacific Islands recently. He succeeded R. H. Simpson, who is now assigned to the office of the Assistant Chief of Bureau (Operations).

BEFORE going to Hawaii, Mr. Cartwright entered on duty for a period at the Central Office, where he had worked (in the Synoptic Reports and Forecasts Division) for several years prior to going to ICAO. He first joined the

Weather Bureau in 1929 at Pittsburgh, and, before coming to Washington, served at a number of Bureau offices, among them Cleveland, Shreveport, Dallas, Ft. Worth, and New York Airport. Mr. Cartwright was the recipient of a Weather Bureau Scholarship to New York University in 1941.

Lynchburg, West Virginia

FILLING the vacancy left when William M. Percy left to head the Public Service Unit at WBAS Denver, Harry V. Myers has become Meteorologist in Charge at WBAS Lynchburg.

Mr. Myers went to Lynchburg from Fort Wayne, where he was principal assistant; he entered the Bureau at Davenport in 1929, and worked at Columbus, Springfield, Illinois, and Detroit WBAS before going to Ft. Wayne in 1951.

Pendleton, Oregon

MR. GLENN M. LEE, now MIC at Butte, Montana, has been selected for transfer to Pendleton, Oregon, in charge. He will succeed Mr. Francis D. Beers, who has been called to active military duty.

Mr. Lee is 37, entered the Weather Bureau in September 1938, and has served at Tatoosh Island, Troutdale and Butte. He has been in charge of the latter station since August 1946.

Vicksburg, Mississippi

NEW MIC at WBO Vicksburg is Ernest Sherrill, formerly Field Aide with headquarters at Seattle. He replaces G. Philip Weber, who has accepted assignment at WBAS Anchorage.

A Weather Bureau employee since 1938, Mr. Sherrill entered the service at Denver, and has served as an observer in the Atlantic Weather Patrol and the Storm Review Section of the Hydrologic Services Division in Washington as well as at Seattle.

DEATHS

Carl Russo

MR. CARL RUSSO died from a heart attack on October 27, 1952. At the time of his death he was an Aviation Forecaster at WBAS Los Angeles, a position he had held since March 1947.

Mr. Russo was born in Cleveland, February 15, 1904. He was graduated from High School at Rochester, New York and entered the printing industry. Three years later he enlisted in the U.S. Army and was assigned to the Signal Corps where he acquired his first meteorological experience. After having completed the Meteorology Course at Fort Monmouth, he spent a year as a meteorology instructor in the same school.

In March of 1929 he was released from the Army to accept a probational appointment to the position of Junior Observer in the Weather Bureau assigned to Cleveland. After a year and a half of excellent service during which he received one promotion, he was again promoted and transferred to the Aerological Division of the Central Office as Scientific Aid. His next nine years were spent in the Washington area first at the Central Office followed by two years of forecasting experience at the Washington National Airport. During this period he found time to attend the George Washington University and in 1938 he received his BA Degree with a major in mathematics and statistics.

The next four years were spent at Juneau, Alaska. This period was broken by one trip to the States during the summer of 1943 at which time he married and returned to duty for short details at the Central Office and Seattle before returning to Juneau. Following his Alaskan service he returned to the Central Office for brief assignments to the Extended Forecast Section and the Analysis Center. Early in 1947 he was assigned to Los Angeles as an Airway Forecaster and continued in that capacity until his death.

ABOUT SUGGESTIONS

Mailing 1001-C Formats

MAILING of 1001C Formats from stations to WRPC's has probably been the subject of more suggestions than any other single item. Each suggestion has been carefully considered in the light of the effectiveness of presently used methods and experience with other methods, and in several cases a series of test mailings has been carried out. The idea behind some of the suggestions was to conserve on the cost of envelopes or mailing tubes, and in other cases it was principally to assure that the Format would be in good condition upon arrival in the WRPC. Each idea had merit in one way or another, but checking showed that the present mailing methods very rarely result in a damaged format, and that methods which would save the purchase cost of envelopes or mailing tubes would require an equivalent cost in time, or have some other disadvantage. We have found in each case that the suggested method would not be a significant improvement.

In the repeated studies that have been made in connection with these suggestions, it has been found that the present plan of mailing as described in Circular N, Addendum A, is not inefficient as to cost and time, brings the Formats to the WRPC's in good condition, and in all respects is quite satisfactory. ■

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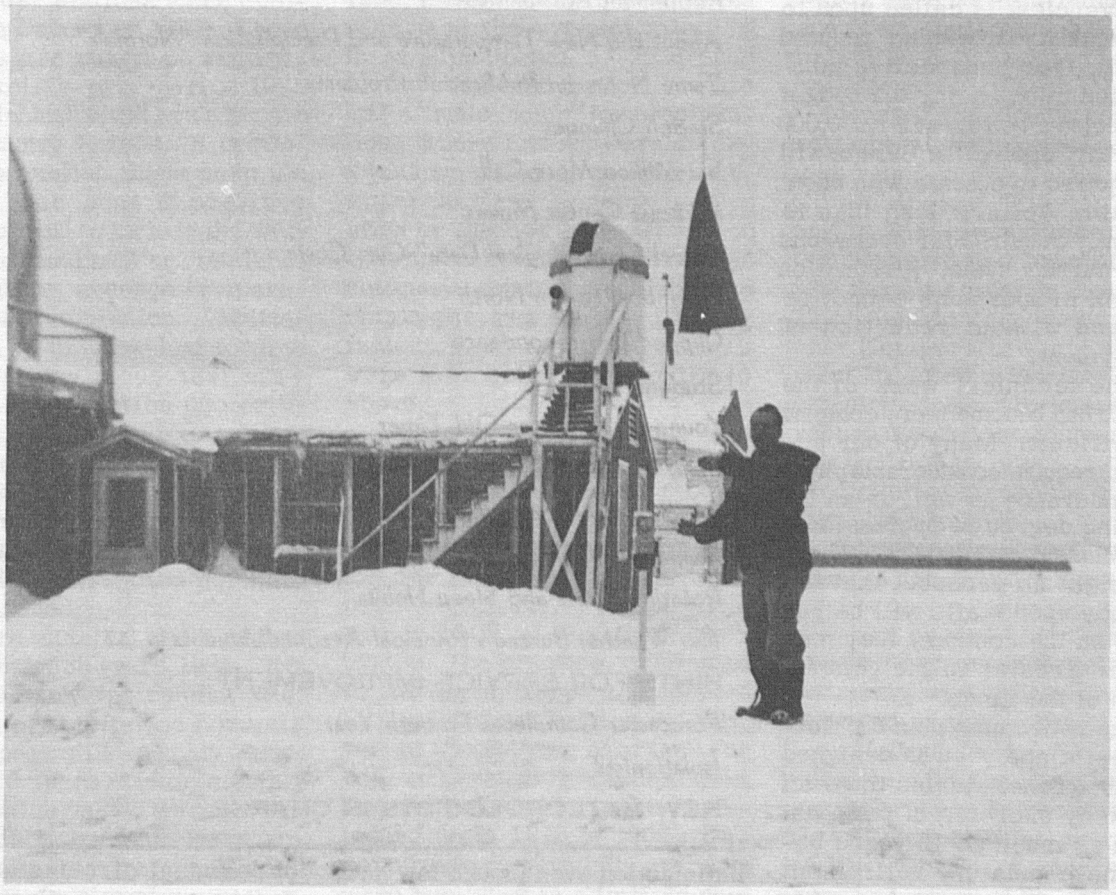
WEATHER BUREAU

TOPICS

APRIL
1953



Launching Aid

Volume 12 Number 3

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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Retirement Possibilities

The WEATHER BUREAU, along with all other Federal agencies, is called upon to operate next year within a reduced budget. Our prospective contribution to balancing the budget is expected to be almost $1,000,000 next year, that is, the Bureau will be required to operate with about a million dollars less than is presently required for operations at the current scale. A reduction of such proportions cannot be achieved without reduction of employment.

The technical work of the Bureau has become more complex and difficult. Many of our activities require considerable physical endurance as well as an increasing degree of professional and technical competence. There is in sight no prospect that the demands upon staffs will be relaxed; on the contrary they may become greater in the general stress of the times.

The retirement plan for Government employees is designed to enable beneficiaries to go off the job by exercise of personal option as much as 15 years before the mandatory retirement age of 70. The scale of benefits is as good or better than those provided by almost any other large-scale retirement plan in the world. The actual cash difference between the retirement benefits and the amount of take-home pay for employees with long records of service is astonishingly small. Those who have retired by option have expressed their satisfaction even though few have looked upon it in advance without misgivings.

Employees in the upper age brackets who could at this time avail themselves of optional retirement, especially those who find themselves slowing down physically, are urged to consider carefully these possibilities. Considerations of health should take a high place in this review of personal circumstances. In deciding in favor of optional retirement at this time some of the more senior employees may not only be making the best decision for their own health and happiness but will also be opening the way for retention of young, well-trained meteorologists now in the service whose positions may be uncertain if drastic reductions become necessary. ■

About the New Temperature and Precipitation "Normals"

BECAUSE Weather Bureau temperature and precipitation normals had not been revised since the 1920's, and because many station locations or instrument sites have been changed since that time, a project was begun in 1951 to revise and standardize all Weather Bureau first-order station normals. Computations for revision of temperature and precipitation normals for first-order stations were completed in December 1952. These normals are based on records for the thirty-year period 1921 to 1950 inclusive and are effective as of January 1, 1953. It is proposed to publish these normals as has been done in previous revisions, and to include the daily values for maximum and minimum temperature, average temperature, and precipitation. Publication will be in loose-leaf form to facilitate revisions that may develop from station use or by changes in station exposures.

As soon as work can be completed, supplemental publications containing degree-day normals and standard errors of temperature and precipitation normals will be issued.

Where a station had a record for the entire 30 years, 1921-1950, from the same instrument site, monthly precipitation normals are the mean of the monthly values for the 30 years. After monthly precipitation values were determined, daily normals were obtained from them by an analytical procedure developed by H. C. S. Thom at Iowa State College and first used to obtain normals for Iowa. The annual normal precipitation is the sum of the twelve monthly normals.

Temperature normals were obtained in a similar manner, using mean maximum and mean minimum values to obtain mean monthly normals. Daily normals were then obtained by plotting monthly values on graphs at the mid-month points, fitting curves, and reading the daily values from the curves. The annual normal was obtained by dividing the sum of the annual normal maximum and annual normal minimum temperatures by two.

If a station did not have a record from the same instrument site for the entire 30 years, 1921-1950, means were adjusted to the record at the present site. In these adjustments, a "difference factor" was used for temperature and a "ratio factor" for precipitation. These factors were determined by parallel comparison, either between the actual station sites or through a second station that had a continuous record to compare against both sites to obtain the resultant adjusting factors. Daily and annual normals were then obtained as outlined above.

This is the third time that more or less permanent basic standards have been adopted by the Bureau for publication and nation-wide use as "normals" for our precipitation and temperature records. Prior to adoption in 1907 of the first such system, the practice, originated by the Signal Corps and adopted by the Weather Bureau in 1891, was to use moving averages for both temperature and precipitation. The period of this practice extended from 1870 to 1906. Departures from these daily averages were published in climatological bulletins, the Monthly Weather Review, and the Reports of the Chief of the Weather Bureau; and the first Climatological Record Book (1904) instructed stations to "enter these departures in pencil so that they can be easily erased and changed to ink entries according to a firmer system of normals to be adopted later."

In 1907, the Bigelow system of nation-wide temperature normals was adopted, using data from the period 1873 to 1906. For the first portion of this period (to June 1888) the computations used the three temperatures observed at 7 a.m., 3 p.m., and 7 p.m., but for the latter portion of the period the daily maxima and minima were used. Precipitation normals, apparently computed at about the same time, were not put into use until the beginning of 1909. Both sets of these normals (temperature and precipitation) were published in 1908 as U. S. standard normals, Bulletin R.

During the 1920's complete revision of normals was undertaken by Dr. P. C. Day of the Climatological Division, based on the Bigelow values for both temperature and precipitation. The results appear in Supplement 25 of the Monthly Weather Review (temperature) and Supplement 30, Monthly Weather Review (precipitation). The temperature record covered the 46 years from July 3, 1875 to July 2, 1921; the precipitation record the 50 years from 1878 to 1927.

The present system of normals departs from those previously used in three respects: (a) The 30-year period (1921-1950) is adopted for the computations, consistent with the term of years accepted by the World Meteorological Organization for climatic normals. (b) Painstaking effort has been made to secure values that avoid artificial smoothing of the curves of monthly and seasonal march of the data; where the station and exposure for records in a given locality have been changed, the whole record has been carefully studied and adjusted to the latest source of the records. (c) For the first time, the normals for maximum and minimum temperatures are separately tabulated and made available. ■

Some Notes on Publication Problems

The NATIONAL SCIENCE FOUNDATION recently made a survey of the status of scientific and technical journals in regard to volume of articles published, backlog awaiting publication, financing problems, and circulation. The report of their findings contains some interesting information which we would like to pass on to Weather Bureau authors. The rising volume of original scientific papers submitted to the journals and the increased publishing costs have created critical problems for some scientific publications.

A few journals reported a backlog of accepted but as yet unpublished articles of a year or longer, and the average backlog for journals publishing 500 pages or less per year was 5.3 months. It should be noted that this waiting period occurs after the paper has been reviewed and accepted by the journal. The replies to the National Science Foundation questionnaire did not indicate that a "tight" or "loose" reviewing policy in regard to the proportion of papers accepted had any effect on the backlog, but there was an interesting relationship between backlog and length of article usually published by the journal. The backlog was 5.6 months for journals in which the average article was 4 printed pages or less, but only 2.1 months for journals in which articles average 20 pages or more in length. The report states that "the time-consuming process of revising articles to meet space limitations may be revealed in these figures." Some of the periodicals surveyed pointed out that one thing which "creates enormous editorial problems and inevitably contributes to the cost and delay in publication" is the "large number of articles that are badly written, repetitious, overlong, and in which the presentation of scientific matter was confused even when reported results and techniques appear to be sound."

Although the report does not break down the above data by individual journals, information from other sources indicates that the backlog of papers held by meteorological journals is not very different from the average (5.3 months) cited above.

Comparison between the situation of the Weather Bureau's scientific periodical, the Monthly Weather Review, and that described as average by the report brings out one important difference. The Review usually has a backlog of accepted papers of only one or two months. Also most issues in the recent past could have carried more articles had acceptable manuscripts been available, for the Review seldom reaches its page quota.

While a backlog of manuscripts waiting to be published is only one of the problems of editors and publishers, it is a source of considerable inconvenience to authors who usually are anxious to have their reports published promptly after acceptance.

How may Weather Bureau authors benefit by the information given above? The following points are stressed in partial answer to this question.

1. An author should take a special care in the preparation of his manuscript. It should be logically organized and written clearly and concisely in language appropriate to scientific papers. The inexperienced author should consult at least one of the many excellent texts on scientific writing. And all authors by all means should follow the instructions given by individual periodicals (for example, inside covers of the Journal of Meteorology and Bulletin of the AMS, and see TOPICS, Aug. 1948, p. 294.)

2. The length of the paper may be a deciding factor in the choice of journal to which to submit it, for not all periodicals can accept long manuscripts. If a paper cannot be shortened to fit a particular journal's length demands, the author is merely inviting unnecessary delay by submitting the paper to that journal. Note that the Bulletin of the AMS limits articles to 12 double-spaced typed pages of manuscript, and that the average length of articles in the Journal of Meteorology is about 8 printed pages including illustrations. The Monthly Weather Review, on the other hand, is in a position to publish long manuscripts (see paper by Means in the October 1952 Review, for example), and Weather Bureau authors should utilize this medium when their papers cannot be cut to a length that will be acceptable to outside journals.

3. If prompt publication after acceptance is important to an author, he should take advantage of periodicals with short backlogs. The advantage of publishing in the Monthly Weather Review is pointed out in this connection.

It has always been the Bureau policy, after approving a manuscript for publication, to allow the author freedom to choose the medium for publication; however, some advantages of publishing in the Monthly Weather Review have been stressed in the above items with the hope that more Weather Bureau authors will utilize the space available for prompt publication. ■

Station Changes

IN the continuing process of rearranging Bureau operations and services so as to achieve the widest and best possible fulfillment of our basic responsibilities that our funds and resources will permit, several changes have recently been made in the network of Weather Bureau offices.

A new five-man airway station was opened at Astoria, Oregon, eliminating the need for reports from North Head, Washington, which was reduced to a one-man station for local service. As further offset for the cost of the new station, the Weather Bureau station at Port Angeles, Washington, was closed; observations there will be continued by the Coast Guard.

Oswego, New York, has for some years had a one-man office; it was determined that the Syracuse, N. Y., office could render satisfactory service to the community of Oswego, and the station there has been closed.

Another station to be closed was WBAS, Joliet, Illinois. Since the Joliet airport is not used as an alternate by the scheduled airlines operating into Chicago, and since its nearness to Chicago makes receipt of local service from that city relatively simple, Joliet was a logical place for making part of the savings required to keep us within our fund limitations. The savings realized by discontinuing the upper-air program were used to offset beginning a rawinsonde program at Green Bay, Wisconsin, and expanding that at Silver Hill, Maryland (TOPICS, January 1953, p. 8).

Also closed was the one-man station at Palestine, Texas, where it was determined that a cooperative climatological station would serve for record purposes and forecast and warning services could be provided by the Houston office. Consolidation of activities at two localities has resulted in economies and more efficient operation. One of these is at Port Arthur, Texas, where all weather services are now centered at the airport; and the other at Moline, Illinois, where the personnel of the Davenport, Iowa, office moved into quarters with the Moline, Illinois, WBAS. The combined office will be called "Davenport-Moline." ■

AUTOMATIC PHONE FORECASTS

Six Million More Calls

IN the ten cities (see table below) where recorded weather forecasts are made available by the telephone companies to those who dial the correct weather number, over 132 million calls were recorded in 1952. This is an increase of almost 6,000,000 calls over the previous year and averages over 250 people using the automatic telephone weather forecast service every minute.

For the year, Washington, D. C., set a new all-time high with a total of 24,014,725 calls. New York City set a new record high day with 374,781 calls on June 26 as a result of the heat wave. On August 29, Pittsburgh, Pennsylvania, became the tenth city having this public service.

Calls for Automatic Phone Forecast

City	Annual Total	High Day	Monthly Average	Daily Average
Baltimore	7,643,720	55,810 (June 8)	636,977	20,884
Boston	6,454,026	106,035 (Feb. 27)	537,835	17,731
Chicago	17,137,298	148,139 (Jan. 29)	1,428,108	46,823
Cleveland	10,604,283	92,376 (June 26)	883,690	30,298
Detroit	22,863,913	202,739 (June 25)	1,905,326	64,224
Milwaukee	9,961,072	86,980 (Jan. 28)	830,089	27,216
New York	23,683,915	374,781 (June 26)	1,973,660	64,710
Philadelphia	8,991,483	70,612 (July 23)	749,290	24,575
*Pittsburgh	817,997	22,279 (Dec. 31)	199,512	6,544
Washington	24,014,725	250,208 (June 27)	2,001,227	65,614
Total	132,172,432			

*Service began August 29, 1952.

BILLINGS TO GREAT FALLS

Forecast Center Moves

AS this issue of TOPICS goes to press, plans are complete for transfer of all district and aviation forecast work from Billings, Montana, to Great Falls, Montana, on or about April 1, 1953.

Reorganization of the FAWS work over the country as a whole has made it necessary to locate aviation forecasting in the same localities as the CAA Air Route Traffic Control Centers, and experience has shown that where both district and aviation forecast work are involved, as at Billings, it is more economical and more efficient to continue all forecasting from one location than to have separate offices; hence the transfer of district forecast work along with the aviation forecasting.

Mr. Roy L. Fox, present MIC at Billings, will transfer to the MIC position at Great Falls; and Mr. C. R. Guern, formerly MIC at Great Falls, will continue there as Supervising Public Service Meteorologist. Mr. Ralph E. Gumpf, District Forecaster, is to remain as MIC at Billings when the forecast work is transferred to Great Falls. Several of the forecasters and other personnel now in Billings will transfer to Great Falls in connection with this move. ■

FOR INTERIOR DEPARTMENT

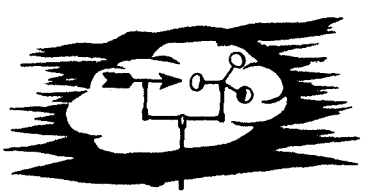
"Local Climatological Data" Cuts Costs

A UNIQUE use of the Local Climatological Data Annual is being made by the Department of the Interior. Each request for bids for construction work on and near St. Paul Island, Alaska, includes a Local Climatological Data Annual to give the bidder an idea of the climate of the area. Copies of the 1951 and 1952 Annuals have been furnished for this purpose and the Interior Department expects a noticeable decrease in the cost of construction to result. ■

Neighbors to the North

WHILE the sentiments expressed in the following quotation (from the travel report of a Central Office traveller just returned from Canada) are not new, they are well expressed and are passed on for the benefit of those employees who do not have direct contact with the Canadian Meteorological Service:

> It is rather surprising to observe the many activities of the Canadian Meteorological Service. Despite their meager staff, they furnish all the civil weather service, in which public forecast needs have been expanding rapidly, meet practically all of the RCAF and Army requirements, and have an extensive forecast service in connection with the RCAF's elaborate program of mapping all of the vast northern Canadian territory. A part of their ability to accomplish so much per man is no doubt because they are a small organization, total field and head office employment on the order of about 600. Their Central Office personnel seem to be exceptionally well fitted for their particular jobs, responsibilities appear to be rather clearly defined, coordination delays are small, and there seems to be very healthy progressive 'get-it-done' spirit. On the whole, I am very much impressed with our neighbors to the north. ■



Clipped Correspondence

ONCE upon a time it was the practice at the Central Office in the preparation of letters to make an original and one carbon copy. The procedure was simple. Until the original was signed the two were fastened together with a paper clip, after which the original was mailed and the copy was filed in the mail room. Time went on, government operations became more complicated, need for coordination and liaison on the Washington scene grew in complexity and urgency, the Weather Bureau became involved and the amount of paper and metal required in correspondence increased as the years passed.

Today, many letters are fastened in a folder with two or three flaps. On one flap is the letter with numerous carbon copies. On another flap we see the previous papers, usually a thick file of memorandums, letters, and notes marked here and there with tabs to help the official who wants to know something of the background. The third flap holds correspondence with field stations regarding the same problem. The total assembly weighs perhaps three pounds.

It is possible that a few comments will be a warning to field officials who come to the Central Office for duty and find themselves face to face with this problem.

First is the dilemma of the stenographer. All these papers must be carefully assembled and securely fastened. Otherwise, something may slip; a fat file may spread the wire paper clips or steel binders and the file may spring loose, filling the office with a small cloud of slithering papers which come to rest under desks, behind cabinets and, by coincidence, in the waste basket where they are hard to separate from previous drafts of the same correspondence.

When fastened together in this manner the papers should be approached with caution. Even the act of opening the folder is dangerous. With this in mind, the folder should be laid gingerly on a flat surface and handled like a time bomb. It is a good idea to put the left foot on the margin of the left flap, grasp the right flap firmly with the thumb and forefinger of the left hand, hold the inner edges with the chin and turn the pages with the left hand. This is satisfactory unless the letter runs over to a second page.

On the second page the top line is always written so high that it comes under the row of fasteners and clips at the top. If the top sheet is pulled back the clips and binders fly off and the file disintegrates. One has a choice of two courses: (1) Dismantle the file, read the top line and reassemble. This usually can be done in less than an hour, if the phone does not ring. (2) Just skip the top line. Sometimes it sounds better that way.

To relate a personal experience, the writer once skipped the top line of the second page on a busy Friday afternoon. It seemed to make sense without it, but after working hours he became curious, He went back to the office, spread the thing apart enough so he could squint underneath and saw the following: "Now iss the time fer all googgqwerty ghvbhn imoplbnm; @=poiuklju/"

Just then the thing flew apart and he knocked his head on the corner of the desk trying to reach the 9th carbon copy and reassembled the material with his eye glasses fastened between the previous papers and a piece of an old weather map used as backing for a congressional letter.

This was bad enough, but BEWARE of the letter that runs to three or more pages. A man could break a leg or get a No. 4 steel binder snapped over his belt buckle and tie clasp and be unable to straighten up without taking his shirt off. Furthermore, a four-page letter sometimes jackknifes, that is, when the top part is being held back by the left hand or foot in an effort to read the top line of the fourth page the No. 4 binder will go BOING! and the whole thing will turn over and the unsuspecting official will fall on his face, catch his ears between the flaps and smother in the previous papers. If the official has to sign on the fourth page there is no known way he can hold it together while signing without getting the ink-well in his lap, but we are working on it.

[Ed. Note: Behind the foregoing word caricature lie the difficult problems of coordination without serious complications. In the "good old days" before aviation and international cooperation in meteorology, major decisions could be made without involving other agencies. But now aeronautical organizations, both civil and military, and other departments of Government, as well as other countries, have an interest in major decisions and in order to avoid the worse complications of wild decisions affecting other agencies, a study of background and the concurrence of other interested parties become necessary. This requires background papers that sometimes become voluminous and a checking and rechecking with other representatives that adds to the complexity and takes time. Anyone who can suggest how to get better results with fewer papers should communicate with the Suggestions Awards Committee]. ■

Student Visits

ONE of the longest-standing customs in all cities where Weather Bureau offices are located is that of having classes from the schools visit these offices to see how the weather is forecast.

Time was when these visits were regular, but few, being limited to classes at junior high or high school level who were studying "Weather" as a part of a "General Science" or "Physical Geography" course. And some member of the station staff could always leave his records long enough to show a weather map, give a little talk about the extra anemometer standing on the triple register table, explain the triple register itself (which was easily the most impressive item to most visitors), show the barometer—keeping an eagle eye out to see that no one jostled the case or tried to get at the mercury to silver a penny when his back was turned—and possibly take the group out on the roof to look at the instrument shelter.

But, as WBO's moved to airports, and hourly observations, pibals, radiosondes, and all the other items that call for split-second work were added, it became more and more difficult to find sufficient free minutes. The present need for economy in operations, which is causing us to pare all staffs to the bone, complicates matters further. At the same time, teaching methods have changed, and the curriculum, from the lowest elementary school grades up, is aimed at making pupils familiar with the community about them. Thus, the briefer is always in danger of being inundated by a wave of 6-year-olds, half of whom are straining toward the windows to look at the planes, and the other half boredly thinking that the "Young Planet Pioneer" would never use such simple, old-fashioned-looking stuff.

As a result of this combination of circumstances, we get occasional distress calls from MIC's, who want to know if there is any approved way of cutting down on these visits, or any known method of handling them and still keeping up the rigid observation, communication and service schedules. That the gravity of the problem varies with local conditions is evident from the fact that we also receive letters from MIC's enclosing letters of appreciation from school children and commenting that they appreciate the opportunity to be host.

Uniform rules on such a subject would almost certainly be bound to be unworkable in some particular at many stations; we will have to depend on the judgment of the individual MIC. A few guiding principles and suggestions follow — we would be glad to pass on any methods you may have developed.

The primary responsibilities of the Weather Bureau are the observing and reporting of weather and the issuance of forecasts and warnings. Thus the guiding of school-group tours is of secondary importance. In fact, there is much reason to discourage the idea traditionally fostered in the past, that Weather Bureau officials ought to contribute during official hours to public education in our field of work. The realization that our largest possible engagement with this problem can touch but an infinitesimal part of the population (and then with dubious advantages) should deter us from inviting this drain on time that can be devoted much more profitably to serving all the public. Several steps that may be taken in this direction are listed below.

When an unscheduled group arrives at an inauspicious moment, an MIC would certainly be justified in explaining, briefly and tactfully, that important duties which must be performed on schedule prevent his showing the group around, and suggesting that the class come back another time.

Many MIC's have found it profitable to explain the problem to the local head of the school system, and have arrived at an understanding that visits will be arranged in advance, will be limited to classes whose work has prepared them to benefit materially from the visit, and that visits may be cancelled by the MIC if inclement weather makes it impossible to take time from the observational program.

Where there is a downtown office in addition to the airport, handling at least a part of the visits at the city office may also be a solution.

A number of MIC's have found that talks in the school have cut down visits considerably.

There are undoubtedly other devices which help — do you have any we can pass on? ■

Youngster Replaces Old-Timer

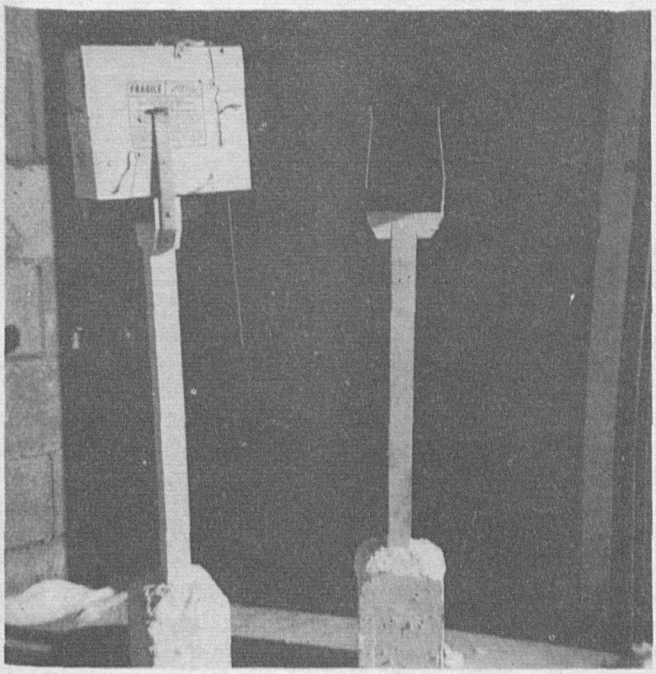
IN line with the policy of the Department of Commerce to hire older workers, the following bit of information has just come to light:

The services of Mr. George W. Shoales, FC-1 Substation Observer, at Plymouth, New York, were terminated on January 31, 1953. Mr. Shoales was 83 years of age. His replacement as Substation Observer is Mrs. Bertha K. Priscott of Plymouth, N. Y., who, at 71, began her employment on February 1, 1953. ■

Field Station Devises Launching Aid

A DEVICE which holds the radiosonde in a protected position while the observer removes the balloon from the inflation shelter was recently constructed by personnel at Sault Ste. Marie, Michigan. Since this device might be of interest to observers at other stations, the suggestion is passed along.

A wooden post, 2 x 2 inches, was set in a concrete block, and a spring clamp, made of 1/8 inch x 1 inch galvanized strap iron, was attached to the top of the post. The illustrations below and on the cover show the device and method of use. ■



Articles about Cooperative Observers

FROM time to time a flood of requests - generally from school children, but frequently from adults - for appointment as cooperative observers reaches the Central Office, making it necessary to write numerous letters "letting down" the writers. Most of these writers are motivated by genuine interest in the weather, and by real enthusiasm for a useful hobby.

It is generally possible to trace these surges of applications to a news item in a paper of fairly large circulation or to a "feature" story in a magazine - the latest was in a magazine circulated almost entirely in schools - which give the impression that the Bureau is constantly looking for new locations and observers for cooperative climatological stations or that school children are frequently selected for these positions.

When talking to reporters about the cooperative networks, the fact that the Bureau is not increasing its network at present, except under unusual circumstances, and also that children are not, as a rule, employed as observers, should be stressed. This will prevent disappointment to young people who have offered their services, and eliminate considerable letter writing. ■

Response Appreciated

The CENTRAL OFFICE wishes to express its appreciationfor the field response and the many good suggestions received for conserving funds and reducing workloads in connection with Circular Letter 9-53. It is quite apparent from the replies that many field officials went quite deeply into not only their local station programs but also into the wider aspects of interstation, and state and national program operations, to provide practical suggestions. It is quite apparent also from the number of suggestions on modification of a few specific interstation or national programs that some changes in these programs may result in definite economies without detriment to the overall programs involved. The Central Office will investigate these cases more fully.

It is not practicable to reply individually to all letters received but matters suggested by and relating to specific stations will be the subject of further correspondence with those stations. ■

Rotating Shifts and Sleep Habits

IN CHAPTER I-F-51 of the Weather Bureau Manual, "Scheduling Employees for Duty," one factor involved in around-the-clock scheduling was purposely not touched upon: How long should an employee spend on a given shift before rotating to another? We felt that the scheduling official should have wide latitude in this respect, to allow him to make the arrangements which would be most satisfactory at his station, taking into account local conditions, personal preferences of the station employees, and any other factors which might differ from station to station.

In a recent article ("Sleep" by Nathaniel Kleitman), Scientific American, November, 1952) a physiology professor of the University of Chicago discusses experiments on the physiological effects of changing the sleeping-waking cycle. Some of his findings should be of interest to employees working rotating shifts and to their supervisors.

A direct relationship between the diurnal temperature variation of the experimenters' bodies and their wakefulness and mental and physical efficiency was found, and a further discovery was that some persons were able to modify both their temperature and sleep-wake cycles to different length "days" quite easily, while others adjusted little, if at all. This verifies what most Weather Bureau personnel know from experience: That some persons adjust from one shift to the next with no trouble at all, while for others it is quite an effort.

In his conclusion, Professor Kleitman says, "Some individuals prefer to work at night, but for most people this separation from the community pattern of living is unacceptable as a regular thing. As a result, it has become the common practice to rotate workers between day and night shifts. Such a scheme will work well, however, only if a worker changes shifts no oftener than every four or six weeks, as it sometimes takes a week or so to swing into a new diurnal rhythm. It is essential to give him time to adjust to the new routine, for not only will he be more alert on the job, but the reversal of his body temperature rhythm will make it easier for him to sleep in the daytime."

Most Weather Bureau offices with 24-hour service rotate shifts each week, possibly because, in a seven-days-a-week operation this makes it unnecessary to have a "relief" shift, but there is no rule that says this must be so if there is a better alternative.

What do you think?

We should like to publish a symposium of field opinion on the subject. ■

The Weather Bureau's Principal Accomplishments in '52

This is the third and final installment of the resume, begun in the January 1953 issue, of the Bureau's progress last year.

Interagency Cooperation

THROUGHOUT the year members of the Bureau participated in many federal inter-agency committee activities such as the Air Coordinating Sub-committees, Inter-agency River Basin Committees, etc. In addition to taking part in the planning for the development of many projects designed for the conservation of natural resources, the Bureau provided much data in the form of summaries and reports for use of the various committees.

Contributions of a special nature were made to several federal agencies, among them the Atomic Energy Commission. Approximately 125 Weather Bureau stations assisted in keeping track of radioactive debris by collecting samples of the atmosphere at regular intervals during certain extended periods of the year. The aid of Canadian stations was also enlisted in this project. The Bureau also assisted the Atomic Energy Commission in evaluating nuclear reactor hazards. A complete meteorological survey was made for each proposed site of a new reactor. The Chief of the Scientific Services Division serves as a member of the AEC Reactor Safeguard Committee, which reviews these hazard reports. About 25 reports were reviewed during the year.

The Bureau operated a data collection network for the Department of Agriculture on the important problem of the movement of stem rust on wheat throughout the South and Midwest. This rust has destroyed part of the U. S. wheat supply in the past few years, and research on this problem is of very high priority. The Bureau is also assisting in the meteorological analysis of factors related to the movement of stem rust. Many Weather Bureau field stations have been involved in this and other interdepartmental programs.

Participation in the Federal Inter-Agency River Basin Committee programs amounted to a major contribution on the part of the Bureau. In the parent committee, the Bureau assisted in the completion of a hydrologic bibliography and a bulletin on the coordination of drainage area. A Bureau employee acted as the clearing officer for all requests for radio frequencies in the hydrologic band. Next year a Weather Bureau official will be chairman of the Subcommittee on Hydrology. In the Columbia Basin Inter-Agency Committee, Bureau representatives served on four subcommittees; secured agreement on Bureau operation of a cooperative Collection, Processing, and Dissemination Unit to provide all agencies with needed hydrologic reports; and accepted invitation to participate in the coordination and development of methods to provide operational forecasts to all agencies. Next year a Bureau representative will be chairman of the Pacific Southwest Federal Inter-Agency Technical Committee. Working with the Arkansas-White-Red Inter-Agency Committee, the Bureau submitted statements on the needs and possible solutions with respect to river forecasting in the 18 AWR subdivisions and organized the proposal for the required basic climatological network. In addition to furnishing the New England-New York committee with an evaporation map, the Bureau also furnished an annual isohyetal map of the area, adjusted after statistical study of topographic effects, and a climatological data inventory.

Weather Bureau representatives participated in the first session of the Commission for Maritime Meteorology which was held in London, England, July 14-29, 1952. Outstanding accomplishments of this conference involved the preparation and adoption of the Commission's Technical Regulations; finalization of plans for extending the network of weather reporting ships to Antarctic waters during the whaling season; approval of an International Ice Nomenclature and a plan for international coordination in maritime climatological work with the aim of publishing marine climatological atlases covering all oceans and seas.

The Bureau continued an active program in the field of international technical cooperation, not only with special bodies of the U. S. Government charged with this work such as the Mutual Security Agency and the Point Four Program of the Department of State, but with international organizations of the United Nations such as the International Civil Aviation Organization and the World Meteorological Organization. Facilities of the Weather Bureau were made available as well to visitors sponsored by the International Institute of Education. During the year thirteen students and trainees received training varying from four months of practical on-station work to combined academic and practical courses lasting for fifteen months under Weather Bureau supervision. The following countries were represented: Iran, Pakistan, India, Peru, Mexico, Burma, Turkey, Cuba and Uruguay. Two officials of the Turkish Meteoro-

logical Service observed meteorological facilities and techniques employed throughout the United States during the first half of the year.

In cooperation with the National Advisory Committee for Aeronautics, the Weather Bureau participated in the study of upper-air turbulence and special soundings were made daily at five stations. Turbulence encountered in clear air by high-speed aircraft constitutes a hazard to the occupants and may cause structural damage to the aircraft. The Weather Bureau has been collecting questionnaires from pilots describing their experiences during encounters with clear-air turbulence. It has been found that the information thus secured is extremely useful as a means of indicating the frequency of various degrees of gust loads on aircraft, the locations and seasons wherein the turbulence has been encountered, etc. In order to obtain more extensive data of this character for the entire area of the United States so far as practicable by simultaneous aircraft observations, the Air Force, Navy, Coast Guard, CAA, Weather Bureau, and Civil Airlines have planned an intensive program of such observations to run for three consecutive days during the period March 10-20, 1953. Thus it is hoped that some clues regarding prediction of clear-air turbulence may be obtained, to provide a basis whereby pilots may be forewarned of the expected occurrence of the phenomenon in some definite area and take proper measures to avoid it or otherwise ameliorate its effects.

The Chief of Bureau is President of the World Meteorological Organization and Chairman of the Executive Committee, which is the executive body of the organization. In this capacity, he is responsible for providing guidance and leadership in carrying out the purposes of the organization, which include international cooperation in setting up networks of weather stations and communications systems for exchange of weather information and furthering research and application of meteorology to aviation, shipping, agriculture, and other activities. A number of meteorologists in the Weather Bureau are members of the technical commissions of the WMO and of working groups of these commissions which are engaged in the technical work of the organization. These groups hold meetings from time to time and the Weather Bureau members participate in such conferences. Support has been given to the participation of the WMO in the technical assistance program of the United Nations organization. A Bureau meteorologist made a survey of meteorological requirements in Yugoslavia during the year; and other experts are preparing to go on technical assistance missions to various areas.

Facilities

UNDER the Civil Aeronautics Act of 1938 and amendments thereto, the Weather Bureau has responsibility for assisting scheduled airline carriers by establishing an observational program designed to meet their operating requirements at points where the Weather Bureau is unable to provide full-time aviation service. Several years ago the Bureau developed a plan for the establishment of Supplementary Aeronautical Weather Reporting Stations which are manned by airline personnel or airport employees who are trained and certificated to take airway observations by Bureau personnel. The Bureau provides the necessary instruments and supervises the observational program at the stations. During the past year the policies and operating instructions covering this type of station were consolidated in a manual for the use of supervising Weather Bureau stations and the cooperators. About 260 stations are now listed in this category.

A circular slide rule was designed for the purpose of computing horizontal distances of balloons in connection with the determination of winds in the free air. By our action in procuring a supply of these slide rules and distributing them to Weather Bureau personnel on ships of the Atlantic and Pacific Weather Patrols, the personnel are enabled to compute upper-air winds with greater facility and accuracy than heretofore.

In keeping with the general policy of shifting observer duties to automatic devices, 25 all-weather type remote indicating psychrometers have been ordered. Complete fabrication and installation will be accomplished during the next calendar year. An integrating device has been developed which produces data in final form from the solar radiation recorder in a manner that does not require computation to reduce such data to a usable form. This device will result in a considerable saving in man-hours of clerical help now required in handling the data and is, therefore, a very important item in the improvement of the Service Program.

Continued analysis of specifications for paper used in printing of base maps necessary for the analysis and forecasting of weather has been instigated. To date, one substitution of a relatively inexpensive paper for a base map indicates a potential saving of approximately $ 10,000 per annum.

Through the acquisition of a ten-box automatic collating machine, the Bureau is now able to print Northern Hemisphere Maps for use by the Bureau and Armed Services, at a cost of approximately $ 16,800.00 per annum

less than would be required otherwise. Through acquisition of another item of new equipment, time spent in all folding operations was reduced 25%, and through one revised procedure a saving in time of 50% was achieved in the padding of operational forms.

Administration

PERSONNEL Administration contributed its share of outstanding accomplishments in the training of field employees in pilot briefing and related forecasting functions. About two-thirds of the Bureau's 3,774 field employees are taking part in a special correspondence course developed in the Bureau's Training Section; and nearly 700 employees are presently enrolled at Pennsylvania State College, taking correspondence courses in meteorology. In addition, about 50 employees in Washington are taking a special course of lectures on "Recent Developments in Meteorology" given by outstanding specialists under a Weather Bureau contract with the George Washington University. A Bureau Evaluation Committee was established during the year and a beginning has been made on a broad plan of employee evaluation looking toward career development. About 15 professional employees were given special training in meteorology either under the Bureau's scholarship program or in special courses given at the University of Chicago and at the Central Office.

In cooperation with the Civil Aeronautics Administration, the Weather Bureau assumed communications duties connected with the operation of teletypewriters on the meteorological circuits Services A and C which are under the supervision of the Civil Aeronautics Administration. The Bureau assumed these duties to permit the Civil Aeronautics Administration to carry out a project of consolidation of their airway traffic control towers and interstate aviation communication centers. To date these consolidations of control tower and aviation communication centers have been effected at 32 stations where the Weather Bureau has taken over the communication duties.

Mounting costs of rentals for space and facilities in new airport terminal buildings led to the design and fabrication of a number of special items of office equipment which are peculiar to needs of the Weather Bureau in order to reduce space requirements and to provide efficient and effective utilization of employees' time. Examples are: Instrument consoles; pilot briefing displays and special relief maps for observing and briefing offices; specially designed towers for radar installations; specially designed shelters for inflation of balloons used for upper air soundings; and the preparation of detailed specifications for the installation of instrumental equipment.

The printing of the Daily Weather Map six days each week necessitates the operation of the printing plant Monday through Saturday. Prior to July 1952, the scheduling of a minimum crew on Saturday was accomplished by authorizing scheduled overtime. An analysis made during July indicated that the operation of the plant on a six-day week could be accomplished by means of a two-cycle work week without the use of overtime. The adoption of the two-cycle work week together with the elimination of one level of supervision in the press room will reduce the salary costs by $16,500.00 per annum.

Perpetual inventory systems were established at all regional distribution centers and the system is now being extended to include instrumental equipment and accessories at the Central Office in Washington, D. C. This stock and inventory control system will lead to the systematic classification and cataloguing of all stock items; will permit determination of consumption rates and the systematic planning of stock levels. These factors will contribute to significant improvements in programming funds for procurement of instrumental equipment and accessories and other stock items. By adjustment of the Aerological Supply Program from a fiscal year basis to a calendar year basis, the Bureau has been able to alleviate problems relating to production scheduling and delivery, which resulted in shortages from delays in contract awards that arose as a result of late passage of appropriations. Close liaison with other agencies in the Department of Commerce has enabled the Weather Bureau to obtain without cost large quantities of office furniture and equipment needed to replace similar items which had been used far beyond the real life of such equipment and furniture. ■

HINTS FOR SERVICE IMPROVEMENT

Supplementary Reports

A LETTER from Edgar L. Van Tassel, MIC at Scottsbluff, reports use of supplementary reports from unofficial stations within the Nebraska panhandle which may suggest similar possibilities to other stations:

This station has been fortunate in having weather reports from Sidney, Chadron and Alliance for forecast guidance as well as service information. However, due to the wide variances in terrain in the Nebraska Panhandle, it has been necessary to estimate expected and current conditions at the different points based on our familiarization with the area. Recently we have been able to arrange for additional weather reports that are proving quite informative and valuable. One important point is that they enable us to increase the number of direct community references in our weather broadcasts.

Through the short wave radio facilities of the Consumers Public Power Company, headquarters in Scottsbluff, we now obtain a daily weather report from Gordon, Hay Springs, Crawford, Hemingford, Oshkosh and Ogallala. These are communities scattered over the Nebraska Panhandle except Ogallala which is to the Southeast of the Panhandle but a critical point so far as weather information is concerned, especially for highway travel. The reports consist of visual conditions of sky, wind, and weather, plus snow depth, current and minimum temperatures. A minimum thermometer is sheltered in a ventilated box on the North side of an unheated building or on a post. The reports are not considered as official but are very much worthwhile during periods of bad weather. This information is also made available to the Highway Safety Patrol and the Highway Maintenance Department.

Two-State Weather Summary Service WITH the organization of the Public Service Unit at the Kansas City Forecast Center, a new weather summary service for newspapers and radio stations in Missouri and Kansas was started November 15, 1952. Responsibility for service to interests in Kansas is shared with WBAS, Topeka, to permit twice-daily service to be given. The weather summaries are prepared to highlight weather events of the previous 12-24-hour period in the State and to bring the reader or listener up-to-date with current weather in his area. In this way the forecasts are made more meaningful to the average recipient and he is better able to apply forecast information to his individual situation.

Summaries are released to the United Press and Associated Press at 5:00 A.M. and 5:00 P.M., CST, daily and these same releases are made available to the International News Service. All summaries for Missouri and the 5:00 A.M. summary for Kansas are prepared at Kansas City. The 5:00 P.M. release for Kansas is prepared by Topeka. This split was necessary since the local press offices at Topeka are closed during the night and it was felt desirable to keep the service in both states consistent.

Reports received from the press services indicate that they are well pleased with the new summaries. Similar reactions in other states where statewide weather summaries are used were mentioned in TOPICS, May 1952, p. 71; November-December 1952, p. 156.

PIREPS for the Asking INCIDENTAL to some recent correspondence with the WBAS, Syracuse, New York, we learned the personnel there had been able to increase the number of PIREPS processed by some 115% over the same months of a year ago. We asked MIC Keller how they did it and we believe his reply will be of interest to others.

"As for suggestions on effective ways for stations to collect pireps from local sources, we would say that the answer is in taking the initiative. While briefing many pilots for Civil Air Mission flights it has come to be a habit for the employees to be alert for information on tops of the overcast, icing levels and turbulence. Continued requests for this data have resulted in our taking the initiative in most cases; in other words, we ask for the information from pilots who visit us. If they do not have it, we ask them to radio a report to the Tower for transmittal to our office. Furthermore we do not hesitate to call the Airlines on many of their flights to radio in helpful information. In this matter we also have the fine cooperation of the Tower and CAA. Asking the Airlines as a routine matter to send in pireps is not enough; it quite often happens that when the weather is the worst and the reports are needed most that is the time the Airlines are busiest and hence less likely to give us pireps. A special request, however, in our experience seems to bring better results.

"An alert observer will often casually hear a pirep being sent from the Airline to ARTC center at Boston on the land line over the CAA loud speaker. If it is of any value locally, he will then contact the Airline for same, putting it out as a pirep."

■

Forecaster Completes Fortieth Year

THIS month Mr. Wilford P. Day, District Forecaster at Washington National Airport, completes his fortieth year of service. This places him in a distinctive group, for only a few employees have as much service, but his real mark of distinction is that over twenty-three years of this time have been as a District Forecaster. As a Forecaster he continues to stand his regular shift and has won the highest respect of his fellows and the community.

Mr. Day's vigor and enthusiasm are undiminished, and, as one of his co-workers put it, "he seems to have more get-up-and-go than most of us younger fellows."

Born in Washington, D. C., on July 13, 1890, where he grew up and attended school, Mr. Day is second generation Weather Bureau. His father, Preston C. Day, served 46 years in the Weather Bureau, and was Chief of the Climatological Division when he retired in 1930.

W. P. Day entered the Weather Bureau as Assistant Observer at Ludington, Michigan, on March 1, 1913. The following December he transferred to Chicago where, with the exception of five months at Richmond and a year in the Signal Corps of the U. S. Army, he remained until November of 1920 when he came to Washington with promotion to Assistant Meteorologist. In 1928, he gained the AB degree from The George Washington University with major in mathematics; having done all his college work on a part-time basis while carrying full duty assignment in the map room at the Central Office. From February 10, 1930 until July of 1935 Mr. Day served as a District Forecaster at Chicago, then returned to Washington, to fill the position of Senior District Forecaster, which he continues to fill with distinction. ■

Isolationist?

IRVING F. HAND quotes from a letter received by the Solar Radiation Field Testing Unit in Boston:

"You have been referred to me as the outstanding authority on isolation and I would like very much to get your advice on this matter."

Although, says Mr. Hand, he has seen service at many isolated spots, as for example, Mount Weather, Virginia; Burro Mountain, New Mexico; Table Mountain, California; Mount Evans, Colorado; and finally Great Blue Hill, Milton, Mass., he still does not consider himself an authority on isolation.

"Insolation," he continues, "seems to be a troublesome word, as evidenced by a typist who some years ago typed it as 'insulation' and then informed the writer that he had made an error in spelling on his rough copy." ■

NEW METEOROLOGISTS IN CHARGE

Astoria, Oregon

MR. DORSEY P. MARTING of the Denver station has been selected to be MIC of the new station at Astoria. Mr. Marting is 58 and has been in the Bureau since October, 1929, serving at Evansville, Roseburg, Oakland and Denver. He has been Aviation Forecaster at Denver for a number of years but offered to accept reduction in grade in order to take an assignment he personally preferred. He will report at Astoria about April 1, 1953. ■

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WEATHER BUREAU

TOPICS

MAY
1953

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Volume 12 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.

Volume 12 Number 4

A Message from the Chief

For any organization to do its work well, it is necessary to have, in every job, someone who can—and will—do it efficiently; modern personnel management recognizes that high standards of employee ability must be accompanied by high morale in its broadest sense—interest in and enthusiasm for the job, pride in the organization and other factors.

The high "esprit de corps" of the Weather Bureau has not been accidental. Much of it is due to the fact that the practice of meteorology, when it interests a person at all, usually interests him deeply. Some of it comes from the fact that, in our unique type of operation, it is comparatively easy for each employee to see how his work fits into the overall operation—he has a definite sense of being part of a team engaged in a constant contest or game to outwit the elements. But a good deal of it, we believe, comes from the attention given by the Bureau to the welfare and career interests of each employee when making personnel placements and promotions. Where possible, we have taken into consideration such personal factors as family status, health, and personal preference in arranging transfers and filling vacancies. Schedules and assignments have been adjusted by supervisory officials to permit employees to obtain additional scholastic training of benefit to their careers. In these and other ways the officials of the Bureau have tried to maintain a high morale, even though the employees concerned have not always known of the consideration given in individual actions.

We recognize, of course, that circumstances beyond the Bureau's control can also affect an employee's morale. When the organization is expanding, there are relatively few problems in morale. Employment increases, grade levels rise, and everyone sees bright prospects for himself and his organization. But, when expansion slows down, or periods of retrenchment come, bringing changes in stations, prospects of closing offices, and other economies in operation, feelings of uncertainty are bound to arise.

At the present time the Weather Bureau, along with other Federal agencies, is entering, at the behest of our common employer, the American People, a period of retrenchment and readjustment. We must, all of us, face up to the problems of this necessary readjustment and do the best job we can, knowing that every effort will be made to reduce the adverse factor as much as

possible. Economies in operations are not new to the Weather Bureau. In past issues of TOPICS there have been many articles on ways to economize and on giving the tax-payer his dollars' worth in essential meteorological services. The Bureau has a long tradition and a good reputation for economical and sometimes frugal administration. We have done many things in the effort to insure that these facts are taken into account during the current period of retrenchment and that due allowance is made for these economies in applying reductions.

This may be a period when the understanding and cooperation of the employee are put to test. It may seem at times that the importance of employee morale is being forgotten. Nothing could be further from the truth. Every responsible administrator is always concerned with keeping employee welfare constantly in mind and in maintaining morale at the highest possible level. Whatever reductions become necessary will be made with care, and with the utmost consideration for the welfare of the service and its personnel.

F. W. Reichelderfer
Chief of Bureau

Bouquets for Tornado Warning Project

That tornado warnings have been both worthwhile and well received is evidenced by the number of favorable reports reaching the Central Office. Here are a few samples.

"Tornado warnings issued (3/13) by the Weather Bureau and disseminated by radio and TV were credited with saving many lives." (AP release in Lawton, Okla. Constitution and Enid, Okla. News, 3/15/53.)

Δ Δ Δ

"I have nothing but praise for the way the tornado warning system worked on March 13. I am certain that lives were saved and many injuries were prevented in RushSpring(Okla.) and Washington (Okla.) by the warning that was broadcast." (from R. W. Owens, Red Cross Area Hdq., St. Louis, letter of 3/20 to Okla. City)

Δ Δ Δ

"Pat Dowling, Rush Springs, Okla., credited warnings broadcast by WKY-TV with saving many lives in that area." (from Tulsa, Okla., Tribune, 3/13)

Δ Δ Δ

"When Cecil Lane heard on the radio that Rush Springs had been hit and when power failed at Bradley, he closed his store and went home. Minutes later his store, which would have had customers in it, was a pile of rubble." (from Tulsa, Okla., Tribune 3/13/53)

Δ Δ Δ

"The people of Washington (Okla.) came out of the storm without a scratch. The folks had radio warnings and when the blow came, they were ready and scooted for their storm cellars." (from Tulsa, Okla., Tribune, 3/13/53)

Δ Δ Δ

"I have heard lots of people talk about the warning they heard over the radio March 14 and they appreciated the service very much and think it was a good job by the Weather Bureau." (from Mr. Z. Clark, Miss. Highway Patrol, Booneville, Miss. letter of 3/23 to MIC, Jackson)

Δ Δ Δ

"At least 5 lives were saved at Booneville, Miss. 3/14 when tornado forecasts resulted in people taking refuge in storm cellar." (from report by MIC, Jackson)

Δ Δ Δ

"This family 12 miles northwest of Terre Haute was very grateful for the warning on 3/14." (from report by MIC, Terre Haute)

Δ Δ Δ

"The tornado warning issued 3/22 by New Orleans was fully justified and the general public had a favorable reaction." (from report by MIC, Shreveport)

Synoptic High-Altitude Turbulence Observations

The first attempt to obtain synoptic reports of high-level clear-air turbulence over the continental United States and adjacent seaward areas was made on March 18, 19, and 20, 1953. The program called for a ten-day alert period, March 10-20, 1953, picked mainly from climatological considerations, in which period a three-day period was to be selected for collecting observational data on both the occurrence and non-occurrence of high-level clear-air turbulence. The selection of the three-day observational period was the responsibility of Geophysics Research Directorate, Cambridge, Mass., which tried to anticipate a synoptic situation during the alert period that would involve strong and well defined jet streams. This choice was based on the established association of clear-air turbulence with the well defined jet stream. The alert period did not present any outstanding jet streams; therefore the last three days of the alert were used for the three-day observational period. Fortunately, on these three days some moderately strong and well defined jets developed and the response from the participating agencies, mainly military, was very good. The Canadian Meteorological Service cooperated in this program by furnishing observational reports gathered by Canadian military planes.

Up to the present time more than 600 cards have been received, each card representing a separate flight and the observational data of conditions at the 300- and 200-mb. levels. Most of these observations were taken as near as possible to the basic reporting times (0400 and 1600Z). In addition, many reports included data for other levels and other times. These reports, including non-occurrence as well as occurrence of clear-air turbulence, represent a fairly well distributed sample of the existing conditions and will now be studied in relation to the meteorological factors involved. These parameters include such things as vertical and horizontal shear of the wind, stability conditions, proximity of frontal systems, circulations and accelerations about the jet and the movement of maximum velocity centers as depicted in isotach analyses. The Geophysics Research Directorate, N.A.C.A., and the Weather Bureau's Division of Scientific Services are taking an active part in the analysis of these data.

Such a synoptic program having good geographic coverage and including reports of non-occurrence as well as occurrence, assists in determining the criteria for anticipating, and some of the necessary conditions for the existence of clear-air turbulence. It is only from reliable data gathered under such a program that we can hope to formulate techniques for forecasting clear-air turbulence. It is hoped that further sampling of this kind can be carried out during each of the seasons and in a variety of synoptic situations, in an effort to develop a well-rounded, unbiased basic understanding of clear-air turbulence. ■

Rescue at Ocean Station "Echo"

On February 27, 1953 at 1530 GCT, a Navy Neptune bomber, with nine crew members and one passenger aboard "ditched" near the U. S. Coast Guard Cutter COOS BAY, while this vessel was engaged in routine patrol at Atlantic Ocean Station Echo (approximately halfway between Bermuda and the Azores). All ten men aboard the plane were saved.

Weather Bureau personnel contributed to the success of the rescue by providing special surface weather observations for the ditching operation. ■

CORRESPONDENCE COURSES

Employees Continue Meteorological Studies

Continued desire for increased education in meteorology is shown by a recent report from Pennsylvania State College. On January 2, 1953, the total of registered Bureau students was 759; of these, 56 have completed two or more courses. In the preceding six months 76 persons completed their courses or dropped from the list for other reasons, and 56 new enrollments were recorded. ■

Talking to Reporters

ALMOST every field employee of the Bureau occasionally has to give information to reporters. And almost every employee who has talked to reporters has had the experience of having the resulting story in the newspaper say things differently than he would have written them.

Probably this will always happen to a certain extent, if only because two persons are not likely to express a thought the same way, but an understanding of the reporter's problems may help us get around it.

Basically, both you and the reporter want to give the public facts, but the approach is different in each case. As a meteorologist, you want to inform the public of things it should know, as precisely as possible. The reporter's job is to furnish facts in an interesting manner. No reporter wants to turn in to his desk a story, no matter how factual or precisely stated, which will not interest the reader. And anything he does write, he wants to write in the manner that will create the most interest.

In the day to day weather story there is seldom much difficulty, except that it pays to be sure the writer knows what the Bureau means by words (like "cold wave") which have a tightly defined meaning in forecasts and warnings. In the "feature stories" that most papers use occasionally, however, all sorts of tangles can occur.

Just as you are a specialist in weather, the reporter is a specialist in informing the public. He will not know as much as you about frontal movement, but he knows more about what his readers will read and understand. It's all right to suggest a story subject to him, but don't try too hard to sell him if he doesn't like it, nor to tell him how to write it. Reporters develop an instinctive distrust of people who try to force news upon them.

On the other hand, while reporters want interesting facts, they do want facts. Be as sure as you can that your reporter understands fully the facts in which he is interested.

The emphasis on the interesting and the eye-catching sometimes causes reporters to try for bizarre effects, such as "stunt" photographs. A Bureau employee may cooperate along these lines as far as any reputable professional—say, for instance, a doctor—might, but, so long as you avoid a "stuffed shirt" attitude, a reporter will seldom hold a refusal against you.

One thing seldom realized by those who have not worked for a newspaper is that the reporter himself does not usually have full control over the final form of his story, the amount of space given to it, the way it is displayed. He writes it the way he thinks it should be, and turns it over to an editor who decides how it compares in importance with the other news of the day, how much space it should occupy, where it should go in the paper, and the kind of type that should be used for its caption, or "head." Then it goes to a copy reader who edits it, trims it to final size, and writes its headline. Frequently he will change a word here and a sentence there to give the story more "punch," or rewrite a sentence to condense it. He may leave out whole sentences or even paragraphs that seem non-essential to him.

This is why there is not much point in asking a reporter to let you look over his story before he prints it. He couldn't do it if he wanted to, and what is more, he will not want to. Freedom of the press is important to our newspapers, and they are very sensitive to anything that might be construed as an attempt to control what they write.

And when a printed story does garble the facts, don't call up the editor and "lay down the law." Talk to the reporter, and show him what happened. He'll do his best to see it doesn't happen again.

Also, there is not much use in trying to get a correction printed unless something really important is involved.. It is an axiom of the newspaper "game" that, for every ten persons who read an erroneous item, only one will read a "correction," and he is seldom one of the original ten.

All in all, the best you can do is to create the friendliest relations possible with the press, and make every effort to see that the facts the reporter gets are are correct. Remember, he too wants to get them right. ■

Chart Holders for Triple Register Drums

IN the past, a special spring holder (Stock No. M000-9) has been used to hold the chart paper against the triple register cylinder. The Central Office supply of these holders has been exhausted, and the cost (several dollars per pair) of procuring additional ones appears excessive when compared to the advantages to be gained. Accordingly, it is suggested that rubber bands be used if spring holders are not available, rather than requisitioning the holders. ■

Wails from the Wife of a Weather Observer

by Mildred Kelso

For about a year we have been trying to find space for this reprint of an article which appeared in the Montana Farmer-Stockman, published in Great Falls, Montana. Recently we have, in numerous ways, publicized the unselfish service of the heretofore "forgotten men" of the weather service, the Cooperative Observer. But what of the unsung heroines who stand behind so many of them? This one speaks for herself, and, we suspect, for many others.

I AM a cooperative weather observer's wife.

This doesn't mean that my position is unusual or unique. Records of the United States Weather Bureau show that almost 10,000 cooperative observers are functioning within these United States, and probably most of them are married. It is much handier that way, because then there is somebody to take over for a while if the observer is ill or breaks a leg or is called up for jury duty.

The observer couldn't hire a substitute out of his salary, because he doesn't receive any salary.

This public-spirited citizen—and perhaps he is your husband too—is a volunteer worker. He has probably offered to assume this work because he sincerely believes that records and data on the weather conditions in his community may be of real value to the future economy of the region. "Community service" is something more than a high-sounding phrase to him.

You're Dubious

To you—well, maybe you haven't quite made up your mind!

The duties of a cooperative observer are many and varied. He records the temperature changes each day. When it rains he measures rainfall in the gauge provided for that purpose. In the winter he measures and records the amount of snow and its moisture content when melted.

At the end of each month your weather observer makes out three copies of a form called "Record of Climatological Observations." This record includes each day's maximum and minimum temperatures, precipitation, fog, thunder, sleet and snow, hail and wind. So far no space has been left for atom bombs.

Probably, as his ever-loving wife and helpmeet, the observer asks you to "compare" with him when he has entered all of this data from the notations taken each day. When he is sure they are correct he sends two copies of this "observation" form—and by now it looks like something that Prof. Einstein might have observed—to the state weather bureau. From there the forms are forwarded for processing at regional headquarters, and so on up the ladder until eventually all of the figures and decimals and zeroes which your observer has assembled become a part of the nation's records.

But Proud, Too

Maybe you are a little proud because your husband is playing a small part in our country's increasing knowledge of the science of climate. You should be. It is quite probable that the work he is doing now may be of untold value to your community and its residents in years to come.

Making weather observations may be a pleasure in the blossom-scented days of early spring, but in the winter it is different. You sympathize with your observer-husband as he wades through the snow to measure "depth on the ground," and you try to keep your feelings to yourself when he uses the last hot water in your teakettle to melt the snow in the rain gauge so that he may record "amount of precipitation."

If he is sick in bed you pinch-hit for him. If you should both be sick in bed at the same time—oh well, that isn't likely to happen.

Before all of this, however, you are likely to have to go through a period of adjustment. Speaking from experience, I would say it goes something like this:

You are inclined to be sulky when the weather bureau is first established at your home, and you refuse to cooperate with the cooperative observer who happens also to be your husband. You wonder, audibly, how he ever let himself be slickered into such a deal, and you mention tartly that you don't enjoy playing second fiddle to a weather bureau. You ignore the precision instruments in that beehive-like contraption out in the garden, and you continue to check the temperature from the old Sears Roebuck thermometer tacked to the shady side of a tree.

You Take Motherly Interest

After a while, though, much to your own surprise, you find yourself becoming interested in the set-up. Likely this happened the first time you were forced to pinch-hit while the observer was ill. You were proud of the accuracy of your temperature readings, and thrilled when you succeeded in setting the delicate instruments in readiness for their next 24-hour shift of automatic recording. That was when you began to take a sort of motherly

interest in the exacting little tyrants.

When this happens you don't let your husband know about it, of course. You wait until the coast is clear, and then you slip out to make your own observations at that fake beehive in the garden. But one day you give yourself away.

"How cold did you say it was last night?" you ask casually.

"Twenty-nine above," the observer will tell you.

"I called it 28—." You stop short, but the damage is done. From that time on you are declared in on the deal.

Real Pay-Off

The real pay-off, however, comes at some party or club meeting when someone mentions the weather.

"Do you remember that awful blizzard we had in January last year?" someone will ask.

Likely they aren't even talking to you, but that doesn't make any difference. It is your privilege to hop into this conversation with both feet.

"Surely you are mistaken," you say sweetly. "The only blizzard we had last year was on the 8th of February."

By this time the speaker may be wishing that the hostess had forgotten to include you on her guest list, but she won't contradict you. Nobody will contradict you. They realize that you are on proven ground.

Isn't it fun to be a weather observer's wife? ■

OLDER THAN U. S.

Charleston, S. C., Consolidates Services

CULMINATING several years of planning, administrative and forecast functions of the Weather Bureau in the Charleston area were consolidated at the Charleston Municipal Airport on November 1, 1952.

An office will be maintained in the Custom House in downtown Charleston where the river and climatological services, marine service and a limited amount of local public service will be performed. The Custom House office will also be maintained as a standby location, in case of a hurricane threat.

The Charleston weather office is a landmark in the climatological history of this country. The first systematic instrumental weather records in North American were made at Charleston, beginning in 1738. The early day observations were sponsored by the local medical society and the observers were doctors of medicine with a high sense of exactness and reliability. As a rule observer turnover was very low, one doctor having served as an observer for over fifty years.

Charleston was one of the first weather stations to be established by the Signal Corps after Congressional authorization; the station operated under the Signal Corps from early in January 1871 until the weather service was converted to civilian status in 1891. The Weather Bureau office was moved to the Custom House in 1897. It has been in that location continuously for over fifty years. Since 1783 observations have been made within a half mile radius of the original location, and there has been a minimum of change in surroundings that might influence readings. An office was established at the Municipal Airport in December 1931 and operated until May 1935 when it was closed for reasons of economy. The airport office reopened in 1938 and it has continued to function as an airport station since that date.

The Charleston observing station is one of the most completely equipped stations in the Weather Bureau. A storm detection radar has recently been installed which will be able to locate hurricanes at any point on the South Carolina coast. The station has recently been completely rehabilitated, an observation console installed, and the raob receiver rack recessed into the wall of a storage closet which is used to store all raob instruments and assorted equipment. Quarters have been rearranged and enlarged to increase the efficiency of operation and facilitate the briefing of pilots. Communication duties have been taken over by the Weather Bureau from the CAA and automatic transmission of sequence reports is now in operation. ■

One Million Radiosondes

ON March 5, 1953, D. M. Little, Assistant Chief of Bureau (Operations), and W. R. Thickstun, Chief of the Instrument Division, attended a ceremony at the plant of the Friez Instrument Division of the Bendix Aviation Corporation in Baltimore.

The occasion was the production of the one-millionth radiosonde by that company. ■

Translating Notations

THERE was a time when comments scribbled on memorandums bothered us a great deal in SR&F. All of us except the secretaries and typists, that is. It seems that they can read anything. Maybe our experiences in dealing with this everpresent problem will be helpful to others.

Whenever we saw something in a written comment that looked like oops, swishoo, or shoosh, we took it to one of the girls and she read it instantly and without the slightest effort. One of these notes by a project leader, for example, said, "So far as I can see the swisheroo is aleroofus." It was written on the side margin of a memorandum and ran around the corner and into the top margin. We tried standing on our heads and using mirrors, but it certainly seemed to say that the swisheroo was aleroofus, or, taking it upside down, the oyapooyus was vervooyoo. Personally, I thought he meant aleroofus.

One of the secretaries laughed and said at once that it was, "So far as I can see the proposal is satisfactory." There were other incidents of this kind.

There seemed to be no reason why the rest of us could not learn to read it. By watching the stuff closely and studying it constantly, we found that scribbling is caused by an involuntary tendency to write incoherent syllables attimes when certain thoughts give rise to specific mental images. For example, words like our, ore, and ear, or syllables or parts of words of the same character, cause a strong tendency to write oopo or oops. Combinations of letters like ew, even, ears, or ers, bring on a scribbled character like anscasser or ifflewhiffus. Then again, ated, ation, ition, and athers come out whoosh or whoopso.

(If there are any misspelled words in the above, it is because my secretary had difficulty reading my notes.)

To explain it all here would be tedious, but we are preparing a set of instructions which we call "The Correct Interpretation of Scribblus" which will appear as a chapter in the Weather Bureau Manual at a later date.* By this means we will make it easy for everybody and we will elevate scribbling (Scribblus) to the status of a dead language like Latin or or Ancient Greek.

Doubtless the best thing to do at this point would be to give an example. One follows. With a little study the reader will immediately recognize it as the first sentence in Lincoln's address at Gettysburg which has been put in the way it would be written by the average Central Office scribbler:

"Four scoopo and seven yoops ago our fooperwhoops brought forth on this continent a new nawhoop conceived in aleroof and dedicated to the ooperwhishus that all men are crewhooshus poopual."

With a knowledge of Scribblus one finds this in some respects better than the way Lincoln did it. Please note that Lincoln used a trite phrase that "all men are created equal." In Scribblus it is more euphonious, meaningful and accurate: "All men are crewhooshus poopual." One notes the great beauty of this version. It comes a lot nearer to the truth, if we may be pardoned for saying so, especially in the choice of the word poopual. In fact, we would go so far as to say that most of the men around here are perpetually poopual.

Getting around to the subject of this note, it is obvious that it is no longer necessary to write legibly and thus bare your mental processes to a critical audience. In fact, it is more or less hopeless to try to do otherwise.

There is an old story of the community which grew until in 1804 some of its leading citizens thought it should have a name.

They decided to gather suggestions and asked all residents of the community to come to the local polling place on an announced date and leave their suggestions.

In those days there were many scribblers and that fact led one of the citizens to insist that the people be asked to write their suggested names legibly on the ballot. Otherwise, he said, the scribblers would outvote the other residents and the town would be named, "Allegesessoop Blooie" or "Pooloosin Woosit." Therefore, the ballots were printed with a space for the name and under it the admonition, "Please Write Legibly." When the day came, nearly everybody, in accordance with the instruction, wrote "Legibly" in the space and so the town was named "Legibly, Virginia."

There is a moral here. In the words of Shakespeare, as the scribblers would have it, "Fret not, Frettipuss, for the anscasser is alamagooseless," which means that scribbling is here to stay.

*Much later.

Facsimile Network Grows

DROPS on the USAF facsimile circuits have been installed at the following stations since publication of the article on page 23, TOPICS, February-March, 1953:

Buffalo, N. Y. - WBAS
Burbank, Calif. - WBAS
Madison, Wis. - WBAS
Topeka, Kans. - WBAS

TAKE-HOME PAY AND RETIREMENT ANNUITY

Highest 5-year Average Salary	"Take-home" Pay (2 exemptions)	Optional Retirement at 60						Retirement at 62		Increase in annuity for each year of service
		40 years service		35 years service		30 years service		Discontinuous service (25 years)		
		Annuity	Difference	Annuity	Difference	Annuity	Difference	Annuity	Difference	
$10,000	$7639.84	$6000.00	$1639.84	$5250.00	$2389.84	$4500.00	$3139.84	$3750.00	$3889.84	$150.00
8,960	6870.24	5376.00	1494.24	4704.00	2166.24	4032.00	2838.24	3360.00	3510.24	134.40
8,040	6213.48	4824.00	1389.48	4221.00	1992.48	3618.00	2595.48	3015.00	3198.48	120.60
7,040	5455.32	4224.00	1231.32	3696.00	1759.32	3168.00	2287.32	2640.00	2815.32	105.60
6,000	4685.72	3600.00	1085.72	3150.00	1535.72	2700.00	1985.72	2250.00	2435.72	90.00
5,025	3982.42	3014.00	968.42	2638.00	1344.42	2261.00	1721.42	1884.25	2098.17	75.37
4,035	3259.88	2614.00	645.88	2287.25	972.63	1960.00	1299.88	1633.75	1626.13	65.35
3,535	2893.80	2414.00	479.80	2112.25	781.55	1810.00	1083.80	1508.75	1385.05	60.35
3,175	2617.94	2270.00	347.94	1986.25	631.69	1702.00	915.94	1418.75	1199.19	56.75

What Price Retirement?

The STATEMENT that "The actual cash difference between the retirement benefits and the amount of take-home pay for employees with long records of service is astonishingly small," (TOPICS, April 1953, p. 30) has brought a number of requests for exact figures. We have prepared the table on this page to show differences between take-home pay for a man and his wife at several different salary levels and lengths of service.

In the event the retiring employee elects the "Reduced Annuity with Benefit to Widow" type of annuity, there will be reduction of 5% of the first $1500. of the life annuity rate and 10% of the excess. If the wife is under age 60, there will be a further reduction of 3/4 of 1% of the full life annuity rate for each year the wife is under 60. In no case will the full life annuity be reduced by more than 25%.

Retirement annuities are exempt from income tax up to the total amount of the employee's contribution to the retirement fund. However, until the amount of the annuity exceeds the contributions, each annuity installment is subject to income tax on 3% of the total contributions. For example, if total contributions were $2400. and the annuity of $1200. per annum was received, $72.00 would be taxable and $1128. tax exempt until the total tax exempt income equaled $2400. after which the entire income would be taxable. Generally, the whole annuity is taxable after 2 to 3 years.

LONGEST SERVICE

Dean of Weathermen Gets 50-Year Medal

ON March 28, 1953, Mr. W. F. McDonald presented Mr. Stanley Schworm with the Department's 50-year service award in a simple ceremony at the Weather Bureau Office in Richmond. Mr. Schworm passed his 50-year milestone last June 10, 1952 and now has the longest period of service of any person currently on the Weather Bureau rolls. His various assignments have included river and flood forecasting, radio broadcasting, climatological work, sectional director, and for more than 30 years he has been Meteorologist in Charge of a field station.

Mr. Schworm was born June 19, 1886, at Buffalo, New York, where he grew up and attended high school. At the age of fifteen, he began his Weather Bureau career as a messenger boy at Portland, Maine. He later increased his formal education by taking courses at the University of Chicago and the American Correspondence School. During the next five years he served at Escanaba, Michigan; Jacksonville, Florida; Binghamton, New York; Montgomery, Alabama; Indianapolis, Indiana; and Hartford, Connecticut. He remained at Hartford

for slightly over ten years and then went to Eastport, Maine; Boston, Massachusetts; and Trenton, New Jersey; in rapid succession. He was assigned to the latter station in May, 1919, and remained there until five and a half years later when he was assigned to the Section Center at Charlotte, North Carolina. While at Trenton his professional ability was recognized and he was promoted to meteorologist on November 1, 1920. He remained at Charlotte until June, 1937, when he transferred to Parkersburg, West Virginia, as Official in Charge. He moved once more in November of 1945 when he was placed in charge of the Richmond station where he still serves, continuing to carry his full share of the work and keeping an active finger on all functions of both the city and airport stations. ■

Special Tornado Research Project

A interesting special project associated with the intensive tornado research will be conducted at the Weather Bureau Office in Oklahoma City this summer.

A "microbarovariograph" is being installed at the city office by the Lamont Geological Observatory, in an attempt to detect sound waves associated with tornadoes.

Basically, the detecting equipis an ultrasensitive barograph which records on photographic paper.

Bureau personnel at Oklahoma City will maintain the equipment, and research personnel in the Central Office will correlate the records with other tornado investigations.

NEW METEOROLOGISTS IN CHARGE

WBAS Los Angeles

JACK C. THOMPSON of the Scientific Services Division has been selected to succeed Albert K. Showalter as Meteorologist in Charge at the Los Angeles, California WBAS. Mr. Thompson is 43, entered the Bureau on February 1, 1929, and has had assignments at Sacramento, San Francisco, Pomona, Burbank, Los Angeles and Washington. In 1947-48 he attended UCLA on a Weather Bureau scholarship in meteorology. For several years he was District and Research Forecaster at Los Angeles and has contributed much in research, particularly in advancing techniques in objective methods of forecasting for the Los Angeles area. ■

RETIREMENTS

Mrs. Laura A. Flammer

MRS. LAURA A. FLAMMER retired at the termination of April 30, 1953, after fifteen years of Government service. All but a year and a half of this was with the Weather Bureau. At the time of her retirement she was employed in the Central Office in the Records Management Section of the Administrative Services Division. She transferred to this division from the Climatological and Hydrologic Services Division in 1946.

Mrs. Flammer was born in Marion, Virginia, on June 26, 1880. She grew up there, attended high school and Marion College after which she taught school for a number of years. She began her Government career during World War I with an appointment as clerk in the War Department on April 16, 1918. She continued with the War Department until October 10, 1919, when she left the Government service to return to the teaching profession. During the depression years of 1935 through 1938 she was engaged in part-time employment copying climatological data from Weather Bureau records for engineers and other interested persons who had need for this information. This led to her full-time employment in August 1939 when she returned to Government service as project supervisor in a special climatological tabulation project sponsored by the Weather Bureau and the WPA. Upon termination of this project in June of 1941, there was a short break in her service but by the middle of August, she was again employed on another project. When it terminated in June 1942, she was given a regular Weather Bureau appointment as Junior Clerk Typist in the Reports Section of the Statistics Division of the Central Office. In November 1946 she transferred to the Administrative Services Division where she remained until her retirement.

Her extra-curricular activities included church work and music, and she is an active member of the Rebecca Lodge.

She may be reached at 3048 N Street, N. W., Washington 7, D.C. □

Harrison W. Spencer

HARRISON W. SPENCER, Meteorological Aid at Charlotte, North Carolina, was retired for disability at the termination of March 26, 1953.

Mr. Spencer was born in San Antonio, Texas, on May 27, 1921. He grew up in Texas and graduated from high school at Austin, after which he served in the Army Air

Corps as a weather observer and radio operator from August 1940 through October 1945. Following his discharge from the Army he was temporarily employed for a few months by the State of Texas in a clerical position and then accepted a position with the Weather Bureau as Meteorological Aid at Raleigh, North Carolina. He transferred to Charlotte in August of 1946 and remained there until his retirement. Mr. Spencer may be reached at Route #1, Indian Trail, North Carolina. □

Will L. Wyland

ON April 30, 1953, the day before his seventieth birthday, Mr. Will L. Wyland, MIC, WBAS, Sheridan, Wyoming, bade his staff goodbye and received their "bon voyage" wishes as he began his retirement from the Weather Bureau after 47 years of Government service and made final preparation for a tour of Northern Europe.

With the exception of 15 months as a rural mail carrier, all of Mr. Wyland's service was with the Weather Bureau. He entered the Bureau at Memphis on September 1, 1906, and for the next 15 years transferred with the usual regularity experienced by progressive Weather Bureau employees to North Head, Washington; Portland, Oregon; Boise, Idaho; Des Moines, Iowa; Hatteras, North Carolina; and Wichita, Kansas, before taking over the MIC duties at Sheridan on September 16, 1921. Among the highlights of his career prior to his transfer to Sheridan were the four years spent as a District Forecaster at Portland, Oregon, and the three years as MIC at Hatteras where, in addition to operating the weather station, he served as Morse Telegraph Operator for the Island.

Mr. Wyland was born at Jewel, Kansas, on May 1, 1883, and attended elementary and high school there. He studied commercial subjects at Kansas Wesleyan and music at Bethany College, Lindsborg, Kansas. His Weather Bureau employment was interrupted in 1911 when he accepted the position of Director of Music at John Fletcher College, Oskaloosa, Iowa. This proved to be only a temporary diversion for he returned to the Weather Bureau in 1913, dedicated to meteorology as a profession and music as an avocation. ■

DEATHS

E. D. Emigh

MR. E. D. EMIGH, retired MIC, Montgomery, Alabama, died April 8, 1953, at his home in Montgomery at the age of 74. Death came suddenly from a heart attack just three days before he planned to be married.

Mr. Emigh was retired from the Weather Bureau December 31, 1948 after 50 years of service. Notice of his retirement was published in TOPICS, February, 1949. □

Charles H. Graves

CHARLES H. GRAVES was killed April 20, 1953, when the plane in which he was returning from an ocean-weather cruise that had terminated at Long Beach, California, crashed in San Francisco Bay. At the time of death, he was assigned as Meteorological Aid (Shipboard Observer in Charge) at Pacific Weather Project Headquarters, San Francisco.

Mr. Graves was born at Moberly, Missouri April 28, 1923. He was graduated from Moberly High School and attended Junior College in the same city for one-half year. From April 1943 to March 1946, he served in the U. S. Navy with attendance at the Aerographers' Primary School at Lakehurst for twelve weeks in 1943. Following honorable separation from the Navy, he was appointed as Meteorological Aid at Fresno, California in July 1946. One year later transfer to the Regional Office Mobile Unit at Los Angeles was effected. Following this assignment, he served for one year at the Burbank airport. In September 1949, he was transferred to the Pacific Weather Project at San Francisco. □

John E. Sanders

JOHN E. SANDERS, retired Principal Assistant, at Milwaukee, Wisconsin died at his home in Knoxville, Tennessee, on April 8, 1953.

Mr. Sanders retired December 31, 1948, after completing over 38 years of Weather Bureau service. Notice of his retirement was published in TOPICS, February, 1949. ■

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WEATHER BUREAU

TOPICS

JUNE
1953

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Volume 12 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.

Volume 12 No. 5

Crop Reporting Costs Reduced

A QUESTIONING eye has frequently been cast, of late, on the need for daily telegraphic reports from crop weather reporting stations during the growing season. In April of this year the Climatological Crop Centers and District Crop Centers were asked to consider the possibility of preparing and publishing the customary bulletins based primarily on mail reports, supplemented by weekly wire reports.

Such a program promised economies in both communications and wages, since most observers concerned were paid on the basis of the number of reports telegraphed. It was realized that, if the suggested plan were adopted, provision would have to be made to see that the river and flood service would not suffer. The suggestion was made that observers report precipitation of less than .50 inch by mail, and send special telegraphic reports when more than that amount fell. River District Centers were consulted on this point.

Reports from the various centers indicated that the plan was practicable, especially because the well spaced and reasonably numerous stations now available on Circuits "A" and "C" allow an up-to-the-minute watch on the weather not possible when the scheme of substation reports in crop weather activities was established. The change has been authorized, and the total annual amount of funds freed for other urgent needs elsewhere is in the neighborhood of $20,000.

While some of the observers resigned in the face of a reduced remuneration, others, while regretting the cut, expressed themselves as fully in accord with the principle of using public money more efficiently. One such is Mr. H. B. Bozeman of Winnfield, Louisiana, whose letter we print below. Mr. Bozeman loses approximately $45 each crop season.

"Answering your letter of April 20 relative to discontinuing daily reports to the New Orleans office after April 30.

"Naturally, I am sorry that these reports have been suspended.

However, I will be glad to continue to serve as your Winnfield cooperative weather observer. I have been doing this too long to quit now. I have a too large 'clientele' of local people and interests that constantly call me about weather conditions.

"This is a timber growing area. Weather is a constantly interesting subject with all timber growing and producing interests, as much the farming interests. Also, we have a number of nearby fishing spots, and many fishermen call me before going out to inquire whether the barometer is falling or rising and the weather conditions in general.

"As to compensation, I am human and naturally regret having it stopped. However, I am in general sympathy with our present National administration in their efforts to curtail Federal expenditures. I hope the present Congress will cut as drastically all foreign aid spending as they have the compensation of the cooperative weather observers.

"I will be glad to continue as your local cooperative weather observer, as I feel I am rendering a needed local public service."

Okeechobee Hurricane Project

The Hydrometeorological Section, Hydrologic Services Division, working under transfer of funds from the Corps of Engineers, Department of the Army, is well known for its work in estimating upper levels of rainfall over specific drainage areas. However, flood due to rainfall or snowmelt is only one of the hazards against which levees and other control works are designed. Strong wind is another. One of the Section's assignments from the Corps was such a wind study—the Okeechobee Project.

IN April of 1948 the Corps of Engineers requested the Hydrometeorological Section to study hurricanes to "provide sufficient information concerning surface wind velocities, duration and direction for use in scientific analysis of wind tides and waves in Lake Okeechobee during (a) a hurricane comparable to the most severe of record in southern and central Florida, and (b) the most severe hurricane considered reasonably possible over Lake Okeechobee." The purpose of the request was to provide meteorological information pertinent to the re-design of levees along the shore. In a shallow lake such as Lake Okeechobee, not only are the waves important, but also the pile-up of water on the downwind end of the lake. During the August, 1949, hurricane, this pile-up, retained by levees, resulted in a difference of 18 feet in the water-surface elevation across the distance of 30 miles. During the 1928 hurricane, at which time there were low levees, water was blown out of the lake basin, drowning 2400 people.

During the project planning stage, the Section recommended installation of recording wind stations out over the lake. Three stations were installed on navigation light pylons, and seldom has data-gathering proved as profitable, when, very fortunately for analysis purposes, the August storm of 1949 crossed directly over the Lake shortly after the instruments were installed. From these data it was possible for the Section to develop techniques of data analysis, station wind-correction factors, mean wind and pressure profiles, a generalized pressure profile formula, and a method for construction of a sequence of wind speed and direction patterns over Lake Okeechobee when exposed to a hurricane having a given speed and direction of movement. These techniques provided a suitable answer to part (a) of the request and are discussed in detail in Hydrometeorological Report No. 26. Charts of wind speed and direction have been constructed for ten-minute intervals over Lake Okeechobee, corresponding to conditions which would evolve from passage along critical paths over Lake Okeechobee of storms equal in magnitude to those experienced in southern Florida. Substitution of appropriate pressure and distance values in the formula, and application of the above techniques, provided the answer for part (b) of the request.

In order to test the preliminary results, submitted under pressure of time limitations, and to provide the added tools of frequencies of extreme values of pressure and wind, changes incident to moving over land, and the relation of storm intensity to storm size, the Section had to conduct its own climatological study. This study was unusual since much of the data were obtained by analysis rather than by direct abstraction from meteorological records. For example, an estimate of the lowest pressure and highest wind was made for every hurricane that affected the United States between 1900 and 1949. The track of each storm center was reconstructed on the basis of best fit of all pressure, wind, and miscellaneous reports, assuming the storm to be circular within 100 miles of the center. Hourly positions of the track were obtained and then, through expansion of the technique employed by that hurricane-wise old gentleman, Dr. Isaac Cline, of relating observed hurricane data to distance from center, observed pressures and winds were plotted against distance from the storm center. To these were fitted theoretical curves, evolved in the study of the August 1949 hurricane and checked in others, from which wind and pressure values could be read at any distance up to 100 miles.

The study of filling and kinetic energy distribution for those of the hurricanes that invaded a coast between 1900 and 1949 revealed that typically a hurricane does not fill or lose its energy as quickly as is frequently supposed. The rate of filling varies with distance, being greatest near the center. Farther out the pressure frequently falls while the central pressure is rising. The rearrangement of pressure is accompanied by a rearrangement of the kinetic energy, the loss in kinetic energy near the center being partially compensated by an increase farther out. Based on this study, the Hydrometeorological Section recommended to the Corps of Engineers that filling be neglected for hurricanes moving the thirty miles from the Atlantic Coast of Florida to Lake Okeechobee. The techniques and findings, which should be of particular interest to hurricane forecasters, will be published by the Hydrometeorological Section. ■

BALTIMORE, MARYLAND

A Successful Consolidation

At first thought it seems evident that both services rendered and manpower utilization would be more efficient from a single office in a city than from two, but in practice there are always problems to be met in consolidating multiple offices. Almost every variety of objection had to be met before the two establishments in Baltimore could be arranged, but the final results, after nearly three years of operation as one station, are an excellent example of what can be done. The following progress report of the MIC contains information we are sure is of wide interest, and a number of ideas well worth passing on.

WE NOW have had over two and a half years' experience as a consolidated station. The downtown office remained in operation with one employee as a records and service office for about six months following consolidation, but was closed entirely on January 1, 1951. Most of the arguments against consolidation have proved to be without any real basis. At least, the arguments and problems were of such a nature that, if there was a real desire to render effective service, they could be resolved with little difficulty and with the satisfaction and general approval of all concerned. As a result of experience gained in rendering practically all Weather Bureau services to a metropolitan community of over one and a third million and to a large segment of varied industries, business, agricultural, maritime and transportation interests, it is our opinion that these services can be rendered more effectively and economically and with less confusion than is possible under any dual-office arrangement. We would recommend consolidation as a general policy where availability of quarters is no real obstacle.

Assignment of all personnel to one office has made it possible to improve scheduling and services rendered even though personnel have been decreased by one since consolidation and can be reduced further under circumstances indicated in our letter of January 8, 1953.* In addition, professional personnel are now available to render necessary service from 0430 to 2400 as compared with 0530 to 1800 prior to consolidation.

Following consolidation, all newspapers, most radio stations, the Associated Press, and other agencies which aid in the dissemination of forecasts, warnings and bulletins arranged to be placed on our local teletype circuit. At present there are a total of seventeen on the circuit. Direct radio broadcasts are made from the office at 0615, 0705, 0735 and 1205 EST daily except Sunday. Bulletins prepared for radio broadcasts are also placed on the local teletype circuit to provide necessary operational information to all agencies on the circuit. These scripts, plus bulletins, provide background news material for the press and radio stations. State forecasts picked up on circuit 7072 are also placed on the local circuit to provide operational information to utilities, transportation interests and others. This mass method of dissemination of all Weather Bureau services and information saves many man hours of time per week and is one of the most effective methods of disseminating our services that has been developed.

Service to aviation has been improved by providing professional coverage at all times. This was not possible under the dual-office arrangement.

Prior to consolidation, there was considerable concern for those agencies or interests who required data and information at frequent intervals. This included the newspapers and press associations. In the light of experience and methods developed to provide this information, this concern was unwarranted. Newspapers obtain their data directly by teletype and are no longer required to utilize messengers for this purpose. The limousine service at the airport delivers one weather map per day to the Morning Sun for inclusion as a part of its weather coverage. Other agencies desiring information obtain it by telephone and, if the data are needed immediately, find no problem in sending for it since parking facilities are readily available. The use of certified copies of records is employed extensively in providing data for court purposes. In these cases, the data are normally mailed.

An observation station is maintained in the Custom House location to continue the long period of record in the downtown area. Temperature data for newspapers and other purposes are obtained from the Custom House by remote control on an instrument at the airport office (TOPICS, June, 1952, p. 94). Automatic instruments, which require that the sheets be changed once weekly, are used to obtain other necessary records. The telephone exchange used at the Custom House was transferred to the airport so that there has been no additional cost to the general public for calling the office to obtain necessary information.

The climatological work of the office has been constantly

*Another position has been dropped since this was written.

improved with little change in the program as originally planned in the downtown office. Availability of climatological records to forecasters is a definite advantage for investigation or research purposes. In addition, during slack periods, personnel can be assigned to climatological work, thus gaining experience in this phase of Weather Bureau activity.

For forecast purposes, professional personnel have more opportunity for discussion of forecast and related problems and it is believed that, in general, there has been improvement in timeliness and the over-all quality of the forecasts. The station is acting as a state center in providing forecasts and bulletins for local and broadcast purposes to the Weather Bureau Office at Frederick and to a limited extent to the Weather Bureau Airport Station at Wilmington, Delaware. Forecasts for groups of counties are prepared twice daily for dissemination to radio stations and newspapers throughout the state over Associated Press wires. This information is also disseminated over the State Police teletype network. In this manner, all radio stations throughout the state have available the latest forecast for their areas twice daily.

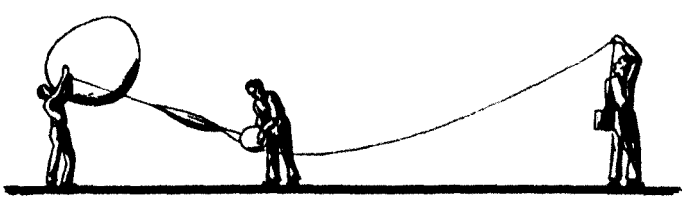
Thirteen police barracks provide the office with two or three weather and road reports daily. This information is provided by teletype and, any time critical conditions exist, the teletype service is available for obtaining information from any portion of the state. All service obtained over the state police network is, in turn, provided to all agencies on the local teletype circuit, which includes auto clubs, railroads, transportation and others interested in obtaining weather data over the state. This information is also used as broadcast material and provides the public with a valuable service for travel, especially important for the mountain areas in western Maryland during the winter.

Forecasters are able to give more attention to wind forecasts and warnings for maritime interests and pleasure craft for the Chesapeake Bay and the Coastal area. The physical arrangement of the office is such that there are readily available in both our forecast and observer rooms direct wind speed and direction equipment which is most conductive to a continual awareness of wind conditions which exist in the area as well as weather changes occurring. As a result, the end product is forecasts and warnings which are more timely than was possible under the dual-office arrangement.

Within the last year, facsimile equipment has been installed and is in use. This was made possible through cooperation with the Air Research Development Command. In addition to supplying the facsimile equipment, the ARDC also assigned one person to the office for providing special services to military officers and pilots. This arrangement has worked well and the ARDC has indicated that it is well satisfied.

Plotting of all charts, except the six-hourly surface synoptic chart, has been discontinued. This chart is plotted because of the greater coverage of stations possible and because the chart can be completed well in advance of the time that it is received by facsimile. The additional coverage and the time are important factors in preparing forecasts and warnings which frequently have a deadline.

In our opinion, consolidation has brought about general improvement in all phases of Weather Bureau work. To the best of our knowledge, there is no agency or group which has found that moving of facilities to the airport has been a disadvantage in any way. The fine cooperation from the Regional Office and the Central Office has played no little part in making all this possible as well as making the office one of the finest in the country from the standpoint of appearance, facilities and equipment. Their support in various administrative and technical problems has also been extremely helpful. ■



The Scholarship Program

APART from the strong possibility of drastic curtailment of university assignments this year because of budgetary retrenchment, a review of present facts seems to indicate that the Bureau's scholarship policy should be amended.

At the time the program was begun, a general basic foundation in meteorology was the best (and only) formal meteorological training available for forecasters. Even this was available only at very few schools. Thus, since 1938 selected Weather Bureau employees were assigned to this basic training with the idea that it would improve forecasting. It is still true that a basic course in meteorology is the best foundation for forecasters. However, on top of that, more specialized training is needed. Gradually, as meteorological science has grown, the universities have tended to set up more and more specialized courses. The so-called "advanced forecasters course" at the University of Chicago is one example.

Another fact to be considered also is that the basic courses in meteorology are now much more widely available to Bureau employees; not only are there more schools which offer these courses, but a full curriculum in undergraduate meteorology is available even by correspondence.

It appears, therefore, that Bureau scholarships should be made available mainly for employees who need, and are capable of using, specialized courses which relate directly to their work. Since the legislation which enables the Bureau to give scholarship assignments has the purpose of aiding in the promotion of safety in air commerce, the special studies must also relate to aviation weather in some way. Courses in forecasting, for instance, are obviously related, but there may be many others which will lead to knowledge contributing to air safety and air economies.

For the next several years, therefore, it seems advisable that each scholarship assignment will be made for an individual, specific objective. In other words, if an otherwise outstanding employee needs a special course or combination of courses which will further train him for a specific assignment, present or proposed, the scholarship will be used to give him the required training.

Applications for university scholarships will no longer be solicited once a year. Employees may write to the Central Office at any time to indicate their desire for a training assignment, but should specify the kind of training needed, and the objectives of the training in detail. The Central Office will, from time to time, assign employees from among applicants and others, to universities for special courses according to the Bureau's needs and as funds become available. ■

San Juan MIC Position Open

ASSIGNMENT of Edward H. Marx, Meteorologist in Charge of the Weather Bureau Office at San Juan, Puerto Rico, as Meteorological Consultant with the Western Hemisphere Aviation Technical Assistance Group in Panama City, Panama leaves this Meteorologist, GS-12, position open.

Applications for the position are invited from employees who have had the necessary training and experience. Briefly outlined, the principal duties and responsibilities are as follows: (1) Section Center responsibilities for the West Indies and Caribbean area; (2) Public service and dissemination of local forecasts in the Puerto Rican area, with a population of over 2 million; (3) Operation of a network of ten airway and hurricane stations and eight storm warning display stations; (4) Maintenance of liaison with officials of other governments regarding specialized weather problems of the area, and with agricultural, commercial and shipping interests on problems involving meteorology

and climatology. Although not an absolute prerequisite, a good knowledge of Spanish will give preference because it is the official language and it will facilitate the handling of forecasts; the recruitment of local personnel for climatological, hurricane and airway stations; and in conferences with Spanish-speaking officials of Latin American nations.

San Juan has a population of about 350,000. The newer and larger part of the city, generally known as Santurce, has wide streets and modern buildings. Medical service and recreation facilities are comparable to cities of similar size in the U. S. All courses in public schools, which are overcrowded, are taught in Spanish, but there are private and parochial schools for English-speaking children at about $15 per month per child.

The MIC presently occupies a a 3-bedroom unfurnished apartment on the second floor of the Weather Bureau Building for which an annual deduction of $840 is made. (There is, however, a possibility that this situation may not last more than a year or two.) In shipping furniture to the tropics, employees are advised against including articles which will not hold up in that climate.

There is a 25% cost-of-living differential added to the basic annual salary to compensate for the higher costs of food and other essentials. Federal employees are required to pay both the Insular and Federal income taxes, but the amount of the Insular tax may be subtracted from the Federal tax, the total tax being the amount of the Federal levy.

Applicants will please submit applications through their respective Regional Offices for endorsement and comments. No individual acknowledgments of applications will be made, but when a selection is made an announcement will be included in TOPICS.

Public Service and Workload

The following statement, contained in a letter from the Chief of Bureau to the MIC of a field station, has such wide application at present that we print it here.

The WORTHWHILE services in meteorology which an organization like the Weather Bureau might render to the general public and to agriculture, aviation, and other economic fields are almost unlimited. This means that our latent or potential workload always exceeds the capacity of our staffs. The majority of our offices and field stations see many improvements and extensions in Weather Bureau services to the public which they would like to accomplish but which they cannot do with present personnel complements. It is therefore necessary to select the most essential service items and, if necessary, reduce the workload to a reasonable volume within the capacity of available staff. This does not signify that we suggest indifference toward essential services. On the contrary, the Weather Bureau has a fine tradition of loyal service often in excess of the normal requirements of a position and we wish to encourage and support our officials and employees in doing everything within reason to provide services essential to protection of the public against storm hazards and other weather damage.

The Weather Bureau like other Federal agencies is confronted with a reduction in its "income" in order to reduce expenditures of the Federal Government and balance the budget. This requires curtailment of services previously considered essential. We are trying to find ways to maintain the most essential services and to provide more economical alternatives wherever practicable. We are fully aware of field station problems in this respect and are hopeful of making readjustments where serious inequities exist. However, your station appears to be in circumstances similar to those of many other airport stations and some curtailment in workload is unavoidable. We have requested the Regional Director to survey the situation and make recommendations. ■

NEW METEOROLOGISTS IN CHARGE

Marquette, Michigan

MR. LAUREL W. DAHLIN has been selected for transfer to Marquette, Michigan, as Meteorologist in Charge, succeeding Mr. Chester O. Tucker, who retires May 31.

Mr. Dahlin is 47 years of age, has been in the Bureau since January 3, 1928, and has served at Minneapolis, St. Paul, Chicago and Duluth. From July 1946 to March 1950, he was in charge of the Duluth WBAS. When consolidation of the city office and airport took place, he was made Principal Assistant.

Sheridan, Wyoming

DON K. HALLIGAN, now in charge at Nantucket, Massachusetts, has been selected for transfer to Sheridan, Wyoming as Meteorologist in Charge, succeeding Mr. Will L. Wyland.

Mr. Halligan is 37, entered the Weather Bureau in February 1939 and has served at Lincoln, Bismarck, Bethel, Anchorage, Fairbanks, Atlanta, Boston (Field Aide) and Nantucket (in charge since June 1951). ■

Student Visits

Communications on student visits ran the gamut from enthusiasm for them to a report on how they were discouraged at one station. Mrs. Trubee T. Campbell, secretary at WBAS, Los Angeles, sent a copy of the itinerary she has worked out, which handles visiting groups with almost split-second timing and keeps the students out of the way of the station personnel. We are printing it in full as an example of what can be done on a large station with personnel available who are not tied to deadlines.

My 20-minute procedure in conducting a group through the office has been worked out to a fine point:

(1) I hand the teacher a copy of the pamphlet, WEATHER BUREAU PUBLICATIONS, Part I, Teaching Aids, on the back of which I have typed a list of books on weather for young people available from the public library. (In addition, the public library sent us a classified list of its books on mathematics, physics, hydrodynamics, thermodynamics, aerology, electronics, and geology.)

(2) On the roof I explain the elements of an observation and the etymology of names of instruments which helps them to be understood:

a) Sky
b) Ceilometer (explain triangulation if group below high school level)
c) Visibility
d) Temperature and Dewpoint
e) Anemometer
f) Rain gage
g) Barometer (last element of obser- before discussing maps)

I keep them out of the observatory, explaining that outside instruments are connected electrically with the graphs on which readings are recorded.

(3) Downstairs I stand in the doorway with my back to the forecast room and show:

a) teletypes (bringing in observations)
b) analyzed synoptic map (barometric inches converted to millibars, units of force; isobars, pressure patterns and fronts)
c) facsimile machine (show them 500 mb. 36-hour prog chart, example of upper air map)

I tell them higher mathematics is the main prerequisite for meteorology from which they all recoil, in particular a college engineering class! I avoid interruptions, but ask for questions at the end and occasionally seek a forecaster's aid. If the teacher tries to get me to give them a short course on weather, I refer to the publications on the pamphlet.

They go away satisfied since the talk is based on simple physics (more why we observe, than how the instruments register, weather elements) and since the talk is also based on the two most vital elements in education - continuity and coordination of subject matter.

TWO items in the April, 1953, issue of TOPICS created considerable interest in the field, as a number of letters indicate. One was the article "Student Visits," and the other was titled "Rotating Shifts and Sleep Habits."

At Buffalo, the situation is different, and MIC B. L. Wiggin reports action that has been effective, with no damage to public relations:

At Buffalo it was necessary to arrange with the Superintendent of Schools to notify all teachers that visits of school classes to the Weather Bureau office at the airport were to be discontinued. It was easy to persuade the Superintendent into taking this action. First we invited the annual convention of science teachers to our quarters. The teachers caused much inconvenience for a portion of one day. As they were jostled by pilots they very shortly realized they were in the way. Secondly, we produced the price of a convention-type luncheon in order to pursue the matter before all the assembled teachers in a luncheon address which was made as humorous as possible using illustrations from the morning session.

The combination of showing how our quarters are used, the jobs that have to be done and the limited staff and time to do them brought the desired results. The Superintendent merely relayed the findings of his science teachers when he requested all teachers to discontinue visits.

We also have the New York State Teachers College at Buffalo. Groups of student teachers are accepted with their instructor, a member of our local weather society, who has always been considerate of our workload, conducting the tour.

In Pittsburgh the WBAS is relatively inaccessible, and most of the student visits are handled at the downtown office. MIC Henry Rockwood writes:

...We have been rather surprised to note the lower age group among the classes asking to visit us, and have felt like the writer in TOPICS that Junior High or Senior High School science students were the only ones who could normally gain anything from the visit.

For that reason we definitely but tactfully (we hope) discourage inquiries from grade school teachers, particularly below the fifth grade level. Upon occasions we have made exceptions when the teacher claimed the group had been making a special project study on weather, and have been agreeably surprised to have a fourth grade group take an interest in and ask more intelligent questions and more questions on the Bureau and the instruments than many higher grade level students.

Furthermore, we try to restrict visits to a definite period in the early afternoon; to restrict the size of the group to not more than 25, which usually permits subdivision into two groups during the visit (30-40 minutes); and refuse to accept groups arriving without advance warning. In the latter step we have the whole hearted cooperation of the Building Superintendent, who must provide a guard as escort and special elevator service. (If the truth be told, the Superintendent would rather that we had no visitors at all.)

We are firmly convinced, however, that visits to Weather Bureau offices, if they are reasonably well equipped to handle the group, is a form of worthwhile public relations, of which we need more not less.

Another firm believer in the value of visits is MIC W. W. Talbott, of WBAS Tampa, whose letter follows:

...To date, one thousand school children have visited our office since school opened last September. Hundreds more will come before school closes in June. Most of them are classes from the sixth grade which features Weather Bureau work. Many of them are from the local high schools, and some from the University of Tampa.

We date them ahead of time—scheduling the visit to begin with the morning radiosonde balloon release. While out on the lawn waiting for the balloon to go up, their attention is called to ceilometer, rain gage, and telepsychrometer ground instruments. Also, the roof equipment is pointed out.

Inside, they see the CAA teletypewriters in our office as well as the facsimile machine bringing in weather reports and maps. They see the various recorders—radiosonde, ceilometer, telepsychrometer, pyrheliometer, and wind speed recorder. They are shown the microphones for direct weather broadcasting, and they are ushered out through the darkened radar room.

Their enthusiasm is unbounded, especially if they are lucky enough to rate an additional tour through a Constellation or DC-6 waiting for a take-off.

The time consumed need not exceed twenty minutes—about one minute per person. And no weatherman ever spent twenty minutes to greater advantage.

That Graveyard Shift

The writers of letters on "Rotating Shifts" were equally unanimous in disliking the "graveyard shift" and in rejecting Professor Kleitman's recommendations that workers change shifts no oftener than every four or six weeks. One point widely stressed is that workers on night shifts automatically revert to normal hours on their days off.

MIC Rheinhart W. Harms, of WBAS Bridgeport, submitted the article below with an ingenious suggestion for minimizing the the rigors of the unpopular shift.

It was with great interest that I read the article, "Rotating Shifts and Sleep Habits" in the April issue of TOPICS; however, I don't believe the good professor has the solution. We still maintain that a "Graveyard" shift is still a "Graveyard" shift no matter how long you work it—one week or all summer. The best idea is to make an attempt to eliminate the thing entirely—your body just wasn't made to go to bed when the sun comes up.

Our reasoning goes something like this. We decided that the most desirable sleeping hours in anyone's life was from 10 P.M. to 10 A.M. each day, hence the shifts should be cut up to give each one the maximum number of those desirable sleeping hours. Such a split would start a shift at 0400 in the morning with a night shift starting at 2000 until 0400. After working this for a few months, we decided to step it up one hour to 0500 since a couple of the boys thought it wasn't too much fun getting up with the milkman.

Here are some advantages of our new shifts: "A" shift, 0500-1300: This is the first complete shift of the day. A little tough for some people to get up this early; however, is ideal for small stations because a 3-hourly surface chart can be drawn (0430E) before the phone starts buzzing. Also, on a rainy day you only get one-half day of really tough going compared to a full 8 hours of rough going on the 8-4 shift. You go home at 1300, have lunch with the wife; the afternoon and evening are yours for relaxation. Personally, it's my favorite shift, having been born and raised on the farm where you got up at 0430 and just came in for dinner at 1300.

"B" shift, 1300 to 2100: This is superior to the old 4-12 shift in that one can go out in the evening. In case your "date" is slightly earlier, your friend on the "C" shift can easily be persuaded to come in an hour earlier because you will do it for him. You eat your hot meal at noon before coming to work and have the usual coffee and sandwiches during the evening similar to the 4-12.

"C" shift, 2100 to 0500: This is the payoff shift on the whole schedule. You have dinner with your family, read the evening paper, then go to work. Along about 0400 you start to get drowsy, but you can make it until 0500. You hit the road, crawl into your bed before the family wakes up and fall soundly to slumberland before the sun gets up. You arise about noon feeling rested, eat lunch and have the afternoon for recreation. On the old midnight shift you ate dinner, burnt your eyeballs out on the television and then attempted to stay awake until 0800. It was an ordeal from 0500 until 0800, but when old sol came out bright and sunny you gradually became wide awake again. You went home, ate breakfast, put on your blinders and attempted to fall asleep while the kids were playing baseball outside your window and the wife ran the vacuum cleaner. Along about 2 or 3 P.M. you broke out into a sweat with the heat of the day coming on. Giving it up as a bad job, you crawled out, that hollow feeling in your stomach, one ulcer nudging the other, your eyes bleeding. Of course, it was really no fun to go visiting during the evening, either—that midnight watch cut your evening short.

It is only fair to state that all personnel at our station live within 15 minutes drive and have their own transportation. It would be difficult to work the shift where it is necessary to depend on bus transportation; however, there are many stations in the Weather Bureau with a set-up similar to ours. Many people shudder at the thought of arising at 4 A.M., but remember, "Early to bed and early to rise, makes a man healthy, wealthy and wise."

Ironically enough, the day after the article was written, Mr. Harms was notified that Bridgeport was to be one of the stations where, as part of our adjustment of program to meet reduced operating funds, hours of operation were to be reduced from 24 to 16, thus applying another solution to the problem.

The letters that follow speak for themselves.

St. Louis

The proposal by Professor Kleitman that a person on shift work change his shifts no oftener than every four or six weeks would have merit only if he adhered to his sleep schedule 7 days a week. If his sleep habit is broken on his two days off, it will be completely broken. Nor can we imagine a man on the 3 to 11 A.M. forecast shift who would get up at 2 A.M. on his days off in order to maintain his habit. Several of the forecasters here have suggested rather humorous consequences for one who attempted to do so. One's days off generally are utilized for work around the house and for following his hobby. And with one's days and nights inverted, we can well imagine the consequences of following a hobby by playing the tuba at 3 A.M. or of operating a power lawn mower at a similar hour. And so we can see no solution for the weary night worker's problem except to continue to change his shifts as often as convenient in order to get away from those obnoxious hours! --- G. L. Bowie.

Bakersfield

The only shift which is really difficult to become adjusted to is the "Graveyard," or "Mid-Watch." Our schedule

rotates the three daily shifts over a three-week period, with two days off between each change in shift.

It is believed preferable to struggle through the mid-watch for five nights, without becoming adjusted to it, than to have to stay on it so long that it becomes necessary to adjust back again to day or evening work. In this manner the rotating shift is an unpleasant task part of the time, but no great adjustment of personal habits is necessary, from one shift to another. --- Edward E. Wilson.

Albuquerque

Staff members at this station who have commented on this article, all take a dim view of Professor Kleitman's opinion that rotating shifts work well "...only if a worker changes shifts no oftener than every four to six weeks."

....

Several members of our staff have worked shifts arranged to change once in a month or less often, and none of them like it. Surely, no one who had to work the necessary "relief shift" under such a plan would be in favor of it.

Another unhappy consequence of long period assignment to one shift, is the necessity of assigning undesirable days off to go with each shift. Rarely with all members of a staff be satisfied to continue the same set of days off for long periods. Those who cannot get a Saturday or a Sunday off, often miss out on normal family and community associations.

....

As suggested by one staff member, one untried solution to the night shift problem, and one that should be nearly as practicable as Professor Kleitmen's long term assignments, would be to lock up the office between the hours of 10 P.M. and 6 A.M.; then everyone could get a good night's sleep. --- L. A. Warren.

HINTS FOR SERVICE IMPROVEMENT

Syracuse Cuts Down Degree Day Calls

THE flood of degree day phone calls that once inundated the Syracuse WBAS has dwindled to a mere trickle, thanks to a scheme evolved between a sympathetic local oil dealer and R. A. Wrightson, Principal Assistant, who had been asked to solve the problem by MIC A. P. Keller.

Finding no central fuel association as did MIC Adams in Philadelphia, Mr. Wrightson sounded out local fuel dealers on the problem. Finally one dealer, a Mr. E. C. Drake (Drake & Mills Oil Co., Inc.) suggested that the radio station where he is a sponsor broadcast degree day data at frequent intervals during the morning hours. Further, the dealer arranged for that station (WSYR) to be the telephone disseminating point for companies who were unable to get the information from the morning broadcasts. The radio station mailed letters to fuel dealers in the vicinity of Syracuse, explaining their new service in the early spring of 1952, and followed up with another letter last fall. To clinch the solution, the morning newspaper agreed to carry degree day data in addition to the usual mean temperature data.

Degree day calls dropped off almost immediately, but since it coincided with the near end of the 1951-52 heating season, no definite conclusions could be drawn. However, with the present season nearly completed, the drop can be definitely attributed to the arrangements that have been made.

The results: The radio station is happy for, through courteous service, it has gained new friends and potential sponsors. Fuel dealers are happy for they no longer get so many busy signals from the Weather Bureau. The weathermen are happy for they now have fewer interruptions and consequently the over-all public service program has improved.

Other stations deep in the heart of degree day country might try the same. It worked at Syracuse, it might also work for you.

Lincoln MIC Honored

WELBY R. STEVENS, MIC at WBO, Lincoln, and former Supervising District Forecaster at New Orleans (TOPICS, February, 1952, page 28), was recently elected to membership in Sigma Xi, National Scientific Research Society.

Membership in the society is restricted to professors, instructors, or other members of the instructional or research staff of an institution in which a chapter is located, who has shown noteworthy achievement as an original investigator in some branch of pure, or applied, science. Mr. Stevens is, in addition to his Weather Bureau duties, a lecturer in Meteorology in the Department of Geography at Nebraska University, and is the author of a number of articles which appeared in the Monthly Weather Review. ■

Submission of Revised Pages, WB 450-1

STATIONS are reminded that revised pages of WB Form 450-1, "Description of Topography and Exposure of Instruments," are required whenever significant changes are made in the exposure of instrumental equipment, facilities, etc. (See page 4, Part I, of WB 450-1.) Revised pages should be prepared to cover construction of new inflation buildings, radar installations, etc. Photographs of installations are very helpful. Rawinsonde stations should be sure that if the SCR-658 is moved, WB Form 1140 is prepared to show the limiting angles at the new site.

Since it is apparent that not all changes have been reported in the past, it is requested that stations review their forms and bring them up-to-date where necessary. ■

Second Continuous Aviation Weather Broadcast

FROM an antenna 570 feet above the ground in Chicago's famous "Loop" area, the Weather Bureau's second* continuous Aviation Weather Broadcast is now going out on the VHF frequency of 162.55 megacycles. Only one building in Chicago is higher than the Bureau's antenna, and the signals cover an area with at least a fifty-mile radius of good reception. Joliet airport is within this area.

The Field Building, on which the transmitter is located, is the fourth highest building in Chicago; the added height of the antenna raises the origin of the radio impulses above every other structure in the city except the Board of Trade Building; even the famous rotating beacon atop the Palmolive Building is 25 feet lower. This excellent site was secured as a result of cooperation typical of many business organizations where the Bureau is concerned; the owners of the building had refused many offers to rent the site for commercial purposes, but made it available for the present use free of charge. Another advantage is that the transmitter is adjacent to a radio and television station, with whose engineers it was possible to arrange for routine daily maintenance.

The broadcasts are recorded on a continuous tape at the Weather Bureau Forecast Office at the University of Chicago, and reach the transmitter over telephone wires. About eighteen small receivers capable of picking up the broadcast have been loaned to satellite airports, and a folder similar to the one distributed to interests in the New York area is being provided to acquaint pilots and airport operators in and around Chicago with the existence and contents of the broadcast. ■

Statements Regarding Legislation and Budget

A CIRCULAR LETTER of especial importance at this time is C. L. No. 31-51 (file no. 030), whose subject is "Announcements Regarding Legislative and Budget Proposals."

This instruction, which points out that all news releases concerning dealings with Congress or matters before Congress, and matters relating to budget and finance, require prior clearance at the Department level.

All employees should review C. L. No. 31-51; in this connection, the item on page 147, TOPICS, November-December, 1950, is worth re-reading. ■

RAOB Releases in High Winds

SOME raob stations have found that successful raob releases can be made in very high winds, using a train regulator and a balloon with self-contained parachute and making a one-man release. Using this technique, the observer grasps the neck of the balloon in one hand, the instrument in the other, and simultaneously releases the neck of the balloon and the instrument upon getting into the wind. This system, of course, may not be possible if there are extensive local obstructions. Stations that have not used this technique are encouraged to try it. ■

*See TOPICS, November-December 1951.

RETIREMENTS

Harold K. Gold

HAROLD K. GOLD retired because of disability, from his position as Meteorologist in the Storm Investigations Unit of the Hydrometeorological Section of the Central Office effective April 1, 1953. This was the second time Mr. Gold has had to retire because of ill health. He first retired on July 11, 1949 and an outline of his service was published in the August, 1949, issue of TOPICS. In April of 1951 his health improved sufficiently so that he returned to duty in the Hydrometeorological Section, where he remained until his second retirement. He is now hospitalized and can be contacted at Broome County Hospital, Chenango Bridge, New York. □

Henry Halla

MR. HENRY HALLA, Airway Observer at Tyndall, South Dakota, retired due to disability effective February 8, 1953, after having completed more than 13 years of service, all of which was at Tyndall as Airway Observer.

Mr. Halla was born in Yankton, South Dakota, on March 1, 1887. In 1912 he was graduated from the Yankton College with a B.A. degree and entered the teaching profession. During the next twelve years he taught in the high schools of South Dakota where, among other subjects, he taught physics and science courses. In the meantime he obtained a Bachelor of Laws degree from the American Extension University in Los Angeles. In 1926 he left the teaching profession and opened his law office in Tyndall.

During his early years he developed an interest in weather and was an amateur Weather Observer for many years. In 1939 when the Weather Bureau had need for weather observations from Tyndall, Mr. Halla was persuaded to accept the position of Airway Observer. This position required that he provide the Weather Bureau with observations at six-hourly intervals seven days per week. Except for brief intervals when illness incapacitated him, he faithfully performed this task for the next thirteen years until failing health forced him to retire. Mr. Halla may be contacted at his home in Tyndall, South Dakota. □

Robert M. James

MR. ROBERT M. JAMES, WBAS, Baltimore, retired on May 31, 1953, after nearly thirty years in the Bureau. He entered the Bureau on November 26, 1923, and has spent his entire career at Baltimore. In his early days his duties included the setting of type, checking galley proofs, and press work in connection with the printing of daily forecast cards and the Climatological Data for Maryland and Delaware. His long association with the climatological work in the Maryland Delaware section aided considerably in the recent compilation of sub-station histories. Mr. James' present address is 3751 Elm Avenue, Baltimore, Md. □

Mrs. Mary Johnson

MRS. MARY JOHNSON retired from WRPC, San Francisco, on May 22, 1953, when current economies necessitated the abolishment of her position. At the time of her retirement she was 73 and had completed 10 years and 4 months of Weather Bureau service, all of which was in San Francisco. In addition, her Government service included nearly seven years of work on a historical records survey conducted by the Works Progress Administration.

Mrs. Johnson was born at Santa Barbara, California to Major and Mrs. Charles Harkins. Her early education was by means of private teachers and she did not enter public school until she enrolled at Stanford University in 1898. She majored in history and foreign languages and received her A.B. degree in the spring of 1902. She spent another year at the university taking post-graduate work, completing her formal education in 1903. She was employed during World War I in 1917 as a translator for the California Packing Corporation. Following this she worked in a clerical capacity for various California firms until 1936 when she was employed by the Works Progress Administration in their historical records survey of California cities. She remained with that agency until Feb. 1943 when she was appointed to the position of Junior Clerk with the Hydrologic Unit of WBO, San Francisco. She was later transferred to WRPC where she remained until her retirement.

Mrs. Johnson's address is 803 55th Street, San Francisco, California. □

Charles M. Johnston

MR. CHARLES M. JOHNSTON,

Bindery Worker assigned to the Printing Section of the Weather Records Processing Center at Kansas City, retired because of disability at the termination of April 30, 1953, after having completed twenty-eight years and eight months of service with the Weather Bureau.

Mr. Johnston was born April 25, 1908, in St. Louis, Missouri. After finishing high school there, he began his Weather Bureau career on August 8, 1924 as a messenger boy in the St. Louis office. Prior to entering on duty with the Weather Bureau, he worked for a year as a Western Union messenger. He remained at St. Louis until June 1939, during which period he progressed from messenger boy to minor observer, under observer, clerk-typist, printer and hand compositor. When the St. Louis Printing Section was discontinued in 1939, Mr. Johnston was reassigned to the Printing Section at Kansas City where he remained until his retirement. His address is 1528 Locust Street, St. Louis, Mo. □

Gerald C. Merchant

GERALD C. MERCHANT, 68, Meteorologist in Charge at Columbia, South Carolina, since 1934, voluntarily retires on June 30, 1953, after completing 44 years and 7 months of Government service, all of which was with the Weather Bureau.

Born at Jalapa, South Carolina, Gerald's early years were spent on his parents' farm. He attended grade and high school at Jalapa, then went to Newberry College at Newberry, South Carolina, graduating in 1903 with an A.B. degree. After teaching for a couple of years he returned to school at the Crichton Business College at Atlanta. Upon completion of their course he took an office job as bookkeeper and general assistant with an Atlanta collection agency. On November 5, 1908 he began his Weather Bureau career as Assistant Observer assigned to the Central Office. During the next nine years he served at Meridian, Mississippi; Augusta, Georgia; Columbia, South Carolina; and Grand Junction, Colorado. At the latter station he was promoted to Observer. On July 1, 1917, he was transferred to Greenville, South Carolina as Official in Charge. Three years later, he attained professional status when he was promoted to Meteorologist. He remained at Greenville until July 1933 when he returned to Columbia as first assistant. The following February he was promoted to Meteorologist in Charge. Mr. Merchant is a member of the American Meteorological Society and the National Federation of Federal Employees.

He may be contacted at: 2612 Lee Street, Columbia, South Carolina. □

William E. Pfeifer

MR. WILLIAM E. PFEIFER, Instrument Maker at the Central Office, voluntarily retired June 10, 1953, after having completed exactly 30 years of continuous service with the Weather Bureau, all of which was in the Central Office with the Instrument Division.

Born on February 22, 1885, in Baltimore, Maryland, Mr. Pfeifer was graduated from the Maryland Institute in 1906 and worked as a machinist and tool and gauge maker for twenty-two years before starting his career with the Weather Bureau on July 11, 1923, as an instrument maker.

Mr. Pfeifer is an instrument maker of the old school, having served his apprenticeship under his father, Adam Pfeifer, who, earlier in life had been associated with J. H. Rowland, the eminent physicist of Johns Hopkins University. "Bill," as he is known to his many friends, was raised in an atmosphere of instrumentation since his father was also associated with the late Julien P. Friez, who became the leading manufacturer of meteorological instruments in the United States.

Mr. Pfeifer has been identified with many of the outstanding instrumental developments of the Weather Bureau during his 30 years of service. He worked with Dr. Marvin in developing the Marvin mercurial barograph, and built the instrument which was exhibited at the Academy of Sciences until World War II. Mr. Pfeifer did the instrument construction work on the first model of the Weather Bureau water vapor spectrophotometer. This instrument was calibrated in the Guggenheim laboratories of the Institute of Aeronautical Sciences at Sands Point, Long Island. This work constituted the first operation in the newly established laboratories of the Institute of Aeronautical Sciences. Mr. Pfeifer was assigned to the laboratories at Sands Point in August, 1942, to set up the instrument and assist in the calibration.

Mr. Pfeifer later constructed two of the spectrophotometers used for measuring the total precipitable water of the atmosphere. He also built several of the Weather Bureau type recording daylight illuminometers. Probably the most outstanding piece of work done by Mr. Pfeifer during his time in the Weather Bureau was the building of the automatic calibrator designed by the upper air laboratory for the calibration of radiosonde baroswitches.

Mr. Pfeifer's hobbies are divided between art and the growing of roses. During the summer he spends many hours out of doors attending the 200 rose plants in his yard. During the winter he spends much of his leisure time with the artist's brush and has

many fine pieces of work to show for his effort.

Mr. Pfeifer may be reached at his home at 425 Emerson Street, N. W., Washington, D. C. □

Fred S. Robinson

FRED S. ROBINSON, General Service Meteorologist at Rapid City, South Dakota, retires because of disability effective June 30, 1953, at the age of 54.

Mr. Robinson was born and spent his early years in Green Bay, Wisconsin. After graduating from the Green Bay High School, he attended the vocational school in Green Bay where he studied telegraphy. In September of 1917 he entered the U. S. Army where he served until May 21, 1919, when he was honorably discharged with a service connected disability which was ultimately to result in his retirement from the Weather Bureau. After his return to civilian life, he worked for a year as a brakeman on the Chicago, Milwaukee and St. Paul Railroad, and then accepted a position as roundhouse clerk for the same railroad at Green Bay. After working in this position for 10 years, he began his Weather Bureau career with an appointment as Minor Observer at Green Bay on March 23, 1931. He remained at Green Bay for a number of years where he progressed to first assistant. Beginning in January 1943, he served in four years' time at Willmar, Minn.; Indianapolis, Ind.; Summit and Gambell, Alaska; and at Cleveland, Ohio, where he was assigned in December, 1946. He served as Official in Charge at Willmar, Summit and Gambell, and as first assistant at Indianapolis. After nearly three years at Cleveland, he transferred to Rapid City where he remained until his retirement.

His son, Fred O. Robinson, also worked for the Weather Bureau from October 1945 until 1952, when he resigned to enter private industry.

Mr. Robinson can be reached at 123 St. Patrick Street, Rapid City, South Dakota. □

Andrew R. W. Stoesen

ANDREW R. W. STOESEN Meteorologist in Charge at Pensacola, Florida, retires on June 30, 1953, at the age of 58, after 41 years and 4 months of Government Service, of which all but 2 years and 8 months were with the Weather Bureau.

Mr. Stoesen was born on December 20, 1894, in Charleston, South Carolina, where he accepted his first Weather Bureau job. He served as messenger boy in the Charleston Office from December 1, 1911 through April 25, 1917, when he resigned to accept position with U. S. Engineers. After a short period of service with the Engineers, a period of service with the Navy during World War I, and a short period with U. S. Light House Service, he returned to the Weather Bureau on March 25, 1920 when he was appointed to the position of Assistant Observer at the Charleston Office. In July 1922, he transferred to Apalachicola, Florida as OIC. Following this, he served a short period as Assistant at Montgomery and then transferred to San Juan, Puerto Rico, for three years. In June of 1926, he returned to Continental U. S. to serve as Meteorologist in Charge at Austin, Texas, where he remained for the next 9 years. In July 1935, he was transferred to Pensacola as Meteorologist in Charge where he has done much to popularize the Weather Bureau service in his community. □

Allen Stuart

MR. ALLEN STUART was retired on May 31, 1953, at the age of 45, because of disability after completing nearly 22 years of Government service which included 13 years and 4 months with the Weather Bureau. At the time of his retirement, he was a Meteorological Aid, Chartman, assigned to the Extended Forecast Section in the Central Office.

Mr. Stuart is a native of the Nation's Capital. He attended the Washington public schools, and studied art at the Abbott School of Fine and Commercial Art in Washington and at Grand Central Art School in New York. In 1931 he returned to Washington to attend the Boyd Business University.

Prior to beginning his Weather Bureau career, he was employed in a clerical capacity by the Takoma Park Public Library, the Securities Exchange Commission, the Public Works Administration and the Employees' Compensation Commission. He entered the Weather Bureau as Junior Operator, by transfer from the ECC on February 1, 1940.

Mr. Stuart may be reached at Apt. #3, 8704 Old Bladensburg Road, Silver Spring, Maryland.

Chester Tucker

MR. CHESTER TUCKER voluntarily retired May 31, 1953, at the age of 62 after 32 years and 5 months of Government service, all but a year and five months of which were with the Weather Bureau. At the time of his retirement he was Meteorologist in Charge of Marquette, Michigan, a position he had held since July, 1947.

Mr. Tucker was born November 7, 1891, at Harbor Beach, Michigan. He attended grade school in northern Michigan including high school at Houghton and Business College at Big Rapids. He entered the Bureau as a messenger boy at Houghton, Michigan on October 11, 1907 and after nearly 6 years resigned in July 1913. His next five years included service with U. S. Coast Guard as a Surfman, a period in the

Coast Artillery during World War I, and jobs as Gear Cutter for Cadillac, Buick and Packard Motor Companies.

He returned to the Weather Bureau with an appointment to Assistant Observer at Duluth on December 17, 1921. After serving in Duluth, San Juan and Madison, he resigned in January 1924 to return to the automobile industry as a Gear Cutter in the Dodge Factory.

On April 18, 1930 he was reinstated in the Bureau as Junior Observer at Lansing, Michigan. During the next 8 years he served at Bellefonte and Kylertown; in July of 1938 he was assigned to Keokuk, Iowa, as Official in Charge and promoted to professional status. In March, 1943, he was transferred to Burlington, Iowa, as Meteorologist in Charge where he remained until his transfer to Marquette in August of 1947. □

Clement R. White

CLEMENT R. WHITE voluntarily retires on June 30, 1953, after having completed 42 years and 4 months of Government service, all of it at the same Weather Bureau station. Since August 1933 he has been Meteorologist in Charge of WBO, Cape Henry.

Mr. White was born in Currituck County, North Carolina, on May 15, 1890. He grew up and attended school in Norfolk. On February 10, 1910, he began his Weather Bureau career by accepting the appointment to the position of Telegraph Line Repairman at the Cape Henry station. The job designation was changed on September 16, 1915, to Vessel Reporter; he remained in this job until December 31, 1919, when he resigned. In January of 1921 he was reinstated as Vessel Reporter, and two years later he was promoted to Observer. This was followed by promotion to Senior Observer in July of 1924 when he was made first assistant, and in August, 1933, he was promoted to professional status and placed in charge to fill the vacancy created by the death of his predecessor. He continued in this capacity until his retirement.

At the outbreak of World War II in December of 1941, the Navy took over the Cape Henry station and Mr. White was carried on Navy rolls until June, 1946, when the station was returned to the Weather Bureau.

Mr. White's address after retirement will be: Route 1, Box 37, Lynnhaven, Virginia. □

Frank B. Whitney

MR. FRANK B. WHITNEY voluntarily retires June 30, 1953, after completing 45 years and 2 months of Government service consisting of 8 years and 2 months with the Post Office Department, 1 year and 9 months of military service, and 35 years and 3 months of Weather Bureau service. He is Meteorologist in Charge at Norfolk, a position he has held since December, 1942.

Born in 1890 in Athens, Illinois, where his father was in the grocery business, Mr. Whitney began working for the Government while still in high school by acting as a substitute mail carrier. He continued to work for the Post Office Department until March 1916, and then in June of that year began his Weather Bureau career with an appointment as Assistant Observer at the Denver office. This assignment lasted until March, 1924, but was broken by a one-year detail to the West Coast fruit-frost service and a year and nine months with the Meteorological Section of the Army Signal Corps during World War I. In March, 1924, he was transferred to the Chicago District Forecast Center and promoted to professional status. In August, 1932, he was placed in charge of the observatory at the University of Chicago where, among other things, his duties included instructing students of the University. The following August he was transferred to Oklahoma City as first assistant of the Section Center. He remained in this position for the next nine years and then transferred to Norfolk as Meteorologist in Charge. His services at Norfolk were characterized by his outstanding ability for rendering public service and promoting good relations with other agencies. He was active in civic affairs and belonged to a number of local organizations. He may be reached after retirement at 1211 Westmoreland Avenue, Norfolk 8, Virginia. ■

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WEATHER BUREAU

TOPICS

JULY
1953

Volume 12 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.

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New Type Storm Warning Tower

SEVERAL months ago the Weather Bureau was requested to remove the 85-ft. steel storm warning tower from the leased site at Long Branch, N. J. Estimated costs for dismantling and re-erecting it at a new location were exorbitant.

As a result it was decided to investigate the possibility of erecting a new type triangular aluminum alloy (television type) tower. (See cover.) The investigation resulted in locating an aluminum tower which comes in sections of 10 feet each, and with the selection of a better location along the shore line, suitable for display, it was determined that three sections comprising a 30-ft. tower would be sufficient. Three of these sections with guys, footings, etc., were estimated to cost not more than $75. However, when the order was placed for purchase of the three sections, provision was made to include the cost for labor to erect it, installation of three storm warning lights on the tower, and electrical connections from lights to conveniently located switches. The complete cost for material and labor was $219.

The television type tower is very easy to erect since it is hinged to a footing and can be raised after all wiring connections have been made. Experience with the tower over a period of several months has indicated that its use for storm warning light displays is effective. It is expected that the maintenance costs will be considerably lower than for the old type steel tower.

It has been suggested that the tower might be adapted for display of storm warning flags by installation of a section horizontally near the top which may be used as a yardarm. Since daytime warnings at Long Branch are displayed on a separate flagstaff, it was not necessary to consider this phase of the installation. ■

The GS-7 General Service Meteorologist

SOME of our meteorologists, we gather from reports by regional travelers, still think of themselves as "Observer-Briefers." Officially, there is no such title. Any GS-7 who gives meteorological information to pilots and to the public and who takes meteorological observations, is a professional meteorologist, and this fact is attested by his official title "General Service Meteorologist." He is expected to use at least a basic knowledge of meteorology in his work. He approaches the taking of observations from a professional viewpoint, like any scientist in the laboratory or in the field, or a physician who runs his own pathological tests.

To be sure, he is on one of the lower rungs of the professional ladder. But he should not feel, as some may, that because he does not at the moment have full educational qualifications, he is in a dead-end job. We want to emphasize that everyone, including the GS-7 General Service Meteorologist, has a chance for advancement.

Naturally, each person's career is his own responsibility. The prizes in any human endeavor go to those who make the most fruitful efforts. The qualifications necessary for the advancement of a meteorologist are similar to those needed in any profession:

(a) fine professional performance;

(b) demonstrated capacity for growth;

(c) a useful theoretical and applied knowledge of the science.

These three requirements pretty well go hand-in-hand. It is doubted, for instance, that a truly competent and discriminating judge would be able to find

really fine professional performance where there is a lack of good theoretical and applied knowledge of the science. Certainly there could not be much professional growth without this knowledge. Therefore, it seems to us that the first qualifications one should acquire are the educational ones. There are available a number of correspondence courses in meteorology, and the Bureau accepts them when residence courses cannot be taken. However, the acquisition of credits should not be the prime objective. A curriculum of 20 semester hours of "snap courses" will not be accepted as fulfilling the professional requirement. There must be a good coverage of courses, including synoptic meteorology, meteorological chart analysis and forecasting, and dynamic meteorology. Needless to say, prerequisite courses such as mathematics through calculus and physics should be taken before or concurrent with the meteorology courses.*

Of course, we don't believe that knowledge of meteorology may be obtained only through formal courses. Many brilliant men have acquired monumental reputations for learning without formal study, but this is the "hard way." Most of us would have difficulty in proving our attainments in learning by self study in the field of meteorology without evidence such as examinations or university credit.

The educational qualifications may prove the easiest to meet, in the long run. The other advancement qualifications of performance and capacity for growth depend so much on personality and other psychological factors that it is difficult to pin them down. ■

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* See also "What to Study," TOPICS, May, 1952, p. 75.

Briefing Load Taken in Stride

From W. A. Wrightson, Principal Assistant at WBAS Syracuse, comes a graphic description of a Bureau office meeting an unexpected change in its service load, with a number of examples of practical methods of getting things done. Since writing this article, Mr. Wrightson has transferred to WBO Albany, N. Y.

WHEN a seven-man WBAS suddenly became a major flight briefing center, you can be sure that there were some changes made. Take the case of WBAS Syracuse, for instance.

Before the Korean incident, Syracuse was just another of the small but vital cogs in the Weather Bureau network. Five radio and two TV stations, two newspapers, and a very much weather-conscious public could be expected to keep the weather man jumping. Highly industrialized Syracuse accounted for considerable corporation flying, added to the Air Force and Air National Guard flying, and gave a basis for a respectable flight briefing program.

In the summer of '52, the normal schedule of events went "out the window" when unannounced commercial pilots descended on the station en masse. They were CAM pilots—commercial pilots of the Civilian Air Mission program. Their job: transporting Air Force Basic Trainees from Sampson AFB to other bases throughout the nation. (There are only two other Basic centers at this time, the others are in California and Texas.) The flights are not the ordinary "run of the mill" variety, and the briefing needs and techniques used on the average pilot are seldom applicable.

The work-horse of the program is the durable C-46, but DC-4's and "Connies" are now coming into greater prominence. The flights range from a series of 200 to 300-mile hops to the non-stop jaunts from Syracuse to Biloxi, Amarillo, or Cheyenne. These planes are always loaded to the hilt, and there is just so much gas that they can carry and no more. Their destinations or alternates must be as forecast. Instrument weather does not ground these flights, but the pilots quite naturally want to know in infinite detail what weather they will encounter. Winds aloft are extremely important and the PISO's and the like are no help at all. Rawins have at times saved the day, and finally, constant pressure charts have become a must. Icing that grounded our smaller planes no longer stopped these flights, but with the limited gas supply on each plane, we found ourselves analyzing RAOBS with greater care. Each PIREP was digested thoroughly for any icing information. Also, that the intensity of icing varied inversely with the spread between 32° F. and the dry bulb temperature, we soon learned to know and appreciate. From the constant pressure charts we became sold on contour flying, and in time were able to sell it to the pilots. Many favorable comments have been received on this account.

As the CAM program built up, our schedules had to be revamped. One man was designated for flight briefing and would prepare aids and charts in advance of the pilot briefings. INSAC cooperated by running extra copies of the hourly weather sequences so that there would be copies for both public and flying use. The liaison official between the Air Force and the commercial carriers agreed to furnish a list of flights expected on the next day and their destinations. An Air Weather Service station (32nd Air Division) ran off duplicate FAX copies and saved valuable time once allotted to plotting. The most appreciated were the winds-aloft charts.

In time, we were able to iron out most of the wrinkles, and were able to provide a high caliber of service in keeping with traditional Weather Bureau standards.

Well, it's no longer a quiet station at Syracuse. 'Most every morning you'll find the sequence board surrounded by CAM pilots. Their co-pilots are usually spread across our desks and buried beneath maps and weights and balance charts. Around noon most of the flights will have departed and routine matters again come into focus.

We've learned a great deal at Syracuse. The value of the PIREP has increased many fold. We've learned how to "suggest" a course of action without trying to tell them their business. In short, we've won friends and influenced people, but most of all, we've had a lot of fun doing it. The CAM program represents a great deal of work for a station such as Syracuse, but frankly, we'd hate to see it end. ■

Pilots' Magazine Approves RAREPS

By special permission of "Airfacts, Inc." we reprint the item below, which appeared in the May, 1953, issue. While we don't believe in "blowing our own horn" about our services, we think it is worth noting when someone does it for us.

The OLDER and larger a government bureau gets to be the more difficult it becomes to get useless things it is doing stopped and useful things it should be doing started. Being both old and large, it appears to us that the U. S. Department of Commerce, Weather Bureau has, of late, been making some remarkable progress. For our tax dollar, they turned a monumental corner recently.

Flying "our" Bonanza from Wichita to Springfield, Ill. last month, we were south of Kansas City and nearly fell out of the airplane when we heard Kansas City Radio put on this Special: "Severe Weather Broadcast. Starting at 1630 an area of intense thunderstorm activity will develop in eastern Oklahoma and southwestern Missouri with winds up to 55 and occasional hail to the ground." That was all. A look to the south revealed that the show was already starting: on the horizon there was an E-W line of cumulus built up to already at least 15,000.

Think of what a broadcast like that is worth to some poor fellow plugging along on a cross country and headed right into such a disturbance without knowing it.

In this connection, "Rareps" mean Radar Reports.

Planned during World War II, when it was observed that rain storms and showers could be detected by radar sets operating on a wave length often centimeters or less, the Weather Bureau's basic radar detection network was begun in 1947 and is now nearly half complete.

The effect of radar installation at a weather observing station is to increase the scope of the observer's vision to the limits of the radar's reach (50 to 100 miles, depending on location), and to show him not only the near side of local storms and hurricanes, but the far side as well. Radar-obtained information is being effectively integrated with the standard observing program, and reports are

made available frequently on the national teletypewriter circuits.

Information on the exact location of precipitation is also relayed through radio channels from the Weather Bureau radar observer to the pilot seeking storm-avoidance advice; on a number of occasions pilots in the vicinity of radar stations have been able to select a flight path which avoided the heavy rain and turbulence areas indicated on the "scope."

The Weather Bureau now has eleven radar storm detection installations, as follows:

Amarillo, Tex.
North Platte, Neb.
Dodge City, Kans.
Goodland, Kans.
Tampa, Fla.
Charleston, S. C.
Miami, Fla.
Burrwood, La.
Pittsburgh, Pa.
Brownsville, Tex.
New York, N. Y.

Within the first three months of 1953 installations were supposed to have been completed at Des Moines, Iowa and Topeka, Kansas; and by the end of 1953 they hope

Tulsa, Okla.
Little Rock, Ark.
St. Louis, Mo.
Detroit, Mich.
Boston, Mass.
Buffalo, N. Y.
Springfield, Mo.
Shreveport, La.
Hatteras, N. C.
Los Angeles, Cal.
Philadelphia, Pa.
Seattle, Wash.

Any time you're worried about flying into a thunderstorm area in which the W. B. now has a radar installation it is permissible to call the appropriate radio range facility, like "Caldwell Omni" or "Wichita Radio" and ask them for a Rarep and some help and advice. about a track that will take you well around or away from an air mass thunderstorm which has reached the precipitation stage, or through the weakest part of a frontal activity. The communicator answering won't know, but he can ask the weather radar observer by telephone and relay the information. ■

Wanted: Photographs

NOW that almost everyone in the United States seems to have at least a box camera, there ought to be more pictures of unusual weather phenomena available than the Bureau library has filing space for. But there aren't.

In particular, in this year when the country is tornado conscious and more than the average number of "twisters" are occurring, there must be many good photographs in existence. We get some, but far too few.

We believe that a great many good pictures reposing in albums throughout the "tornado belt" might be available for study if a real effort were made to get them. Possibly local officials could arrange for announcements in newspapers where tornadoes have occurred, letting the "shutter bugs" know we want such items—an enterprising editor might even have a contest for the best photo of a given storm.

We realize that most persons sighting a tornado will be more interested in getting to a safe place than in taking a picture, but we believe that the really ardent camera fan would never dive for a storm cellar without at least one snap.

Not only tornado pictures, but photos of meteorological phenomena of all kinds are needed by the library. A typical request is for pictures illustrating types of weather. We have never had a really good picture to illustrate fog.

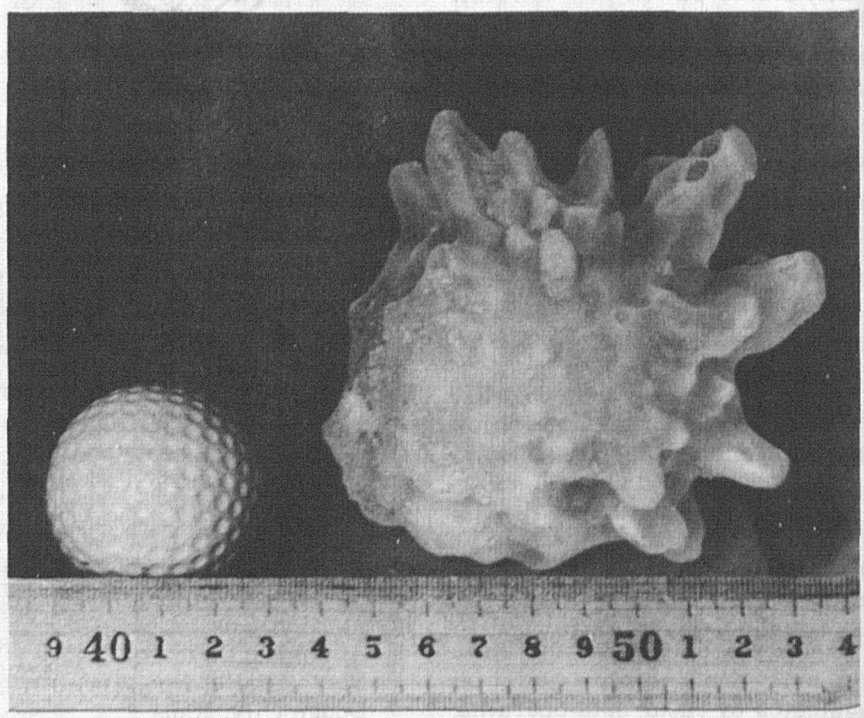
We'd like to have every Bureau employee keep his eyes open for good weather pictures—and we'd like all the photo-fiends among our personnel to take this article as a challenge to come up with some really striking examples. ■

Plaster Casts Preserve Record Hailstone

WHEN a thundershower that skirted the District of Columbia on May 26, 1953, brought a five-minute fall of large hailstones at Suitland, Maryland, a suburb, several deep-freeze owners gathered the largest stones from their lawns as soon as it was safe to venture out and plunged them immediately into their freezers to preserve them.

Some of these were offered to the Weather Bureau, which transported them to the Central Office in dry ice for study. The largest of these, shown alongside a golf ball and a meter stick to give an idea of the size, measured 4 1/8 inches in its longest diameter, and weighed 195 grams. There is no way of knowing, of course, how much it melted while lying on the ground in the rain—the temperature was in the eighties.

To keep some sort of record, it was decided to try making a plaster cast of a number of the more interesting stones, and three members of the Station Facilities and Meteorological Observations Division, Lee A. Jay, LeRoy F. Hafer, and Willis A. Wood, experimented on ice cubes to work out a practical method. The simplest method, and the one finally used to make the replica shown here, was as follows (The materials used are readily available in most areas): A container of melted paraffin was placed in one corner of the box containing the hailstones and dry ice. Before the paraffin began to solidify, a thread was tied around the hailstone and the hailstone was quickly dipped into the paraffin and immediately removed and held near the dry ice. This prevented any



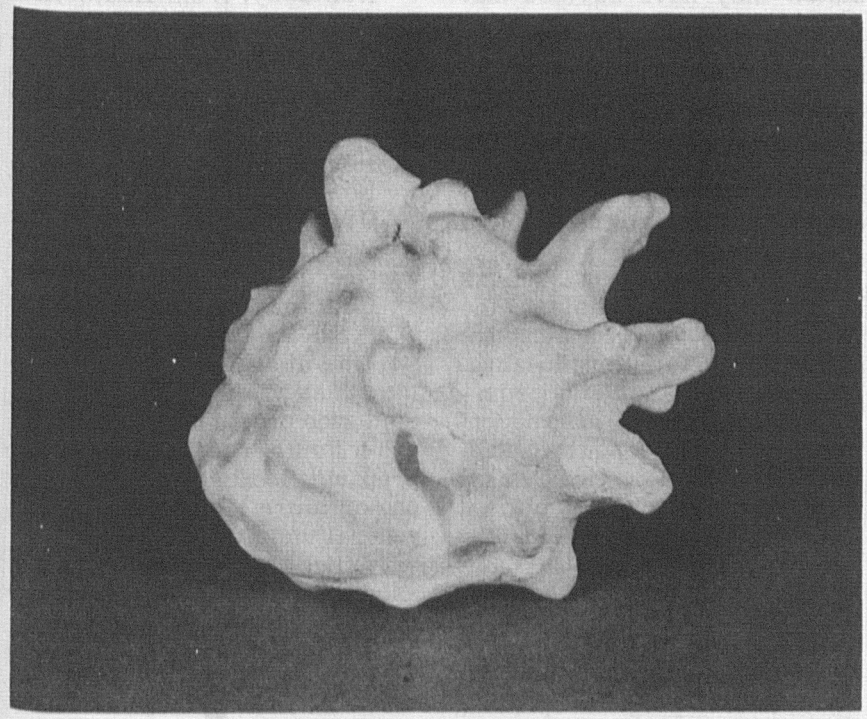
melting of the very cold hailstone. The dipping and cooling process was repeated eight or ten times until a 1/8 inch coating of wax covered the hailstone. The hailstone was then placed on the dry ice until the wax became thoroughly solidified.

The wax-coated hailstone was then suspended in a cardboard box into which plaster of Paris (especially prepared for painters) was poured until the entire stone was covered. After the plaster hardened, the mold was cut in two and the melted hailstone poured out. Several stones had large projections which would have made it difficult to remove the cast from the mold. These molds were cut into four, six, or eight sections.

The section or sections comprising the two halves, were filled with a mixture of plaster of Paris. This mixture was kept thin enough so that it flowed into all parts of the mold. When the plaster began to settle, the two halves were tied together. After one hour the entire cast was dipped in hot melted paraffin for several minutes until the inner wax coating softened sufficiently to remove the sections of the mold without breaking the cast. The cast was dried for several days and then a coat of white enamel was applied and glazed. ■

LEFT: Largest recovered hailstone of storm of May 26, 1953, at Suitland, Maryland. Photo is about 2/3 actual size. Projections are clear ice; central core has familiar "onion" layers.

BELOW: Plaster cast of stone in picture at left. Before the cast was made, hailstone was cut in two to photograph rings, then re-joined and cast made. Its projections lost some sharpness in the handling, but cast is accurate replica of stone at time of immersion in wax.



Newspaper Cites Radar Forecast Accuracy

AS MORE field offices become equipped with storm detection radar, the ability to "call the turn" on severe local thunderstorms improved. Following are portions of a news item appearing in the Chicago Tribune of June 6, 1953:

"A Weather Bureau meteorologist 'watched' thunderstorms travel 85 miles to Chicago yesterday. More than an hour before they struck the city, he predicted within 11 minutes the time of their arrival.

"Bennett started his watch after receiving word from University of Illinois radar operators at Champaign airport that a squall line extended from Rock Island south along the Mississippi River—an area out of Chicago radar range.

"The squall line at 2:35 P.M., Bennett found, was 85 miles west-southwest of Chicago. He plotted it from Dixon, Lee county, to 10 miles west of Earlville, La Salle county, a distance of about 20 miles.

Plots Steady Progress

"By 3:05 P.M. the squall line was 43 miles long, extending from 15 miles southwest of Genoa, De Kalb county, over Ottawa, La Salle county. The line was 55 miles west of Chicago.

"At this point Bennett did some computing and made a prediction that the storms, bringing strong winds, would hit Chicago about 4:15 P.M. His radar showed the clouds towered 45,000 feet, tending to confirm other information that hail was possible. He resumed his watching, and at 3:35 P.M. again placed the squall line on his map. Now it

was 40 miles west of Chicago and extended 140 miles along a line from Kankakee to 13 miles east of Beloit, Wis., and 37 miles southeast of Waukesha, Wis.

Wind Hits; Rain Follows

"Then at 4:20 P.M. the heavy winds hit Midway airport and at sections. Gusts of wind as high as 50 miles an hour were reported.

"The heavy rains of the squall line lasted less than an hour as 4:26 P.M.--just 11 minutes after his predicted arrival time--the heavy rains began falling there. There was light hail in many the storms moved over the Chicago area. The meteorologist estimated the storms were about 20 miles deep. By 5:40 P.M. the squall line was 70 miles east of Chicago, extending from Holland, Mich., about 100 miles to an area south of South Bend, Ind." ■

Localized Area Forecast Programs

DURING the summer of 1950, a new idea in statewide forecast distribution was tried out in the State of Georgia. It consisted of dividing the State into four areas or zones with the forecast center at Atlanta furnishing separate forecasts for each zone three times daily to the press associations. The division of the State into areas was made in such a way that first-order stations were for the most part excluded from any of the four areas. At the time the program was established, the press associations advised their subscribers that localized forecast service in cities with Weather Bureau offices would continue from the local Weather Bureau office.

Following experience in Georgia, the localized area forecast program has gradually been extended to a number of other states. Variations of the plan in use in Georgia have also developed. In several of the western states, the forecasts are identified with a particular community rather than an area. Due to the variation in terrain, an area forecast is more difficult to prepare than a local forecast for a specific locality and, therefore, the use of city names permits more exact forecasting. This type of program is used in New Mexico where Albuquerque releases the forecasts to the press service. In those states where there are not many cities with large population, the press associations have usually agreed to carry the more individualized forecasts, but in most states they have advised that individual "city and vicinity" forecasts cannot be carried because of the large potential demand for such service. The localized area forecast usually permits sufficient localization to warrant its being used as a "city and vicinity" forecast by news outlets receiving it.

In several states such as Washington and Louisiana, the forecast center has for a number of years been furnishing localized forecasts for individual communities to the press associations for distribution. Also, the establishment of State Service Centers in 1948 in several states made it possible to furnish more localized forecasting services to the states in which they were located.

A recent survey shows that there now are localized area, individual community, or sectionalized forecast programs operating in the following states:

Massachusetts, from Boston
New York, from New York City, Albany, Buffalo
Delaware, from Baltimore
Maryland, from Baltimore
Georgia, from Atlanta
Mississippi, from Jackson
Tennessee, from Memphis, Nashville, Knoxville
Kentucky, from Louisville
Illinois, from Chicago
Iowa, from Des Moines
Arkansas, from Little Rock
Louisiana, from New Orleans
Texas, from Houston
Nebraska, from Omaha
New Mexico, from Albuquerque
Utah, from Salt Lake City
Washington, from Seattle
Oregon, from Portland
California, from Los Angeles, San Francisco

The above list covers only the states where a rather uniform statewide program exists. There are a number of other offices preparing localized forecasts for one or more localities in their general vicinity.

Offices having suggestions for establishing localized area forecast programs in additional states are invited to submit plans or suggestions to SR&F Division. ■

The Master's Dilemma

Reprinted below is a condensation of an article written by a Coast Guard officer and published in the January 1953 "Proceedings of the Merchant Marine Council." Though it will probably be of greatest interest to forecasters who prepare coastal and ocean area forecasts, it should be enjoyable and informative reading for all interested in the sea and the weather problems of the Mariner.

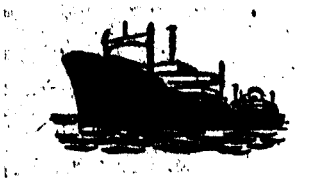
The MASTER's basic responsibility is twofold, namely, (1) to transport cargo or passengers as safely, efficiently, and economically as possible; (2) to see that the vessel in which the cargo and passengers are carried is properly kept up, safely navigated, and efficiently operated.

Ordinarily the problem of carrying out this duty and responsibility is sufficiently complex in itself. During the winter months, adverse weather conditions lead to added complications. Because of adverse weather conditions, yearly, a number of ships sink, founder, crack, break in two, or suffer heavy weather damage. Then, a slight misjudgment on the master's part and anything might happen. Passengers and crew members may be severely injured. The cargo may be badly damaged or lost. The vessel itself may be seriously battered or sunk.

To lessen the possibility of heavy weather damage, modern ships have been built to specifications incorporating safety features designed to lessen the effects of heavy weather. Load lines have been established for each type of vessel and each season, and cargo loading techniques and distributions have been published in guidance manuals for the better protection of the vessel. Recommended steamer tracks are also readily available. Still, the possibility continues. No definite means of avoiding heavy weather damage have been found to date, and no "sure" solution is in sight.

This leaves the master with a choice of attempting to avoid exceedingly strong winds and seas or risking that he can pass through them safely. The choice is his, but the wisest, the safest, and the most economical choice is to avoid dangerous storm areas. And, it can be done by the master deciding upon an ocean track after due consideration of weather conditions between the points of departure and destination. The course chosen may not be the shortest in miles, but, most likely, it will prove to be the shortest in time.

It should be fairly obvious, safety is directly related to economy. Loss of time and fuel in battling storms, weather damage to the cargo or the vessel, and injuries among passengers and crew result in needless expense. Any master who neglects safety to try to make port on schedule, and then arrives with a weather-beaten hulk that is plastered with law suits and repair bills will not be greeted with delight by his marine superintendent. The neglect of safety is the neglect of economy. Unless both safety and economy are properly balanced, the master's twofold responsibility is only partly fulfilled.



Of course, there will be times when even the most astute master will find himself facing exceedingly strong winds and seas. He may, at the last minute, manage to change course and skirt the fringes of the storm....

Today, good weather information is readily and periodically available over the radio. Moreover, studies over the past decades now make it possible for the modern master to look over the side or up at the sky and interpret the same signs that were so important to the sailors of old without having to spend years at sea studying the mysteries in and above the watery mass about him. So, by combining information received in weather broadcasts with the personal "knowhow" of weather which he can readily acquire,

the modern master may quickly learn how best to lessen, if not entirely escape, the effects of adverse weather....

To sum up, the master's basic problem is to balance the safety and welfare of the passengers, the crew, the cargo, and, of course, the vessel itself, against economy and efficiency. Adverse weather conditions complicate the matter through the possibility of heavy weather damage, or worse. In order to provide the proper balance demanded of him, he will, if he is smart, attempt to skirt dangerous storms. Should he find himself unable to escape adverse weather, he then should be prepared to exhibit a high degree of weather "knowhow" and an equally high proficiency in handling his vessel under adverse weather conditions. Only then is the master's twofold duty and responsibility properly fulfilled.

RETIREMENTS

William Chapin

WILLIAM CHAPIN voluntarily retired on June 30, 1953, from the position of principal assistant at LaCrosse, Wisconsin, after completing slightly over 32 years of Government service, 29 years and 10 months of which were with the Weather Bureau. Mr. Chapin was born on August 21, 1890, at Bruning, Nebraska.

He began his Government career in September of 1916 as Assistant Inspector of Weights and Measures with the Bureau of Standards. Two and a half years later he resigned to embark on a seagoing career as a marine engineer. During the next three years he saw a good bit of the world as a ship's engineer and shipped with several major steamship lines.

On October 5, 1922, he was appointed Assistant Observer at the Weather Bureau Office in Spokane, Washington, but left in November of the following year to try his hand at farming. He returned to the Weather Bureau the following October as Junior Observer at Spokane; in December, 1929, he was transferred to Seattle. After serving as first assistant at Seattle for seven years he went to Miles City, Montana, in charge. Following this he returned to Seattle, then was reassigned to Williston, North Dakota, in charge. In March, 1945, he became first assistant at LaCrosse, Wisconsin, to assist with the expanding river work at that station.

Mr. Chapin is a member of the American Meteorological Society. He may be contacted at 2149 Park Avenue, LaCrosse, Wisconsin.

Ray Hamilton

RAY E. HAMILTON, Supervising Observer at the WBAS, Springfield, Illinois, has accepted discontinued service retirement to take effect June 30, 1953.

Mr. Hamilton was born at Loogootee, Illinois, on January 14, 1899, and attended Southern Illinois Normal University for 3½ years. He enlisted in the Army in 1918 and served with the Engineers until discharged in 1919. Before entering the Weather Bureau he was employed as a teacher and superintendent of schools.

Mr. Hamilton was appointed to the Weather Bureau as Junior Observer at St. Louis, Missouri, on August 26, 1929, and served at Nashville, Elkins, Green Bay, and Evansville before transferring to Springfield, Illinois, in 1944. Mr. Hamilton has suffered from a heart ailment for several years and his plans for the future are indefinite.

His home address is 825 South Third Street, Springfield, Illinois.

Edward Traylor

EDWARD R. TRAYLOR, Meteorological Aid at the Brownsville, Texas Airport Station, retired for disability effective May 31, 1953. Mr. Traylor was appointed in the Bureau on December 1, 1947, at San Antonio, Texas, where he served until November 28, 1948. The remainder of his service has been at Brownsville, Texas. Mr. Traylor has been in ill health since December 1950.

DEATHS

Charles Bemis

CHARLES NELSON BEMIS died suddenly while working in his garden at his home near Cabot, Vermont. He was 66 years and 8 months of age at the time of his death. Mr. Bemis entered the Weather Bureau on November 1, 1915, at Houston, Texas and voluntarily retired from the Albany Station on July 31, 1946. A resume of his service was published in TOPICS, October, 1946.

William Holst

WILLIAM H. C. HOLST, 72, retired Engineering Draftsman, died June 24, 1953, in St. Petersburg, Florida.

Mr. Holst, a native of Denmark, retired from his Washington position February 28, 1941, because of disability, after 21 years of Government service. His retirement was noted in TOPICS, March, 1941.

J. L. Kendall

MR. J. L. KENDALL, retired MIC from Louisville, Kentucky, died at Franklin, Indiana on July 4, 1953, at the age of 79. He entered the Weather Bureau on July 12, 1910 at Louisville and remained at that station during his entire period of Weather Bureau service, which terminated with his voluntary retirement on February 29, 1944. A resume of his service was published in TOPICS, March, 1944. ■

Briefing Request of Note

LIFE at Wake Island, says MIC Sanford R. Miller, has its brighter side. Behind the notation on the Pilot Briefing Log for June 6, 1953, which read "ONA 990 TO HNL ETD 0305Z," is one of those bright moments.

"At about 0100Z," says Mr. Miller, "the crew of this particular flight approached the briefing counter to greet the duty forecaster. After sounding their 'A's', the crew burst into song—singing for the first time the words to the lyric entitled 'A Brief Briefing Request'." Sung to the tune of the first bars of "Doggie in the Window," the ditty follows:

How goes the north dog to Honolulu
  The one over French Frigate Shoal?
And please give us all terminal ceilings
  To expedite reaching our goal.

Advise us all things meteorological
  Pressure gradient and isobar flow;
Though, no matter how bitter the outlook,
  The Chiefs will expect us to go.

Make drawings of all cumulonimbus,
  The layers of each strato-cu.
Can we hope that the winds are behind us,
  The build-ups are scattered and few?

Is the lapse rate a thing to depend on?
  Please give us your ultimate word.
If you'll put all these things into writing,
  We're ready to make like a bird."

The doggeral (?) was written by Dennison O'Hara, which is the nom de plume under which navigator David Waters has published several novels. The other three members of the quartet who gave the song its premiere rendition and then presented a signed, original copy to the Wake Island staff, are listed as Capt. Holleman, Co-pilot Patterson, and Radio Operator Morris.

The briefing was given in standard prose.

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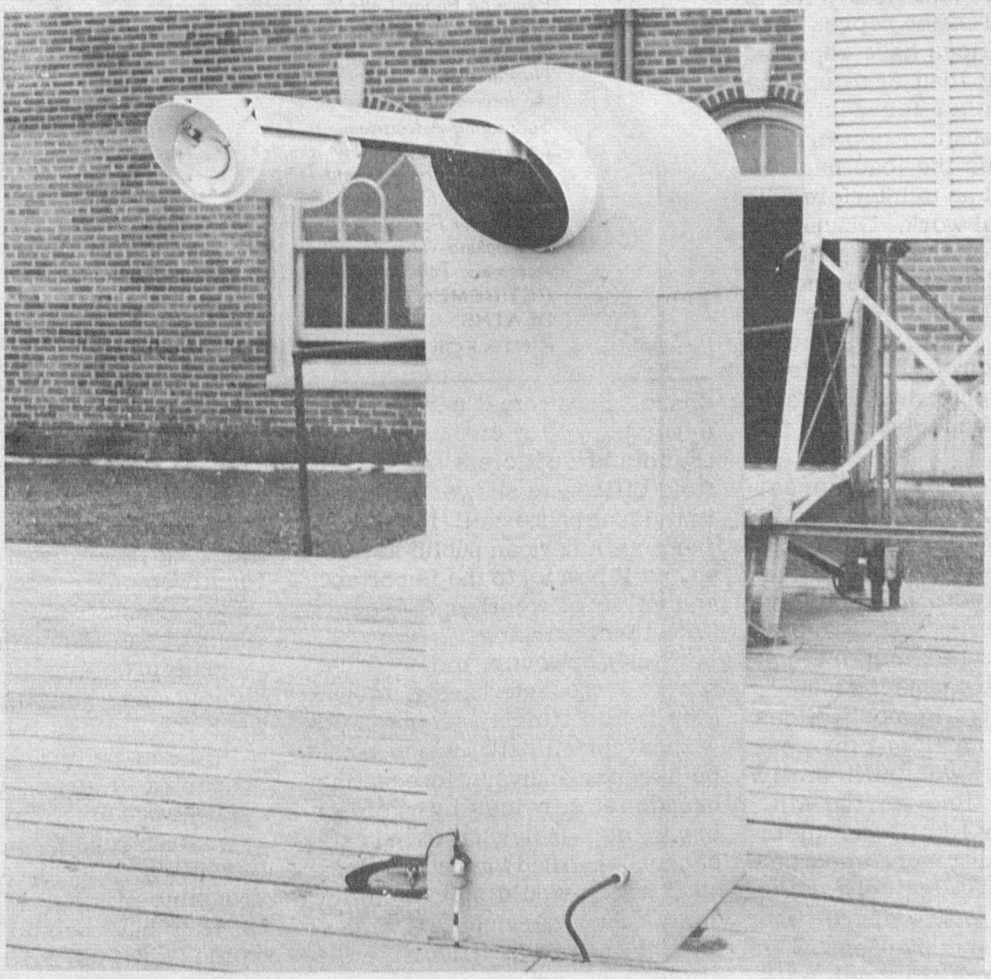
WEATHER BUREAU

TOPICS

AUGUST 1953



New Hygrometer (*see page* 90)

Volume 12 Number 7

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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Policy on Phone Calls for Weather Service

DURING recent field trips of Central Office representatives most offices have reported an increasing load of telephone calls for weather forecasts and other meteorological information. In many places the load has become so great as to interfere with other essential work. Discussion of the subject with field officials gives indication of some uncertainty as to the policy of the Bureau in this matter. A brief review of the circumstances leading up to present practice should be helpful in understanding the policy.

In earlier years the Bureau encouraged brief interviews by telephone between the local MIC or forecaster and representatives of the principal economic activities of the community interested in the daily weather report and forecast. At that time the number of such inquiries in most offices was relatively small and the work load in general was sufficiently light to leave time for the MIC or forecaster to answer them without neglecting more important services. It was logical for the field office to utilize spare time in giving forecasts by phone when requested since this not only extended the services of the Bureau at no extra cost but also contributed to development of applied meteorology in general. In those earlier days, map analysis and forecasting were much less exacting and less time-consuming and there was usually time to spare. However, it certainly was never the policy of the Bureau to try to add sufficient staff to its field offices to answer all of the individual phone calls for service from an American public awakened, as it now is, to the importance and value of weather forecasts and storm warnings.

Now, however, most offices have crowded schedules and cannot give much time to phone calls without curtailing that which should be used for analysis, forecasting, broadcast services by radio or press, etc. Individual phone calls cannot be handled without additional staff which would add to salary costs. Such services are therefore no longer justified in most offices.

This is not a change in policy, but rather a change in practice due to the increasingly heavy demands upon the offices of the Bureau. It is still the policy for offices which have the time to spare to provide meteorological services by telephone to those who call within the limitations of C. L. 22-48 as regards the authorized scope of service by a government agency. Moreover, there is no change in the long standing practice of the Bureau for all employees to give prompt and courteous reply to phone calls which reach the office.

The problems of busy phone signals and phone interruptions when the staff is fully occupied with the more immediate work of preparing emergency warnings, meeting deadlines on transmission of weather reports, etc., are under intensive study by several responsible offices and the Bureau hopes to have helpful suggestions on these difficulties before long. The question of priorities enters into the whole subject as indicated in Circular Letters 22-48, etc. The service of individual phone calls must ordinarily be considered of lower priority than services to the general public by radio or press which reach large numbers at the same time. ■

A Flood Brings Out the Best

IT HAS been said before that emergencies are routine in the work of the Weather Bureau. A recent example of the way our employees react at such times came when the city of Lake Charles, Louisiana, suffered a severe flood in mid-May. MIC Paul Cook writes that "... the manner [in which] the employees of this station carried on the work and traditions of the Weather Bureau.... was above anything that could be expected."

Long Hours the Rule

All the employees worked long hours, remaining on duty for several tricks and, in some cases, several days, while the water around the office was three feet deep and the observer had to wade to the shelter for each observation. For four days raobs were released by men waist-deep in water—no observations were missed. For a time it appeared that communications from Lake Charles might be completely cut off, and arrangements were made with a "ham" radio operator to get messages out. Luckily this service was not needed.

One observer, reports Mr. Cook, "... left his home with the water within one inch of reaching his floor, and, as far as he knew, it was still rising. Upon his return he found that he had left just at the crest, and his home was safe. He did not know what had happened to his home for over 18 hours but he never hesitated in his work...."

Another observer, who had been "... notified of the termination of his services, remained on duty until sent home. He knew that his house trailer would probably go under water and had plenty of time to get it to higher ground. At that time we had no one to take his place and would have been left one man short at a time it would have hurt the most. He remained on duty to assist us in the emergency...."

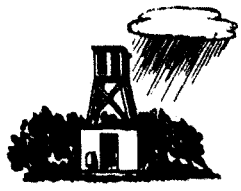
Further, says Mr. Cook, in a letter which details the extra work put in by each employee, "It cannot be said that one employee was better than another. Each did his best at a time the best was needed."

Radio Station Praises Service

Additional testimony as to the job done comes from John L. Vath, manager of radio station KLOU in the letter we print below:

"Lake Charles and KLOU have just witnessed the worst flood disaster in their respective histories. Today stories, true ones, of heroism, courage and neighborliness are filling the air. We have had the personal experience of talking with a lot of the folks in the flooded areas and can verify all of these stories.

"But there is another one about a forgotten man (or men) that needs telling.



"It is the story of the Lake Charles Weather Bureau and the men in it. It is the story of how KLOU was able to get back on the air after their transmitter site had been flooded and waters had risen into the transmitter building putting us off the air.

Equipment Hoisted

"As manager of KLOU I had the personal experience of talking with Paul Cook as early as Monday, May 18th, about the unusually heavy rain that had flooded the city. Paul remarked that he was not worried about the rain; it would drain off. But he remarked that the river was going crazy and would cause a disastrous flood in this area. After due consultation with him, it was decided that we would probably go under at our transmitter site. We immediately hoisted everything as high as we could. This one action kept us from going under sooner. It also gave us time to contact the FCC and get permission to put a temporary transmitter and antenna at our studio location for use should our transmitter be flooded. Everything was as Paul Cook had predicted. Thanks to him we have saved considerable equipment and an even greater anticipated loss of revenue due to flood waters."

"I have personally thanked Mr. Cook and felt that his good work and the work of his men at the Weather station should not be so soon forgotten."

"Dry Run" Pays Off at Cleveland

The SUGGESTION was made in TOPICS for July, 1951, under "Hints for Service Improvement," that it would be a good practice for Weather Bureau offices to prepare to handle tornado, hurricane, flood, and cold wave warnings by holding "dry runs" just before and during the warning season. Although the "fire-drill" method may not be practical at all stations, advance seasonal rehearsals of procedures used in each warning period have proved their value more than once.

A real proof came during the severe tornado of June 8, 1953, in Cleveland, Ohio. The Cleveland MIC reports "We had several rehearsals of procedure in recent weeks before the storm and they paid dividends...." The following information from Cleveland's report describes action taken to alert the public to the approach of the tornado, and demonstrates the value of "dry runs" in our warning program.

At 081846E a tornado was reported in the vicinity of Monroe, Michigan, moving eastward over Lake Erie. At 081920E a tornado was confirmed by WBAS Toledo, north of the station and moving eastward. Although no severe weather bulletin or severe weather forecast had been received, it was agreed at Cleveland that the local warning network should be alerted. The five key warning distribution points were reached as soon as possible by personnel who held the lines at each telephone outlet to prevent possible incoming interference.

At 081950E the following warning was issued by WBAS Cleveland, with the concurrence of the District Forecaster:

"TORNADOES HAVE BEEN REPORTED IN WESTERN OHIO AND THEIR PRESENT MOVEMENT INDICATES TORNADOES IN THE CLEVELAND AREA THIS EVENING. IT IS IMPOSSIBLE TO PREDICT EXACTLY WHERE A TORNADO WILL OCCUR. THE WEATHER BUREAU SUGGESTS THAT YOU BE ON THE ALERT FOR LATER REPORTS OF A TORNADO AND THAT YOU TAKE SAFETY PRECAUTIONS IF THE WEATHER BECOMES UNUSUALLY THREATENING IN APPEARANCE IN YOUR LOCALITY."

WE 1-1212 Warns 83,000

The Automatic Telephone Weather Forecast WE 1-1212 began issuing the tornado warning about seven minutes after its receipt at 081955E, and records show about 83,000 persons received the warnings by calls on the system after that hour on June 8th.

All radio and TV stations were contacted independently of other distribution by press services to insure reception at those points. The Police Radio, broadcasting the warning to all police and fire officials over their own radio networks, helped considerably in distribution to city and county officials concerned with protection and relief measures.

At 082008E the SELS reporter at Ortner Airport, Birmingham, Ohio, 30 miles west-southwest of the station, reported a definite tornado funnel heading toward metropolitan Cleveland. This was the only reliable report to show that the tornado was then nearby, and to give assurance that the warning was justified.

At 082047E a faint tornado funnel was noted due west beyond the Cleveland station. Within a minute or so, bright flashes were seen as the funnel passed over an electric power plant. A city-wide electric power failure forced the Weather Bureau station personnel to work by candles and flashlights until nearly 20 minutes after the tornado passed into Lake Erie. Telephones were so congested with incoming inquiries that the station was practically cut off from outside contacts.

"At Home" Alerts Planned

From the experience of June 8th, it is planned in the future to alert certain station employees at their homes during SELS emergencies. By keeping in touch with radio reports of such a storm as it affects the nearby areas, these employees can relay important information to the station in a prearranged manner. This should aid in keeping track of events, and in "All Clear" decisions.

Because of conflicting reports of continued tornado activity southwest of the station, the "All Clear" bulletin was not released by Cleveland until 082245E, when the District Forecaster could be contacted.

9 Lives and $20,000,000

Damage to building structures made up the most of the estimated $20,000,000 property loss; communication facilities above ground also suffered damage. Fortunately there was no large congregated mass of humanity along the funnel-path of severe destruction, and only 9 persons died from falling debris, or the suction action of the tornado.

The Central Office would be glad to receive other reports showing the value of advance warnings of severe weather, and how periodic "dry runs" serve to keep the personnel "Always Prepared." ■

No Panic at Scottsbluff

The following report was received from Scottsbluff, Nebraska, and should be of interest to all offices concerned with tornado warnings and storm warning networks:

ON July 20 a call came in from Vetran, Wyoming, twenty-five miles west of Scottsbluff, that a tornado funnel had been observed touching the ground at 1340M. Tornado warnings were released to the public at 1350M advising the people from Vetran to Scottsbluff to be on the alert. A few minutes later a tornado funnel was reported near Yoder. At this time skies were mostly clear at Scottsbluff but the thunderhead had been observed building to the west for several hours. This rather isolated cloud moved down the south side of the Platte Valley becoming more intense, reaching Scottsbluff about 1510M. Several funnels could be observed over and just to the south of Scottsbluff. The cloud was dark and vicious with strong gusty winds. As the cloud moved along about 20 miles per hour, the warnings were extended down the valley and all clear announcements were made behind the storm until the entire cloud dissipated about 40 miles east of Scottsbluff.

No damage was reported except at a farm near Scottsbluff where some roofs were blown off and trees broken. This was most likely due to a straight wind and not a tornado funnel. The warnings worked perfectly. There was very little panic and very few calls to this office as we had requested people not to call regarding the tornado but to keep the lines open for reporting on the tornado. The radio stations were swamped with calls. This storm was close enough to be convincing and yet no one was hurt. I think everyone in the Valley and on both sides were looking at the sky but had a hole picked out to dive in immediately. I was surprised at the preparation or precautions taken following the warning and we have received numerous compliments on the accuracy of this warning.

On July 22 several tornado funnels could be observed dropping from a cloud about 15 miles south of the station; one apparently touched the ground at 1310M. We made a direct broadcast over both radio stations while the funnel could still be observed. Warnings were issued for the territory east of Scottsbluff along the south rim of the valley. Within 10 minutes three telephone confirmations were received on this funnel that touched the ground. The storm moved eastward across the hills south of the valley. Another funnel was reported south of Minatare. An all clear release was made at 1458M. No damage resulted from this storm.

On both days the prearrangement with the radio stations worked smoothly. The announcements were placed on the air immediately and brief direct broadcasts were made at various intervals by Weather Bureau personnel during the storm and following its passage. We hope we are as lucky next time. ■

An Interesting Development

IN order to provide hourly weather reports to their listening audience, one television station has installed wind direction and velocity, temperature, and barometric pressure recording instruments. The equipment consists of large dials in the studio connected to instruments well exposed on the television station's grounds. A large clock is mounted in the same panel with the weather instruments. Readings from the instruments are used in connection with a regular evening weather program and the instruments are also shown and read each hour during daylight hours. The program seems to be quite popular and we are furnishing these details for the information of field officials. ■

Sponsoring Advertisements

FIELD employees are occasionally approached by manufacturers' agents or employees of advertising agencies with the request that they review certain advertising schemes which utilize the theme of weather as part of the advertisement.

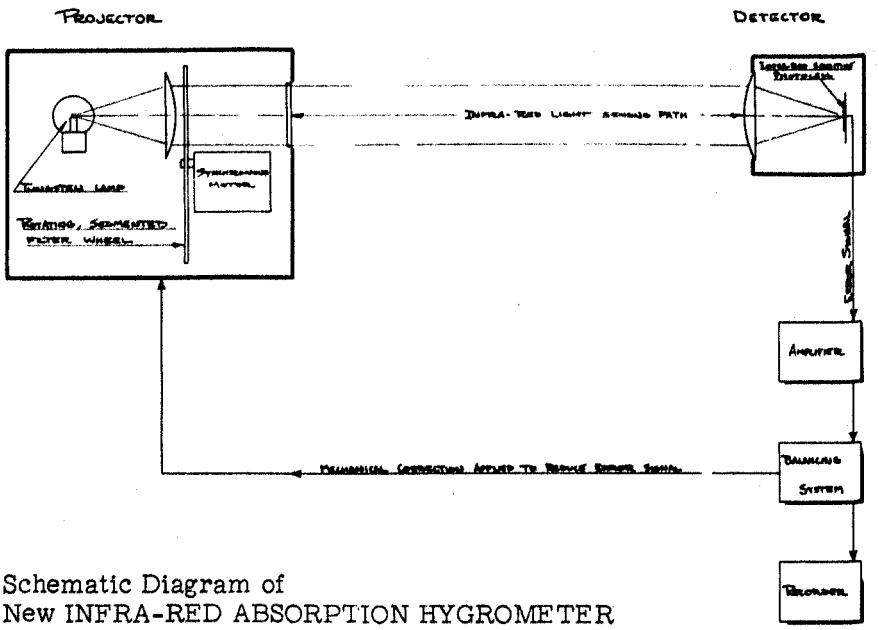
While it is our desire to assist the general public to understand the fundamental principles of the mechanics of the earth's atmosphere, it is not advisable to authorize private business to use the name of the Weather Bureau or the name of any Weather Bureau official in connection with his official title, in any advertising release. Questions involving this general policy should be first cleared with the Central Office before decision. ■

Infra-red Absorption Hygrometer

A REVOLUTIONARY method for determining the amount of water vapor present in the atmosphere has recently been announced. This device, developed in the Instrument Division laboratories, and indicating the absolute amount of water vapor present rather than the relative amount expressed by the term "relative humidity," is capable of determing the amount of water vapor present instantaneously without changing in the slightest degree the properties of the air being sampled.

A beam of light, containing two separate wave lengths, is passed through the air to be sampled. As indicated in the schematic diagram opposite one of the wave lengths is absorbed by water vapor while the other passes through undiminished. The ratio of energies transmitted in the two wavelengths is therefore a direct index of the quantity of water vapor present. From a basic determination it is possible then to follow the increase or decrease in the amount of water vapor present at any time regardless of the air temperature, the pressure, or the amount of smoke, rain, snow, etc., in the path of the air being sampled. The device is regarded as a distinct advancement in the measurement of meteorological phenomena.

Two prototype units have been designed and fabricated, one of which (shown on the cover) is installed on the roof of the Administration Building at the Central Office, with the recorder, which reads in terms of dew points, in the observatory. The other unit is being used in the Instrument Division laboratory to determine the most appropriate calibration method.



Schematic Diagram of
New INFRA-RED ABSORPTION HYGROMETER

This system will make possible the determination of the amount of water vapor in the upper atmosphere from aircraft because of its high speed of response and its ability to measure extremely small amounts of water vapor. Some engineering notes concerning this equipment follows:

Pressure and Temperature Factors. Preliminary investigations indicate that normal variations of pressure and temperature have little influence on the calibration.

Sub-zero Operation. No apparent decrease in measuring ability at low Arctic temperatures. (There may actually be improved measurability due to increased sensitivity at very low concentrations of water vapor.)

Response. Reaction of the photo-cell is practically instantaneous, but there is some delay in the electronic and balancing mechanism which gives approximately a 4-second delay for 90% of full scale. However, much more delay has intentionally been added to prevent the recorder from "painting" a broad trace.

Smoke, Rain, Snow, etc., in the Path. Smoke or hydrometeors in the path attenuate both the reference and absorption beams, but do not alter the ratio between them nor the balance of the system.

A comprehensive technical paper concerning this development will be published later.

Chief Makes Flying Field Trips

DURING July and early August the Chief of Bureau made two rapid field visits which probably rivaled the previous record established by Mr. Little for speed, if not for number of stations.

The first was made in connection with meetings of the National Advisory Committee for Aeronautics at Moffett Field and Camp Edwards, Calif. En route (at expense of NACA, not WB!!) the Chief spent several hours at each of the following stations: San Bruno, Los Angeles, Kansas City, Chicago and Dayton (forced landing, delayed 11 p.m. to 5 a.m.). On the second trip in connection with meetings of the North and Central American Regional Association of the World Meteorological Organization in Toronto (again without travel expense to the WB!!) he stopped to talk with members of the staff on duty at Buffalo, Detroit (3 offices), Willow Run, Toledo, Sandusky, Akron-Canton, and Youngstown. (Neither the Chief nor Mr. Little offers these flying visits as a satisfactory substitute for a two or three day period of "living with" the station staff and their activities, but they both report much of interest and feel that even a hurried stop-over to talk with the on-duty trick is very worth while.) ■

Cooperative Rawinsonde Program at "Marie"

ON July 3, 1953, a four-daily rawinsonde program was established at Sault Ste. Marie, Michigan. Under the program, the U. S. Army furnished the GMD-1A rawinsonde receptor with spare parts, the necessary test equipment, and the radiosonde expendables, balloons and parachutes for the four-daily observations. The Weather Bureau furnishes personnel to take the observations and maintain the equipment, and provides the necessary helium. Army personnel work in the Weather Bureau office to compute ballistic data and for training.

The GMD-1, operating on 1680 mc., is an automatic-tracking, radio-direction-finding rawinsonde receptor. Angular measurements are recorded on tape in the meteorological office. The GMD-1 has the ability to measure vertical angles accurately down to 6° above the horizon (as compared to 15° with the SCR-658). The new equipment thus has the ability to measure virtually all winds aloft that might be encountered. Winds-aloft data are usually obtained to the top of every radiosonde flight. A brief description of the GMD-1 is contained in the article "Instruments and Techniques for Meteorological Measurements" by Michael Ference, Jr., in the Compendium of Meteorology.

Negotiations are now in progress looking toward additional cooperative programs of this type at other stations. ■

Low Water Forecasts Also Important

WHILE predictions of high water and flood conditions are the best known products of the River Forecast Centers, forecasts of low water stages and minor rises are at times of considerable importance as well.

For instance, a report from the RFC at Tulsa, Oklahoma, points out:

"Advantage is being taken of the low-flow conditions by some municipalities and pipeline construction companies to make river crossings. Special forecasts or warnings are required for safeguarding lives and equipment against rises, some of which would be destructive only because of their unexpectedness or because of the depth of the crossings being made.

"Minor rises are also becoming of increasing importance and criticalness to sand and gravel interests in protecting equipment and crews. Their emergency operations are often complicated by the necessity of having certain minimum flows before equipment can be moved through available channels." ■

Rainmaking--The Present Outlook

The following address, made by Ferguson Hall, director of the Weather Bureau's Artificial Cloud Nucleation Project, to the 1953 Conference on Banking, held April 10 at the State College of Washington, is printed here for the information of employees who are asked for information on the Weather Bureau's project now in operation near Seattle.

I AM sure you are all expecting to hear simple, clear-cut answers today as to whether cloud-seeding or "rainmaking" works, and, if so, as to just what economic benefits are in store for the Pacific Northwest. The fact is, however, that there is no general agreement on these matters, and about all I will hope to do today is to give you something of a picture of how cloud-seeding is supposed to work, how the matter stands at the moment, and why it is that the question of substantial economic benefits is still unanswered to everyone's satisfaction. My colleagues will, I am sure, present somewhat different points of view, and will be on hand to clarify all those issues which my talk has served merely to confuse.

It has now been over six years since Dr. Vincent Schaefer of the General Electric Company conducted his first seeding operation in upper New York State and since the first* artificial snowfall reached the ground as the result of a seeding operation carried out by the Portland Oregonian and the Portland Weather Bureau. In the succeeding years, probably a million dollars have been spent on scientific research in this field, and many millions have been paid to commercial cloud-seeding firms. Why is it then that we don't have all the answers, and why has cloud-seeding become a subject for such controversy?

I think there are two basic reasons why these uncertainties persist: first, the physics of clouds and rainfall involves reactions of extremely small particles which are beyond reach of satisfactory direct observation, so that we have to rely on rather indirect evidence as to what takes place; and second, experiments in cloud physics and cloud-seeding have to be performed in an atmosphere that refuses to "stay put" even for a few minutes, and in consequence every experimenter is faced with the question as to whether observed changes in clouds or rainfall are to be credited to him or to nature. Let us look briefly, then, at the first of these matters and examine the present state of our knowledge of the precipitation process and the influence which cloud-seeding is supposed to have.

For many years meteorologists have been investigating the mechanism by which the very fine cloud droplets (1/2000 inch diameter) are converted into drizzle drops (1/200 inch diameter) or rain drops (1/20 inch diameter), or into snowflakes of equivalent size. This conversion process is the more startling when it is realized that for a cloud droplet to grow into a raindrop, it must increase in volume a million times. Many possible effects which might explain or account for this growth have been considered, but only two have appeared to permit the observed rates of growth. One of these mechanisms is the collision process by which drops or ice particles of different size will fall at different speeds, thus permitting frequent collisions with other drops or particles with resulting coalescence or attachment. The other possibility is that when ice particles and super-cooled (below freezing) liquid water droplets are both present in a particular region of a cloud, the ice particles will grow at the expense of the droplets. If the number of ice particles is fairly small as compared with the number of drops, substantial growth will be possible. On the other hand, if the number of ice particles is of the same order of magnitude as the number of drops, little growth could be expected. Although the relative importance of these two effects is not clear, many investigators feel that the ice particle mechanism may be the most important for the initial growth of the ice particles, and that collisions between drops or snowflakes may

*There are reports of earlier experiments in cloud-seeding with cooling or hygroscópic agents which may have resulted in small amounts of precipitation but these tests are not well documented. Some of them date back many years and it is difficult to say who was first.

account for the later stages of growth. Still to be explained on this basis, however, is the heavy rain which falls from tropical clouds which do not reach the freezing level.

With this brief (and admittedly, incomplete) background in mind, we can now see why it has been suggested that seeding methods can lead to increased precipitation. It is observed that by inserting dry ice, silver iodide, and other agents, into super-cooled clouds of water drops, the drops can be converted into ice particles. Such artificially created ice particles can then be expected to grow as mentioned above, and, if conditions are right, to become large enough by the various processes involved to fall out as rain or snow.

At first glance, therefore, it might appear that, within reason, increases in precipitation could always be expected as a result of cloud seeding. There is one matter that has been overlooked, however. In nature most of the clouds which are thick enough to contain substantial moisture also contain ice particles which form naturally, and which may account for natural rain or snow. Furthermore, most of the clouds which contain substantial moisture produce rain or snow naturally in varying amounts. The question of increasing the useable precipitation from cloud systems thus requires an inventory of the precipitable moisture content of non-precipitating super-cooled clouds, together with definitive experiments showing to what extent useable precipitation can be obtained from them. And, of course, we would also have to consider the possibility that the efficiency of naturally precipitating clouds could be increased.

Another major problem is the supply of moisture. This factor appears to set an upper limit on rainfall out of a particular storm. If a storm is in a steady state, then all of the moisture feeding it is coming back down as rain and all we could do would be to bring down the visible cloud. But what of the area immediately downwind? Would any rain fall if there were no clouds? Will cloud seeding merely shift precipitation from one place to another?

Since it thus appears that actual tests will have to be made to settle some of these questions, and since actual evidence will be much more convincing than theories, we might look for a moment into cloud-seeding experiments and see how much has been settled and how much remains to be done.

Everyone, I think, will agree that super-cooled cloud particles can be converted into ice crystals by seeding. Also, taking the case of the smaller clouds which aren't ripe for natural rain, extensive experiments by the Weather Bureau and Air Force, using dry ice dropped from airplanes, and similar work in Canada and Australia, seem to show that dissipation of the clouds is frequently noticed, and that upon occasion showers are induced which often evaporate in the drier air beneath the cloud but which sometimes reach the ground, usually in rather light amounts. The Australians have estimated that continuous airplane seeding of this type over a particular region of that continent might increase annual amounts by 5 to 10%, although I think it safe to say that under different conditions little or no additional rainfall could be expected. The same experiments carried out with silver iodide have not seemed to produce noticeable effects, possibly due to the colder temperatures required for this agent. The California Electric Power Company is seeding these lighter clouds over the High Sierra with some apparent success, although I think it is still too early to evaluate their success in terms of annual increase.

Turning to the heavier cloud systems which are either raining naturally or ready to rain, there seems, I believe, to be a general feeling that the latter category can be "triggered" into raining somewhat earlier than will occur naturally, although the net yield may not be increased. As to increased amounts from the larger clouds, it is necessary in conducting tests to separate the artificial from the natural component of the ensuing rain, and this requires careful use of the scientific method. Since it is these larger cloud systems that are of most interest, it might be worthwhile to list some of the requirements for a definitive test:

1. The time and location of the seeding should be known. Ground-based silver iodide seeding fails in this regard, since the dispersal of the agent into the upper air cannot be determined at present. Aircraft seeding in the clouds themselves appears to be the only solution right now.

2. An extensive network must be established to record the precipitation.

3. Estimates must be possible as to where the seeded clouds will drop their rainfall.

4. The design should permit conclusions to be drawn within a reasonable time—say in a year or so.

5. Statistical means must be available to separate natural from induced effects, and must be immune to the vagaries of the weather during the test period and to subjective decisions on the part of the experimenters.

There have been, to my knowledge, no experiments conducted which even approached the requirements set forth. In

the present Weather Bureau project being organized in Western Washington, we are attempting to meet them so far as possible under budget and other limitations.

This project, called the Artificial Nucleation Project, has been set up to study the mechanism of natural precipitation and the effect of cloud-seeding on cloud structure and precipitation in the large storm systems which move into the coast from the Pacific Ocean. This area was chosen because of the high frequency of favorable cloud conditions. We are being assisted in this work by the Navy and other government agencies. Seeding will be carried out by aircraft which will be precisely navigated at all times. The planes will also carry instruments to measure temperature, liquid water content, drop size distribution and ice crystal content, in the clouds. To measure rainfall we will have a network of 104 recording rain-gages, a high-powered radar set, and instruments for recording raindrop sizes.

The operations will be statistically designed to provide the utmost sensitivity in obtaining quantitative results. At the same time an effort will be made to minimize the possibility of systematic errors arising from operating decisions or the peculiarities of the weather. The available weather conditions will be divided into two groups, one seeded and the other reserved as a "control," the days seeded being selected by random means. Results will then be based entirely on a comparison between what happens on the seeded days and what happens on the control days.

We hope that this project, when completed, will provide at least some reliable data on the efficacy of cloud-seeding under varied cloud conditions, and that we will at that time be closer to the answers that you would like today. The need for these answers is emphasized by the following statement which was contained in a recent report of the Research Committee on Precipitation of the American Geophysical Union (Trans. A.G U., v. 1, p. 133):

"The problem (of cloud-seeding) is somewhat like atomic energy—for some time it was known that atomic energy was theoretically possible but a tremendous amount of effort went into the development of it from the practical viewpoint. Furthermore, weather control has possibilities, when all of the ramifications are considered, that may make it rival atomic energy in importance." ■

RETIREMENTS

John H. Becker

MR. JOHN H. BECKER, Meteorological Aid at WBO Chicago, was retired for disability effective May 19, 1953. Mr. Becker was born in Akron, Ohio, on October 2, 1916. His early life was spent in Akron where he graduated from high school in 1934. He then attended FERA Junior College at Mansfield for two years before entering private industry as a store clerk in Akron. Following this, between 1937 and 1940 he worked as machinist's helper, refrigerator salesman, and in the production department of American Anode Corporation. During this period he also attended night classes at the University of Akron.

He began his government career with a probational appointment to the position of Junior Observer at Columbus, Ohio, on May 18, 1940. He later served at St. Paul, Minn., and at Lafayette, Indiana, where he was Official in Charge. In January, 1947, he transferred from Lafayette to Detroit and in October, 1951, from Detroit to Chicago.

Mr. Becker may be contacted at the following address: 641 Wetmore Road, Columbus, Ohio.

Richard B. Dailey

RICHARD B. DAILEY, MIC at WBO Hatteras, retired effective June 30, 1953, at the age of sixty-three, after having completed over thirty-five years of Government service. Except for a year and two months of prior military service, he spent the entire period with the Weather Bureau and at the same station.

Mr. Dailey spent most of his life at Hatteras, having been born in Buxton, North Carolina, on November 18, 1889. He grew up and attended school in Buxton, graduating from the Cape Hatteras High School in 1906. Following this he attended Kings Business College in Raleigh and later supplemented his education with courses from the International Correspondence School. He began his Government career as electrician and radio operator on U.S. Cutter Seminole, on October 11, 1912. A little over a year later he took a shore job as a radio operator with the Marconi Wireless Telegraph Company at Buxton.

In 1914 he was promoted to manager of the station and, except for a short period in 1917, when he was in the Naval Reserve, he remained in that position until the spring of 1919 when he went to work for the Weather Bureau.

At that time he was the sole employee at WBO Hatteras, which continued to be a one-man station for a number of years until the program was expanded to include 6 hourly observations in January, 1937. The importance of the station and the observational program steadily increased with the addition of pibals in 1941 and radiosonde observations in 1946 until, at the time of his retirement, the station had a complement of nine and was carrying on a full synoptic and upper air observational program.

Mr. Dailey may be addressed at Buxton, North Carolina.

Irving F. Hand

MR. IRVING F. HAND voluntarily retires effective September 30, 1953, at the age of 65 after having completed 41½ years with the Weather Bureau. At the time of his retirement he was in charge of the Weather Bureau Solar Radiation Field Testing Unit at Boston, Mass.

Mr. Hand was born in Binghamton, N. Y., on March 24, 1888. He was graduated from the Binghamton High School in the spring of 1908, and attended Union College at Schenectady, New York, for two years. He later supplemented his formal education with courses in crystallography at the George Washington University in Washington.

His Government career began in May 1912 when he accepted an appointment to the position of observer in the Weather Bureau at the Central Office in Washington. After a short indoctrination period he was assigned to Mt. Weather, Virginia, under the supervision of Dr. H. H. Kimball. In October 1912 he was transferred to Madison, Wisconsin, where he remained until the following June when he returned to Mt. Weather. In September of 1914 he came to the Central Office to assist with the new Solar Radiation project being set up under the direction of Dr. Kimball. From that time on he has been closely associated with the Bureau's Solar Radiation activities. When Dr. Kimball retired in 1932 Mr. Hand took up where he left off and continued to be the motivating force in the program in which he has been an indefatigable worker. When the project was transferred to the Blue Hill Observatory in April 1941, Mr. Hand went along with it in charge. Later, offices were established in Boston but laboratory and field work continued to be done at the Blue Hill Observatory and Mr. Hand remained in charge of the work there until his retirement.

During World War II Mr. Hand was called upon to assist the Quartermaster Corps in connection with food storage studies being made at Blythe, California. For this study he received high praise from the Quartermaster Corps including several letters of commendation.

Mr. Hand is a member of the American Geophysical Union, American Meteorological Society and the Washington Philosophical Society.

He designed a portable normal incidence pyrheliometer and assisted in designing and improving other solar radiation instrumental equipment.

He published a number of papers, most of them on solar radiation and its measurement.

Mrs. Arabella C. Reiss

MRS. ARABELLA C. REISS, Card Punch Operator at the Weather Records Center, Asheville, retired because of disability on June 23, 1953, at the age of 56.

Mrs. Reiss started life as Arabella Barbara Carrick. Born on October 25, 1896, in New Orleans, where she grew up and spent most of her life, she began her government career in 1935 as Library Assistant in the Louisiana State Library. Following this, Mrs. Reiss assisted with the Historical American Building Survey and the Weather Bureau Records project. She resigned this latter position to accept an appointment as a card punch operator with the Commodity Credit Corporation from October, 1942, to April, 1943. In June, 1943, she returned to work with weather records when she accepted an appointment with the Weather Bureau as a card punch operator.

When the Weather Records Center was moved from New Orleans to Asheville, Mrs. Reiss moved with it and remained at Asheville until eye trouble made it necessary for her to stop working on April 15, 1953. When it became evident that she would not be able to resume her usual duties, her application for disability retirement was approved effective June 23, 1953.

Mrs. Reiss may be contacted at 227 East Chestnut St., Asheville, North Carolina. ■

DEATHS

Perry R. Hill

PERRY R. HILL, retired Seattle meteorologist, died June 23, 1953, after being stricken by a heart attack in downtown Seattle. Mr. Hill retired from the Seattle Office April 30, 1946, and an outline of his services was published in the October, 1946, issue of TOPICS. ■

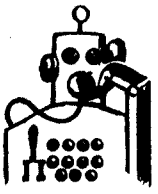
Automatic Telephone Forecast Answering Service

RECENT articles in TOPICS have stressed the need for developing channels for mass dissemination of weather forecasts and information. Such channels can be provided through the media of radio, television, or newspapers but one of the most effective is the distribution of weather forecasts via the automatic telephone answering service.

There are now ten United States cities that have the forecast available on automatic telephone answering service with Pittsburgh being the last to join the group. Dates when the equipment went into operation in the several cities are shown in the table below.

New York City . . . . April 8, 1939
Chicago . . . . December 18, 1939
Baltimore . . . . March 1, 1940
Washington, D.C. . . . April 8, 1940
Detroit . . . . April 15, 1940
Boston . . . . November 17, 1940
Milwaukee. . . . December 27, 1948
Cleveland . . . . April 21, 1950
Philadelphia. . September 15, 1950
Pittsburgh . . . . August 29, 1952

In operation of an automatic telephone answering service of the WEather-1212 type, the Weather Bureau cooperates with the telephone company in the following way: The telephone company installs a teletypewriter circuit between the Weather Bureau office and the office of the telephone company where the recordings are to be made. Over this circuit the Weather Bureau transmits the local forecast together with hourly temperature and in most cases hourly humidity readings. At the telephone company it is the usual practice to have three wire tape recorders available; one giving the current forecast to callers; the second and idle machine which also carries the forecast; and a "spare" machine. Whenever the Weather Bureau sends a current forecast or current temperature and humidity readings to the telephone company, an operator first "erases" the old forecast on the spare recording machine and then records the current information. Using the monitor telephone, the operator next verifies that she spoke clearly to make a satisfactory weather recording, then switches the current recording into the idle recording machine and the main circuit to this current weather forecast, thus giving the public an uninterrupted weather report. In case someone dials for the latest forecast and keeps it on "just to hear the thing talk," it will automatically shut itself off after the tenth repetition. In case a recording machine breaks down, the idle machine with the current forecast automatically goes into operation. When there is some mechanical failure on the teletypewriter, the Weather Bureau office calls the telephone company "Weather Room" and dictates the current forecast.



Although this type of forecast distribution has proved very satisfactory in the cities where it is in operation, only four installations have been made since 1940. Several MIC's are actively working for inauguration of the service in their areas, but difficulties involved in maintenance of the equipment by the telephone company, engineering problems, and other factors make progress along these lines slow. We shall continue to furnish annual summaries of the total number of calls handled by this means of distribution for the information and use of local station personnel. Local officials in the larger cities are encouraged to explore with their telephone companies the possibilities that exist for installation of this equipment. ■

HINTS FOR SERVICE IMPROVEMENT

Single Call Warns Radio Listeners

A new method for use in distribution of warnings has recently been worked out at Huron, South Dakota. The plan makes it possible to disseminate the warnings to out-of-town radio stations with only one telephone call. In reporting on this procedure, the MIC states:

"We have proposed, and now have secured tentative approval from the telephone company, that a conference long distance call be set up to distribute the severe weather warnings to the radio stations in the four cities in South Dakota for which we are responsible. By simply advising the long distance operator to hook up the special weather circuit, we will be able to relay the warning to these stations through the medium of only one call. The cost of this service is the same as single long distance calls to each station, one at a time. This in itself would greatly speed up the distribution and we will be able to use it on a year-around basis for all warnings."

Although this method of warning distribution may not be practical in all cases, station officials may wish to investigate the possibility of conference long distance calls for distribution of warnings in their areas of county responsibility. ■

WEATHER BUREAU

TOPICS

SEPTEMBER
1953

Hubbard Memorial

Volume 12 Number 8

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 12 Number 8

SERVICE EXPERIMENT

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THE COVER shows Mr. Eric Fry (left), senior Canadian Observer, and Mr. J. Glenn Dyer, Chief of the Weather Bureau's Arctic Operations Project, beside the memorial of the crash in which Col. C. J. Hubbard met his death. (See page 102.)

Commercial Answering Service Tried

A NOVEL method of handling weather service has been placed in operation at Erie, Pennsylvania, where the Weather Bureau Office was closed, in September, 1953, as part of our program of adjustment to reduced appropriations.

Study of the Erie situation by a Central Office representative led to the employment of a commercial telephone answering service for essential forecast, storm warning, and standardized weather informational service to the area after the downtown office was closed. (Observations at Erie are taken at the CAA office at the airport.)

Under the plan, daily local forecasts are prepared for Erie by the forecasting staff at Cleveland, Ohio, and transmitted to the answering service for dissemination in Erie. Lake forecasts and warnings continue to be prepared at Chicago but are relayed through the Cleveland Office. Other weather warnings affecting Erie, issued by the Washington National Airport Station, are sent to Cleveland for retransmission. These arrangements provide the answering service with a single point of origin for all weather forecasts and warnings.

A very limited list of recipients, such as the displayman, the Coast Guard, local police, etc. (no private companies or individuals), are given warnings immediately upon receipt by the answering service. Through the cooperation of the CAA airport staff, the company also receives local temperature, rainfall, wind, and other data, which are available to all who call the old Weather Bureau phone number between the hours of 7 a.m. and 7 p.m., local time.

The answering service was begun on September 21, 1953, and will be closely watched for several months to determine whether this facility might be useful in other localities. ■

Cooperative Observers Get Calls, Too

THAT the first order station is not alone in the problems of the insistent phone with its demand for piecemeal weather information, is attested by a letter from Mr. George Raveling, cooperative observer at Rock Rapids, Iowa. Portions of his letter were printed in the "Cooperative Observer - Iowa Section," and we pass them on.

Mr. Raveling begins, "The item 'Public Service Policy' appearing in the Cooperative Observer of March 5 was of unusual interest to the writer because 20 years of cooperative observing has taught us that the public sometimes demands unreasonable service, and it requires tact and diplomacy to turn them down."

After some discussion of the more routine aspects of his duties as a weather observer, Mr. Raveling continues, "Special requests sometimes are a nuisance at times, and these must be dealt with according to the merits of each request. Two such recent requests will show how thoughtless the public may be at times.

"An attorney from a nearby city called and asked the observer to install two thermometers, one in the basement and one outside, of a local home where a butane gas explosion had occurred two years ago injuring the tenant. Hourly readings were required for a period of from 10 to 30 days. Needless to say, the request was turned down.

"Last fall a high school student called and said he had an assignment to interview the weather observer and write an article on how the local station operated.

"Your observer demonstrated and explained each step from the daily observations to the permanent records at the end of each month. Within the hour two more students called with the same assignment, and upon questioning, the writer found that a class of 40 had been given the same assignment. We contacted the principal by phone and told him we would be glad to take the whole class at an appointed time, but time did not permit to take the class one at a time."

Mr. Raveling points out that there are also requests of another character. "Reasonable requests we take care of because the information usually pertains to the business of the man inquiring. For instance, a produce dealer calls asking for the current temperatures. He probably has a truckload of eggs ready to ship in an unheated trailer and wants to know if it will be safe to make the shipment."

In summing up his letter, Mr. Raveling makes an interesting observation. "The unfortunate part of many such requests is that the folks think the observer is drawing a big salary and they are entitled to ask for anything they may want to know regardless of how unreasonable the demand. The younger generation can hardly understand why anyone would want to be an observer without a nice fat salary." ■

Names for Hurricanes

THIS year hurricanes in the Atlantic and Caribbean areas are being named according to a new system. Previously, the international "phonetic" alphabet words were used to identify these storms, but when the new alphabet code was adopted (TOPICS, March, 1952, p. 38), it became difficult to continue using it for hurricane identification. Girls' names have been used for a number of years in naming typhoons in the Pacific, and now this idea has been extended to the Atlantic. To avoid confusion, names selected do not duplicate those used in the Pacific. Following is the approved list for use in Atlantic and Caribbean areas:

ALICE	MABLE
BARBARA	NORMA
CAROL	ORPHA
DOLLY	PATSY
EDNA	QUEEN
FLORENCE	RACHEL
GAIL	SUSIE
HAZEL	TINA
IRENE	UNA
JILL	VICKY
KATHERINE	WALLIS
LUCY	

Forecasting for Jets

As jet planes increase in numbers, it becomes more and more important for forecasters and briefers to be aware of the special operational requirements of jets. In a speech at the Institute of Aeronautical Sciences last February, Lieutenant General Joseph Smith, USAF, Commander of Military Air Transport Service, commented graphically on the weather problems created by the unique performance characteristics of the jet plane. We reprint portions of the speech below.

FOR instance, let us take just one single phase—weather requirements. Let us examine a few of the problems in detail. The phenomenal speeds and heights which jet aircraft are capable of attaining are common knowledge. But not everyone appreciates the peculiar performance characteristics that render the jet-propelled aircraft of today less able to cope with certain conditions in the atmosphere than are propeller-driven aircraft. Even fewer people realize how these characteristics introduce requirements for weather service and information unheard of heretofore.

The range of a fully loaded jet aircraft is greatly increased with the percentage of time that can be spent at high altitudes. For example, when a jet attains maximum range by leveling off at 35,000 feet, only 57 per cent of this range is accomplished by leveling off at 15,000 feet. A jet loaded for a range of 4,000 miles under most efficient flying conditions reduces its range to about 1,000 miles by climbing to 35,000 feet, descending to sea level and again climbing to 35,000 feet. The rate of fuel consumption at sea level is at least three and can be as much as ten times as great as that at 35,000 feet.

The optimum flight altitude for jet aircraft is in the general vicinity of the tropopause where winds are characteristically strong. For this reason, wind becomes a very important factor in planning for a flight. A jet can depart a few thousand feet from optimum altitude to gain the advantage of a favorable wind or to minimize the disadvantage of an unfavorable one. However, extreme departures can so reduce engine efficiency that a careful computation must be made to obtain maximum range from a combination of wind and altitude factors. The jet pilot cannot afford to wander up and down in search of the most favorable wind. He must know at what altitude to find it before he takes off. Jet streams, which are concentrated bands of winds frequently in excess of 100 knots, can be either a very great help or a very great hindrance. In either event, their heights and paths must be known.

The higher the temperature the lower the efficiency of the jet-propelled aircraft. The range of a typical jet will be reduced by about 8 per cent of that computed in the flight plan if the air temperatures at cruising altitudes turn out to be 10° Centigrade warmer than expected.

Forecasting of upper air temperatures, therefore, assumes added importance with respect to fuel consumption and speed in climb. The rate of climb of a certain model jet decreases 63 feet per minute for each air temperature increase of 1° Centigrade at a constant power setting. In standard flight planning procedure, a pilot climbing from 35,000 to 40,000 feet must plan to use 20 gallons of fuel if the temperature is -60° Centigrade and 65 gallons (three times as much) if it is -48° Centigrade.

Equally important, temperature effects are experienced in the very lowest levels of the atmosphere. The inferior performance of the jet in take-off is well known. The higher the temperature the poorer this performance becomes. For example, with a 6,000 foot runway and a runway temperature of 40° Fahrenheit, one jet aircraft can take off with a pay-load of 2,200 pounds; at 80° Fahrenheit this load is reduced to 700 pounds; and at 95° Fahrenheit it is reduced to zero. Unfortunately, the temperature over a concrete runway is frequently several degrees higher than that in the free air which our thermometer mounts are designed to measure. As a result we are already called upon to make special runway temperature observations at jet bases on clear, calm summer days, so that safe take-off loadings may be computed. Mechanical aids such as JATO are used on such days and these in turn require a special forecast so that take-offs are not delayed awaiting delivery of JATO bottles.

The need for accuracy in terminal and alternate forecasts is stressed by jet pilots because of the very low operating efficiencies and excessive rates of fuel consumption in climb. Once a pilot has begun his descent from cruising altitude, he has committed himself to landing at that terminal. When unexpected terminal weather develops it is mandatory that the information be radioed to the pilot while he is still at cruising altitude so that he may divert to an alternate before beginning his descent. This is the reason we had to go to direct pilot-to-forecaster radio at many jet terminals. ■

First Certificates to Amateur Radiomen

THREE "ham" operators in Lake Charles, Louisiana, were the first recipients of the Bureau's new certificates of appreciation for assistance in an emergency (Circular Letter 17-53), the assistance in this case being the furnishing of communications during the May, 1953, flood (TOPICS, August, 1953).

Lake Charles MIC Paul Cook presented the certificates to Phil Rebbeck, W5TUR; L. O. Rohrer, W5IHR; and Vic Canfield, W5BSR, in the Weather Bureau office on July 24. Present to add his congratulations was General Raymond L. Winn, Commander of the 806th Air Division at the Lake Charles Air Force Base.

The three amateurs, in addition to transmitting emergency weather information during the flood, also furnished communications for the Air Force Base during disruption of phone service by floodwaters.

Use of the certificates to give permanent recognition to radio amateurs who furnish services of this type is the result of an employee suggestion by Bernard Rochlin, of the Synoptic Section of the Division of Synoptic Reports and Forecasts in Washington. ■

Photo shows Paul Cook (left) presenting certificates to Phil Rebbeck, W5TUR; L. O. Rohrer, W5IHR; and Vic Canfield, W5BSR. General Raymond L. Winn is at extreme right. (Official USAF photo.)

Station Mans Ground Observer Post

AT least one Weather Bureau station has taken to heart the item (The Ground Observer Corps, TOPICS, February-March, 1953) on assisting the Civil Defense Organization in spotting and reporting aircraft.

At Meacham, Oregon, when the CD representatives found difficulty in manning the observation post, they appealed to Bureau employees, and a plan was worked out and approved by the Central Office under which our personnel agreed to spot and report aircraft during the hours the station is open. It was, of course, specified that these duties were not to interfere with the regular duties of the station. ■

90348

Memorial Services at Scene of Crash

A FIELDSTONE monument bearing a plaque commemorating Col. C. J. Hubbard, Dr. D. W. Kirk, and seven crew members of the Royal Canadian Air Force plane which crashed near the arctic weather station at Alert, Ellesmere Island, Canada (TOPICS, August, 1950, and November-December, 1952), was dedicated August 26, 1953, in memorial services held near the site of the crash. The icebreaker U.S.S. STATEN ISLAND took the memorial party to the Island, but was forced by heavy ice to "lie off" about 14 miles from the station, while two helicopters took the group ashore.

Although the services began under a brilliant midnight sun, with a temperature of 23°F. and a clear, cloudless sky, stormy weather was approaching and the time for the ceremonies was limited—there was some doubt as to whether they could be completed before commencing evacuation of the party to the ship, which was being forced slowly away from the Island by the ice conditions. Consequently the two religious portions of the ceremony, performed by a Catholic and a Protestant RCAF chaplain, were held simultaneously. The dedication of the monument, covered by U.S. and Canadian flags, and flanked by an additional pair of flags to point up clearly the international character of the occasion, was directed by Wing Commander James Creeper, RCAF; Mr. J. Glenn Dyer, Chief of the Bureau's Arctic Operations Project, made the dedicatory address. His dedication included a brief history of the Alert Station, the known facts of the accident, and pointed out the effectiveness of the international cooperation which had gone into establishing and operating Alert and the other weather stations in the Canadian Arctic.

Other members of the memorial party were Commander J. R. Marx, executive officer of the STATEN ISLAND and official U. S. Navy representative; Mr. Eric Fry, senior Canadian Observer at Alert; a firing squad made up of two members of the RCAF and two of the U. S. Navy; an RCAF trumpeter, and photographers from the Navy.

The memorial plaque, shown opposite, was designed and executed by Dwight Shepler, of Newton Centre, Massachusetts, who was a personal friend of Col. Hubbard, the only American aboard the ill-fated airplane, which was engaged on a reconnaissance and resupply mission when it crashed on July 31, 1950, within 300 yards of the station, from causes which will probably never be completely ascertained.

The monument itself, a truncated pyramid of fieldstone, was erected by Willis G. (Blow Torch) Morgan, a gentleman of considerable Arctic fame, and his associate, Mr. Hubert L. Dewey, both of Watonga, Oklahoma. It is located on a slightly elevated strand line of the ancient Polar Sea, overlooking the Arctic Ocean to the north, where it will doubtless stand for centuries in memory of the tremendous sacrifices made by those individuals who have pioneered the Arctic to increase man's knowledge of the geography, climate, and day-to-day weather of the little-known polar areas, and as a monument to the international good will and cooperation between Canada and the United States. ■

Weather Articles Popular

SO GREAT was the demand for extra copies of a series of twelve simple language articles written by Louis R. Jurwitz, MIC at WBAS Phoenix, and a staff writer of the Arizona Republic that the newspaper issued a reprint of the entire series.

The articles cover, in popular language, the broader phases of weather and forecasting, with particular attention to factors influencing Arizona, and were published in March of 1953. The title of the Series is "Weather and Its Ways."

Nearly a Million Calls

The VALUE of automatic telephone weather forecast distribution was given further proof when nearly one million calls were handled in Chicago on the last four days of the record-breaking heatwave at the beginning of September. The daily figures and the maximum temperature are shown below.

Date	Calls	Max.
August 31,	220,005	99°
September 1,	283,427	101°
September 2,	225,126	101°
September 3,	264,204	97°
Total	992,762	

IN A SUPPLY MISSION TO THE ARCTIC WEATHER STATION AT ALERT THOSE ABOARD A ROYAL CANADIAN AIR FORCE LANCASTER WERE KILLED 31 JULY 1950
FLYING OFFICER J.R.G.DUBE
WING COMMANDER D.T.FRENCH
CHARLES J.HUBBARD
DOCTOR D.W.KIRK
FLIGHT LIEUTENANT L.M.MACLEAN
FLYING OFFICER T.D.MARTIN
FLYING OFFICER J.E.McCUTCHEON
LEADING AIRCRAFTMAN R.L.SPRANGE
FLIGHT LIEUTENANT F.L.SWINTON
ERECTED IN THEIR MEMORY BY THE ARCTIC INSTITUTE OF NORTH AMERICA
WITH THE SUPPORT OF MRS. HUBBARD AND THE R.C.A.F.
THE TASK IN WHICH THEY GAVE THEIR LIVES CONTINUES

Cooperative Observers Verify Forecasts

DURING the past six years a program of forecast verification by cooperative observers has been conducted throughout the United States to obtain direct information concerning their viewpoint as representatives of the general public regarding the accuracy of the daily weather forecasts. Section Directors in selected areas and seasons are asked to assist in carrying on the verification program. A limited number of cooperative observers from each state are selected in order to sample their reaction to the forecasts which they receive in their accustomed manner. The Section Directors provide a card on which the observer indicates at the end of each day whether the forecast was right or wrong. The observers were given no criteria for scoring marginal cases—they followed their own judgment in marking such days. While a few reported partial verifications at times, most of them were content to mark each forecast as either a "hit" or a "miss." The cards are sent to the Section Centers at periodic intervals throughout the 30-day test period. Results are tabulated there and furnished to the Central Office.

It will be noted from the following summary that so far over half of the Section Centers have participated in the program. Those offices that have not as yet been contacted will be approached by the Central Office in the future and requested to conduct a verification survey. Offices that have assisted may be called on again for another sample in a different season of the year.

The assistance of the various offices is very much appreciated. The average of 88.7 percent for the whole group is in general agreement with results obtained in other surveys or studies.

Summary of Scores in Cooperative Observer Forecast Verification Program

State	No. of Observers	Period	Total Forecasts	Number Right	Number Wrong	% Right
Alabama	19	12/14/49 - 1/14/50	525	424	101	80.1
Arizona	22	3/15 - 4/14/53	627	578	49	92.2
California	21	1/30 - 2/26/50	599	521	78	86.9
Colorado	22	5/5 - 6/10/51	752	694	58	92.3
Florida	20	11/9 - 12/31/50	741	692	49	93.4
Illinois	15	10/1 - 10/31/50	369	340	29	92.1
Indiana	20	6/1 - 6/30/51	560	474	86	84.6
Iowa	20	11/1 - 12/3/48	580	480	100	82.7
Louisiana	19	7/1 - 7/31/52	476	437	39	91.8
Maryland and Delaware	20	10/1 - 10/31/47	526	472	54	89.7
Michigan	26	11/15 - 12/25/50	776	655	121	84.4
Mississippi	20	7/1 - 7/31/52	569	517	52	90.9
Missouri	32	5/1 - 5/31/53	980	842	138	86.0
Montana	19	6/1 - 6/30/51	553	492	61	89.0
Nebraska	19	6/1 - 6/30/53	546	485	61	88.8
New Mexico	19	1/16 - 3/4/50	740	665	75	89.9
New York	16	11/15 - 12/15/48	355	311	44	87.6
North Carolina	18	12/1 - 12/31/49	494	437	57	88.4
North Dakota	13	11/1 - 11/30/50	361	321	40	88.9
Oklahoma	24	10/14 - 12/1/48	711	636	75	89.4
Oregon	21	11/1 - 12/9/48	558	502	56	90.0
Pennsylvania	26	7/30 - 9/16/48	705	633	72	89.8
Tennessee	39	3/1 - 3/31/52	1,171	1,005	166	85.5
Texas	8	9/7 - 10/31/50	211	191	20	90.5
Utah	11	5/20 - 6/30/51	407	372	35	91.4
Wyoming	17	10/4 - 11/19/50	563	527	36	93.6
TOTALS	526		15,455	13,703	1,752	88.7

Forecasts Avert Panic

A letter from Ed Fortier, 3d Division Coordinator, Department of Civil Defense, summarizes the contribution of the Anchorage Forecast Office when ash from the eruption of Mt. Spurr obscured the Anchorage skies on July 9, 1953, and provides another illustration of the unusual types of conditions for which we must forecast. The letter follows:

The FORECASTS furnished by the Anchorage Weather Bureau staff on July 9 were prompt and, as it developed, amazingly accurate in view of the adverse conditions under which they were made. These forecasts figured strongly in the decision of local officials not to order emergency measures into effect which would have inconvenienced the general public and probably resulted in general alarm and anxiety.

The evaluation of the Tyonek [a village of 100 persons, located about 25 miles from Mt. Spurr, with which communications had failed. Ed.] situation by your office influenced local, territorial and federal officials in reaching a decision not to attempt sending immediate assistance to Tyonek. As it developed such assistance would have been unnecessary and, further, would have been rendered under extremely dangerous travel conditions for either ships or planes.

It was observed that all Weather Bureau broadcasts made by your staff during the emergency period were delivered calmly and with authority. The fact that your forecasters treated the Mount Spurr eruption as an interesting and unusual phenomenon and not as a natural disaster is credited with doing much to avert development of panic or mass hysteria among the populace. It should be noted that many of the elements which might have touched off mass panic were present in the situation which existed in Anchorage on July 9.

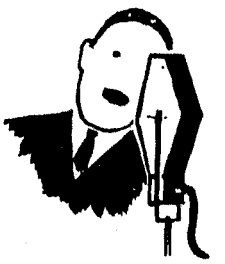
In conclusion, it is the opinion of this office that the Weather Bureau staff of the Alaska Regional Office and the Merrill Field Forecast Station carried out an exceedingly difficult assignment in a highly commendable manner. The expert service provided by your office was a major factor in safeguarding the public welfare during the Mount Spurr eruption on July 9, 1953. ■

Broadcast Training Program

ONE of the places in the Central Office which visitors from the field have found unusual and interesting is the studio of the Broadcast Television Unit of the Synoptic Reports and Forecasts Division. The studio has complete microphone and amplifying and monitoring equipment capable of being connected to local outlets of television networks. In addition it has complete tape recording equipment for recording broadcasts and auditions. For about 1½ years the B.T.U. has been making an experimental network weather broadcast over NBC in the program "Today." These broadcasts are made each weekday morning, starting with a local broadcast at 6:50 A.M., E.D.T., followed by network broadcasts at 7:12 A.M., and 9:12 A.M., E.D.T.

The facilities of the studio have been used for some time by Central Office meteorologists for their training in the selection, preparation and presentation of weather data and information. With an actual going program for practice, the training has been efficient and practical, for the principle of "learning by doing" has been applied.

The B.T.U. is now ready to offer its training facilities also to field meteorologists who are detailed to the Central Office for any extended period of time. Accordingly each meteorologist who is detailed to the Central Office for a period of several weeks should consider including in his plans a five-hour per week program in the B.T.U. (spread over five working days per week) during which he will receive training and actual practice in the preparation of broadcast and press releases together with recordings and critiques on his work.



Such training should be helpful not only for preparing and delivering radio weather broadcasts but also as training to deliver talks in seminars or other scientific meetings. ■

Warnings Effectively Disseminated

COMMENTS reaching the Central Office in regard to the forecasting and general handling of releases to the public during the passage of hurricane "Barbara" have been predominantly favorable. The low casualty-toll and the many complimentary remarks on the Bureau's job were due to the untiring efforts of Weather Bureau staffs in the affected areas. As an example of the type of special service arranged to keep the public fully advised on the progress of the storm, we list below the special radio broadcasts made direct from the office by the staff at WBO, Atlantic City, on Friday, August 14:

1. Regular daily 5-minute broadcast over local Radio Station WFPG at 1:15 p.m.
2. Radio Station KYW, Philadelphia, Pa., via telephone at 3:55 p.m.
3. Radio Station WOND, Pleasantville, N. J., via telephone at 5:08 p.m.
4. Radio Station WPWA, Chester, Pa., via telephone at 5:50 p.m.
5. Radio Station WIP, Philadelphia (Ed Sullivan Hour) via telephone at 6:00 p.m.
6. Radio Station WFPG, Atlantic City, N. J., via telephone at 6:17 p.m.
7. Radio Station WQAN, Scranton, Pa., via telephone at 8:50 p.m.

This unusual extensive programming by radio demonstrates excellent use of the mass-dissemination principle. Except for the regular scheduled mid-day broadcast all the connections were made at instance of the cooperating radio station or the program involved, as a feature service to listeners. ■

COPIES NEEDED

Final Approach Visibility Studies

The DEMAND for the publication "Final Approach Visibility Studies" Fiscal Year 1952 Progress Report, Part I dated June 30, 1952, has exceeded the supply. It is requested that each station that has no further use for this article return its copy to the Central Office marked, Attention: Publications Unit. If a later need arises, the publication can be obtained from this unit.

Part II of this Progress Report is not in short supply and need not be returned. ■

RETIREMENTS

Miss Olga Knapp

MISS OLGA KNAPP, Research Assistant in the Scientific Services Division of the Central Office, began disability retirement on August 3, 1953.

Born in Garden City, Kansas, on October 5, 1916, Miss Knapp spent most of her life in Kansas. She was graduated from Kansas State College with a BS degree in Home Economics. After teaching for a year in the Deerfield, Kansas, High School she spent a year at the University of Minnesota. In February, 1943, she entered the WAAC, and, following her discharge in August of that year, began her Federal career with a War Service Appointment to the position of Meteorological Aid at the Topeka, Kansas, Weather Bureau Office. With the reestablishment of Meteorological Aid registers her appointment was terminated in January, 1949. After a brief period in private industry she again returned to the Weather Bureau in January, 1951, with a probational appointment to a Meteorological Aid position in the Extended Forecast Section of the Central Office. A year later she was transferred to the Short Range Section as a Research Assistant. In November, 1952, she was granted extended leave without pay on account of illness. She returned to duty in April, 1953, but it soon became evident that her health would not permit the continuation of her normal duties and disability retirement was approved effective August 13, 1953.

Miss Knapp may be reached at: 2011 Oakley Avenue, Topeka, Kansas.

John G. Mathes

MR. JOHN G. MATHES retires at the termination of September 30, 1953, after 35 years and 6 months of Government service including over 26 years with the Weather Bureau. His entire Weather Bureau service was with the Central Office, Instrument Division and at the time of his retirement he was an instrument maker assigned to the instrument shop.

Mr. Mathes was born in Lancaster, Pennsylvania August 14, 1889, and received his education in the public schools and the state Normal School at Millersville, Penna. Following this he served an apprenticeship as a machinist at Herr's Machine Shop and the Hamilton Watch Company in Lancaster and in 1909 came to Washington as a machinist for the Washington Steel and Ordnance Co. He began his Government career in 1914 as Superintendent of Motor Transportation at the U. S. Soldiers Home. During World War I he served as Chief Inspector of Ordnance Material for the War Department at the Washington Steel and Ordnance Co. After the war he returned to private industry for a number of years as an automotive mechanic. He returned to the Government service in August of 1925 as a mechanic for the U. S. City Post Office in Washington and on June 3, 1927, transferred to the Weather Bureau as a Laboratory Mechanic assigned to the Central Office Instrument Division.

During his career he assisted in the construction of many of our weather instruments including the clinometer, the pibal timer and radiosonde baseline test switches used by the Weather Bureau in the early days of the radiosonde program. Beginning this fall John expects to catch up on his fishing and may be contacted at: 4824 Chevy Chase Blvd., Chevy Chase 15, Maryland

Oscar Rauh

MR. OSCAR RAUH retires at the termination of September 30, 1953, after over 36 years of Weather Bureau service all of which was in the Instrument Division of the Central Office. At the time of his retirement he was foreman of the Instrument Shop, a position he had held since September, 1943.

He was born in Roxbury, Mass., June 21, 1888, and spent his childhood in Roslindale, a suburb of Boston, where he finished school at the Roslindale High School.

Mr. Rauh is an instrument maker of the "old school", having served his apprenticeship starting in 1903 at the Buff and Buff Instrument Company, Boston, Mass., a company even then recognized for its expert craftsmanship in the building of fine instruments. In addition, he is a certified watchmaker, having successfully completed the requirements for this rating from the Wisconsin Institute of Watchmaking.

He entered the Federal service with the National Bureau of Standards in June, 1917, and later that same year transferred to the Weather Bureau. He assisted Dr. Marvin in developing the Marvin kite meteorograph and built many of the instruments used in the kite observational program. As foreman of the instrument shop he has been responsible for many details of construction of prototype instruments in the development stage.

He may be contacted at: 4001 21st St., North Arlington, Va.

Raymond B. Snyder

RAYMOND B. SNYDER, Meteorological Aid at Los Angeles, California retires because of disability at the termination of September 30, 1953, after completing almost ten years with the Weather Bureau. His entire service was at WBO Los Angeles, except for two months at WBAS Burbank.

Mr. Snyder was born at Canton, Minnesota, on July 7, 1894. Following military service (1917-1919), he attended UCLA and Stanford University, where he majored in Geology. He first entered the Government services in August, 1938, where he was employed by the Department of Agriculture to supervise soil conservation activities in the San Diego area. Service with USDA was intermittent to the end of July, 1941, and he started his Weather Bureau career November 30, 1943. ■

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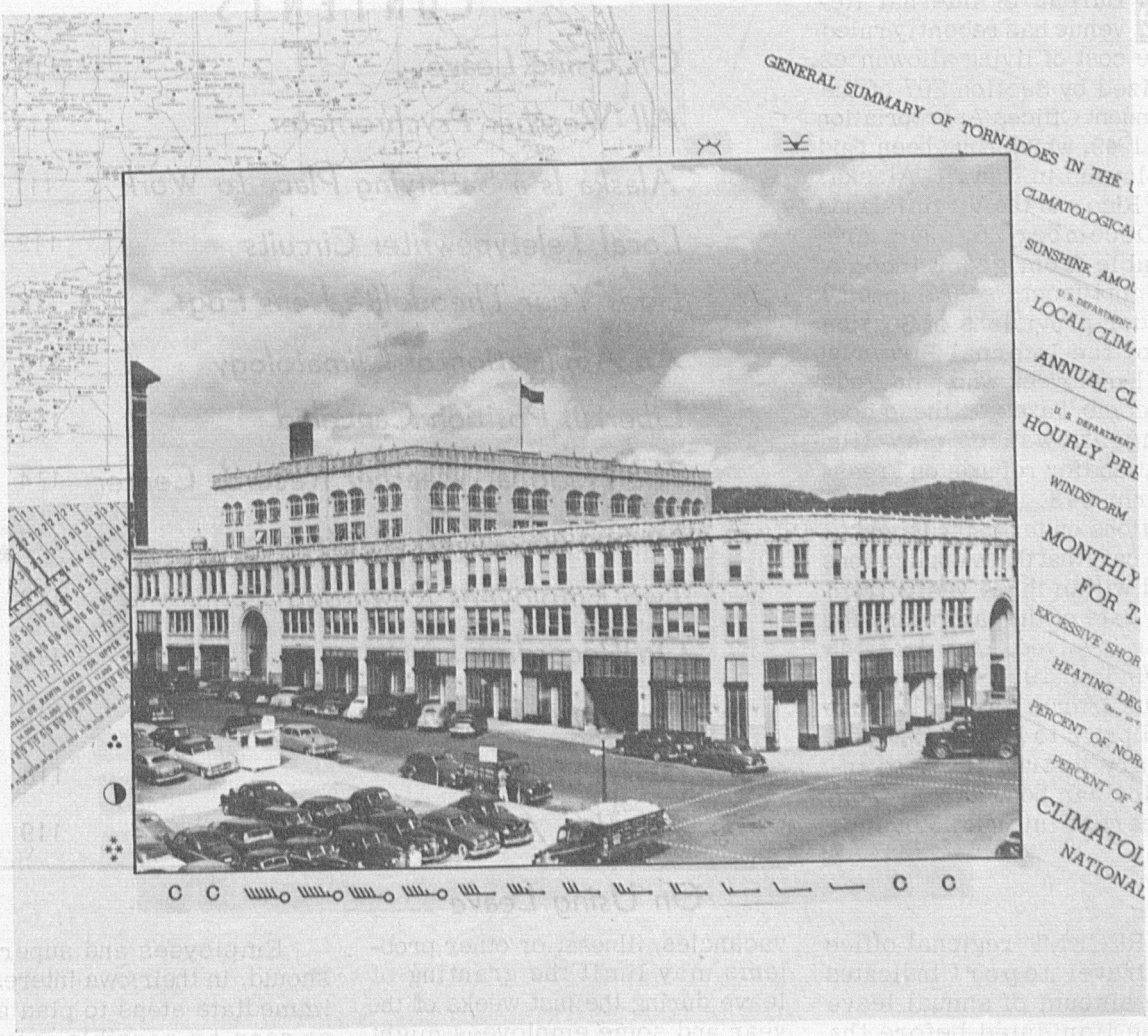
WEATHER BUREAU

TOPICS

OCTOBER
NOVEMBER
1953



Volume 12 Number 9

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 12 Number 9

Christmas Present

The Bureau of Internal Revenue has recently ruled that the cost of living allowances authorized by Section 207 of the Independent Offices Appropriation Act of 1949, which have been paid to employees in Hawaii, Alaska, Puerto Rico and the Virgin Islands since December 26, 1948, are excludable from gross income and exempt from Federal Income Tax under provisions of Section 116(j) of the Internal Revenue Code. Employees who paid Federal Income Taxes on these cost of living allowances may file applications for refunds on Treasury Form 843. The Statute of Limitations on tax refunds makes it necessary that these applications be filed within three years from the due date of the tax return for the year involved. Applications for refund on 1950 taxes which were due March 15, 1951, must be filed prior to March 15, 1954. Necessary instructions and information can be obtained from your nearest Internal Revenue Office. ■

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On Using Leave

A RECENT regional office travel report indicates that the amount of annual leave yet to be liquidated before the end of the year presents a real problem at a number of stations but that in many of the cases little advantage is being taken of periods during which it is evident that employees could be spared to take leave. In situations like this there is always a danger that unexpected vacancies, illness, or other problems may limit the granting of leave during the last weeks of the year and some employees might be unable to take leave for which they had been planning. Unfortunately the employee would be the loser in such cases, for there is no provision in the leave law for increasing one's "carry-over" privileges because of special circumstances.

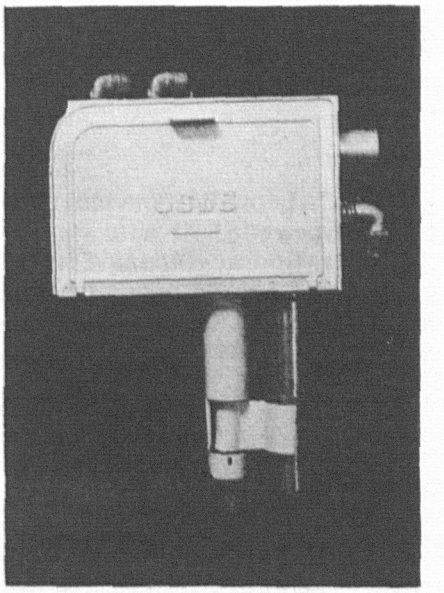
Employees and supervisors should, in their own interest, take immediate steps to plan and use as soon as possible, any leave which might be lost if not used before January 2, the end of the leave year. If any special problems exist which cannot be solved at the station, advice should be requested from the Regional or Central Office. ■

All-Weather Psychrometer

AT more and more airports it has become very difficult to obtain good ground exposures for psychrometric equipment and still have the instruments within a reasonable distance from the observer. Undesirable rooftop and ground exposures near large concrete areas have been tolerated in many cases, since the only alternative has been the installation of a costly telepsychrometer.

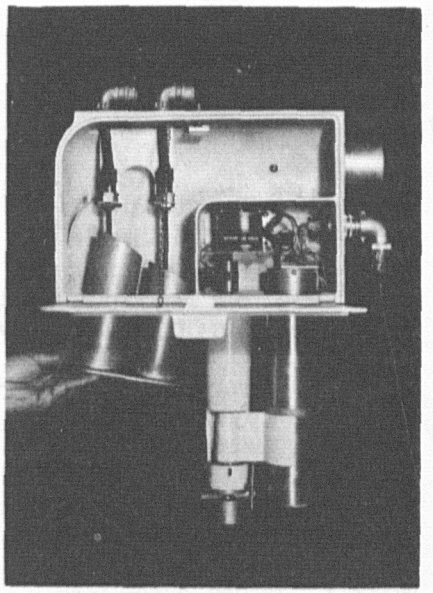
The Instrument Division has been working on the problem of a less expensive remote-reading psychrometer, testing a number of devices in the laboratory, at the Silver Hill, Maryland, observatory, and at selected stations; out of this project has come an all-weather telepsychrometer which is now operating successfully at the Washington National Airport and at WBAS Baltimore. Additional units for about twenty stations are expected to be ready during the next few months.

The dials of the new instrument will look very familiar to most Bureau employees, because the ancestor of the device is the telethermoscope that has been in use for a long time: a calibrated Wheatstone bridge balancing circuit connected to a remotely located resistance thermometer. In the new system there are two resistance thermometers, one of them muslin wrapped to give a wet bulb reading, and a switch which enables the observer to read either one at will. Another switch activates a device which immerses the muslin just before the observation and ventilates the unit.



The New Unit, Closed

To make readings at moderate sub-freezing temperatures possible, a small, thermostatically controlled heating unit prevents freezing in the thermos container that holds the water. ■



Interior View

Alaska Is a Satisfying Place to Work

ON his return in September from a trip to survey at first-hand our operations in Alaska, W. F. McDonald, Assistant Chief of Bureau (Administrative), summed up his impressions in the following paragraph:

"In summary, I found in Alaska evidence of an extremely weather conscious public due to the fact that all life and activity in Alaska is so close to nature and their transport is in a major sense by air. The small plane, with floats in summer and skis in winter, is the commonest vehicle of cross-country transportation and I believe that there must be more small planes in proportion to population in Alaska than will be found anywhere else in the world. This general situation is no doubt reflected in the satisfactions that attend Weather Bureau work in Alaska and probably accounts, at least in part, for the generally high morale I observed in this area." ■

Local Teletypewriter Circuits

LOCAL public service teletypewriter circuits went into operation at Kansas City on October 19 and Corpus Christi on October 20. Kansas City reported as follows:

"A type 19 machine, complete with perforator and automatic transmitter, has been installed in our office, and is being connected to type 15 machines in the offices of the first eight subscribers. The entire transaction has been handled through Western Union at a cost of $35.53 to each subscriber after prorating the cost of the Weather Bureau equipment and line.

"The circuit will, of course, be operated without cost to the Weather Bureau, and without any favoritism or committment to individual subscribers. The cost to each individual subscriber for the original circuit has been apportioned on an average mileage basis without Federal tax since all of the original subscribers fall under classification of news agencies and are therefore tax exempt. The cost to additional subscribers will depend on their distance from the main Western Union office and whether they will be required to pay the Federal tax of 12% imposed on teletypewriter connections to those concerns not classified as news agencies. There are no mechanical restrictions to the addition of any number of connections to the circuit.

"The original subscribers comprise: (1) Associated Press; (2) The Kansas City Star; (3) WDAF and WDAF-TV; (4) KCMO and KCMO-TV; (5) KCKN and the Kansas; (6) KMBC, KFRM and KMBC-TV;(7) WHB and WHB-TV; (8) KCTY-TV."

The installation at Corpus Christi serves the five local radio stations—KRIS, KUNO, KSIX, KWBU and KEYS—and the dispatching office of the Central Power and Light Company.

This makes eleven cities in which installations are in operation. These are:

Baltimore, Md.
Boston, Mass.
Chicago, Ill.
Cincinnati, Ohio
Corpus Christi, Texas
Houston, Texas
Kansas City, Mo.
Los Angeles, Calif.
New York, N. Y.
Pittsburgh, Pa.
San Francisco, Calif.

Instructions on setting up a circuit of this kind are found in Circular Letters 88-48 and 63-49.

Does Your Theodolite Lens Fog?

ANY station which is having difficulty with fogging of theodolite lenses may be able to alleviate this difficulty by applying a coating of a commercial product called "ANTI-DIM" as suggested by John S. Hursh of WBAS, Memphis, who has been given a certificate for his suggestion.

Mr. Hursh advises that he has been able to obtain longer pibal runs with less annoyance from frost and fogging by taking a couple of minutes before the run to apply a coating of "ANTI-DIM" to the eyepiece in particular and the objective lens if necessary to prevent frost and/or fog.

This material was used during the war to prevent fog on gas masks and can be obtained at many Army Surplus stores for about 25 cents a stick.

A similar component called "ANTI-FOG No. 111," marketed by the American Optical Company has been used by the Weather Bureau for several years at Arctic stations on pyrheliometers as well as on theodolites.

Any station having difficulty with frosting and/or fogging can submit a stores requisition to Central Office for "ANTI-FOG No. 111," in one-ounce jars. ■

An Application of Climatology

A copy of a letter sent by a section director to the superintendant of the water and sewage department of a city in his section aptly illustrates an important and worth-while application of climatology. We print the letter here for the benefit of field officials who may have similar requests to answer.

MR. _____ of the local office of the U. S. Geological Survey has told us that you are facing a water situation similar to that we have in _____, and has suggested that we might be able to furnish figures that would help in making necessary decisions.

Unhappily for municipalities faced with a water shortage, we are now approaching what is usually the driest season of the year. Records taken in _____ County over a period of more than thirty years indicate an average rainfall of about 3.2 inches in September, 2.9 inches in October, and 2.4 inches in November. Since these averages are based, especially for September, on a few years with considerably greater-than-average rainfall and a larger number of years with somewhat less than average, the amount of rain most probable during the forthcoming three months is somewhat less than the above. We believe the following approximate the most likely amounts—"normal" amounts for practical purposes:

September	October	November
2.8 in.	2.5 in.	2.2 in.

This is in no sense a forecast of what will occur this year. It is simply a statement of our estimate of the amount of rain you can expect on the average for any year in the future. In other words, based on what has occurred in the past, there is about a 50% chance of getting the above amounts this year.

You might not wish to base your planning on such a high expectancy or probability figure, so you might be interested in knowing that in one year out of ten (during the past 30 years) the rainfall in your area has been less than 1.1 inches in September, less than 0.75 inches in October, and less than 0.50 inches in November. (Those figures consider the three months separately—the driest year for all three months combined was 1931, when September had 0.27 inch, October 1.68 inches, and November 0.36 inch.)

Mr. _____ has also suggested that you might be interested in the long-range outlook as issued twice monthly by the U. S. Weather Bureau in Washington. While we do not believe this outlook pinpoints conditions in either time or space with sufficient accuracy to be of much use in your problem, we are glad to pass on what it says. The outlook for the first half of September indicates that your area is expected to have no more than the normal amount of rainfall.

We hope this will be of some help to you. Please let us know if you need additional information. ■

Liberian Position Canceled

AS we go to press, the Foreign Operations Administration has notified the Bureau that the Meteorologist position in Monrovia, Liberia, will not be established.

The Central Office appreciates the excellent response to the request for applicants for this proposed vacancy. Many of the applicants were very well qualified from various standpoints of training, background, and experience. All applications will be kept on file for reference should other foreign assignments become available in the near future. ■

Autographic Records Storage at Asheville

The National

IN past decades, the function of processing and servicing weather records was widely scattered; in fact, there were almost as many record repositories as there were weather stations. A climatological project of any magnitude almost invariably entailed the laborious and uncertain preparatory task of attempting to locate and collect the data before summarization and analysis could be started. Furthermore, it was difficult, if not impossible, to determine what previous analyses of the same or similar data had been made by other agencies or offices. Waste and duplication of effort were impossible to avoid; irreplaceable records were lost or destroyed through inadequate servicing, excessive handling, and devious routing; many studies had to be performed in an inefficient fragmentary way because relevant data could not be located or collected in time or within the means at hand.

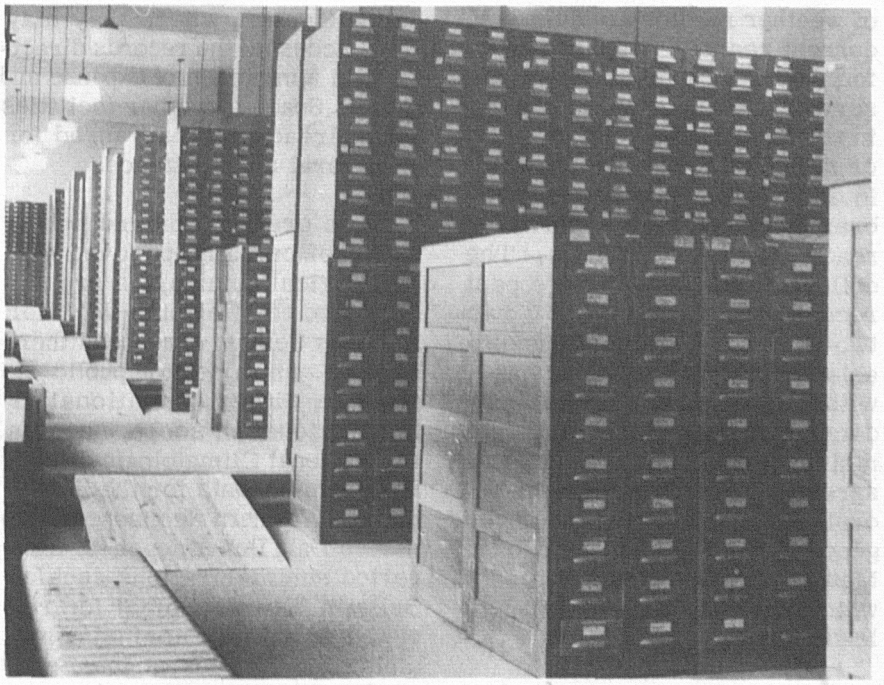
To cure these ills, a long start has been made towards organizing a national climatological center, with the pooled records activities of the Weather Bureau, the Air Weather Service and Navy Aerology, at the National Weather Records Center in Asheville, North Carolina. The Weather Bureau has been designated by the National Archivist to be the official custodian of Federal resources in weather records, and there is already assembled at Asheville the most complete collection of weather data that the world has ever seen.

Aside from the above reasons for centralizing government activities in the collection and processing of climatological records, the need was forcibly driven home during the World War II years. The military demand for climatological information had resulted in the establishment of a number of scattered "project" activities at New Orleans, New York City, Pittsburgh, Washington, and other places. Some were operated by the Weather Bureau under funds transferred from the military; others were conducted directly by the military, but, to a large extent, all used the same basic weather data sources.

Conflict and overlapping effort were inevitable. More than once, the same data and same punched cards were needed at the same time on two widely separated projects, which very often resulted in the duplication of millions of cards in basic punched card decks.

After 1944, it was generally agreed that centralization of climatological project work offered the only reasonable solution to this problem. The first step was taken in the establishment in 1945 of the WBAN punched card library at New Orleans, operated as a joint Weather Bureau, Air Force and Navy enterprise. Both the Weather Bureau and the Air Weather Service established machine tabulation units in conjunction with this library, with the Weather Bureau performing Navy climatological project work on transferred funds.

Records Center



Part of the NWRC Punched Card Library

While the New Orleans operation successfully centralized and coordinated all project work performed on punched cards by the three weather services, and served to some extent as a focal point for collection of basic weather records, particularly those of the military services, the need for a central repository for all weather records remained unsatisfied, and became even more urgent. Available space at the New Orleans Port of Embarkation could not fulfill this need, since this space was difficult of access, inadequate in size, and subject to the unforeseeable demands of military needs for shipping facilities.

Acceptable space for a centralized National Weather Records Center was ultimately located in December, 1950, when it became known that the government-owned Grove Arcade Building in Asheville, N. C., was to be released by modification in the Post Office Department's centralized postal audit activity. Planning was begun immediately to carry out the progressive establishment of the National Weather Records Center coincident with Post Office release of space in the building.

The tasks of adapting the space; of transferring personnel, equipment, and records from New Orleans, Washington, and other repositories; and of establishing these facilities at Asheville, have already been described in the September, 1952, issue of TOPICS. In the months between September, 1951, and July, 1952, almost 4,000,000 pounds of records, publications, and equipment were collected and organized in the Grove Arcade Building; almost 3,000,000 pounds (comprising 81 van loads) were transferred from New Orleans alone. While the Post Office Department at this writing still retains a considerable (though diminishing) occupancy in the building, the National Weather Records Center is now well established and operating smoothly. Although the Center is under the over-all supervision of the Weather Bureau, it is also jointly used and in part financed by Navy Aerology and the Air Weather Service.

The Weather Bureau performs a variety of climatological functions at the NWRC. Some of these are basic Weather Bureau responsibilities, supported entirely by Weather Bureau funds; some are cooperative programs supported jointly by the several weather services; in still others, the Weather Bureau operates under transferred funds as the data processor for other agencies, particularly the Navy Department, or to supply research activities with data through non-Federal "trust fund" accounts.

The Air Weather Service maintains its own specialized unit at the Center, processing the data for the strictly military requirements of the air and ground forces.

A basic function of the National Weather Records Center is that

of weather records archivist. All current records prepared by or for the three participating weather services flow into Asheville, either in the original or as carbon copies or microfilm, and are directed into the WBAN punched card library, where they remain for ready machine analyses. The collection of all available past records at Asheville is now over two-thirds completed. Considerable attention is being devoted, with good success, to collecting data for the entire world, thanks mainly to the result of exchange agreements with foreign meteorological services under the general auspices of the World Meteorological Organization, of which the Weather Bureau is a leading member.

The task of organizing, indexing and cataloging this vast and varied body of climatological information may never be completely accomplished to everyone's satisfaction, but a staff of trained employees in the Records Service Unit of the Center works at it steadily. The organization of files is already at the point where this crew can lay its hands quickly on any body of data required by any user. As time permits, indices and catalogs are being developed to serve research, developmental, or investigative work with climatological data.

An important phase of National Weather Records Center operations is that of providing copies of records to users at the costs of duplication. The unit's facilities for making microfilm, microprints, photostats, ozalid copies, and other types of record reproductions are kept busy satisfying such demands for records. Research constantly goes forward to find new and improved techniques and equipment for efficient and economical data copying. Research users of data are encouraged to assign personnel to the Center, where they may have access to the records directly with a minimum of expense and delay. Space and other facilities have already been arranged for in several such instances.

The preparation and publication of certain approved climatological summaries are assigned to the National Weather Records Center. Produced there are the summaries for public use that are either (a) national or international in scope, such as the National Climatological Data, the Climatic Data for the World, and the Northern Hemisphere Map series Data Bulletins; or (b) long-period summarizations such as Bulletin W, the project for revision of station normals, and tables required for various technical papers.

The NWRC not only distributes the publications it produces, but it is a center for collection and distribution to users of all back issues of Weather Bureau climatological publications. Once the initial immediate demands for current local or state bulletins are satisfied, surplus stocks are shipped to the NWRC by the originating field stations. Further requests for these publications are then filled from the centralized stocks at the NWRC, as a part of the activities of the "climatological information" section there.

Another recurrent routine function of the Weather Bureau in the National Weather Records Center is to process and check all current upper-air data for quality control purposes, utilizing punched card machine techniques in the editing process and in the preparation of the required current summarizations. The Weather Bureau also processes all marine and naval station weather data into punched cards, with funds transferred from the Navy Department. Weighing rain gage records are being processed and published with support from the U. S. Engineers.

In addition to the routine records servicing and processing operations described above, the National Weather Records Center grows in importance as a center for performance of many kinds of climatological project work. As facilities and budget permit, the National Weather Records Center processes and publishes statistical analyses of climatological data, on broad lines of interest for the general public and important segments of the national economy; it also performs the computing and tabulating services required for developmental work designed to improve the general public services within the purview of the Bureau. Important as such work is in its long-range implications for the Bureau's public service, progress here is necessarily slow in view of the limited resources available after the requirements are met for the essential basic programs of records receipt, filing, cataloging, and routine servicing.

A large proportion of National Weather Records Center facilities is and will continue to be devoted to "project" work for other agencies, financed by funds transferred from the using agency, or by trust funds established by private climatologists, private industry, and semi-private and local agencies. The National Weather Records Center supplies computing and tabulating services at cost to other government agencies (such as the Navy Department, Bureau of Standards, Quartermaster Corps, CAA, etc.), to fill their specifications for climatological summaries or analyses; similar services are supplied at cost to agencies or interests outside the Federal government through specialized "trust fund" accounts to cover the cost of such work. ■

Sustaining Observer Interest

OFFICES in areas where private groups are assisting with severe local storm warning networks may be interested in knowing how the Kansas Ordnance Plant helps stimulate observer interest and says thank you for "a reporting system that has been very beneficial in providing prewarnings in time to properly secure the plant."

The National Gypsum Company, operator of the plant, recently invited all network observers to a tour of the Plant, followed by a dinner in the Company cafeteria. Needless to say, the MIC at Wichita, who assisted in establishing the network, was also invited.

Weather Bureau offices that do not have the benefit of assistance from private organizations may not be in a position to express appreciation in the same way as the National Gypsum Co. However, a number of offices have developed plans for keeping in close touch with observers, such as: a letter of appreciation each time a helpful report is received; a friendly note each month during the season, telling the observer what storms have occurred or that no storms developed; occasional personal contacts when in the vicinity; occasional phone call to request information about local weather during threatening or uncertain situations. ■

SUPERIOR ACCOMPLISHMENT

Two Employees Rewarded

VINCENT J. TOMARDY, Meteorological Aid (Chartman) and John J. Smiles, Meteorological Aid (Shift Supervisor) assigned to the Analysis Center, both received one-step salary increases effective August 30, 1953, as a reward for the superior manner in which they carried out their duties during the past year. Both of these men received Outstanding performance ratings last March 31, and recommendations for Superior Accomplishment Step Salary Increases were based largely on the performance which resulted in the Outstanding ratings.

Mr. Tomardy not only performed his assigned tasks in an outstanding manner, but also found time to be of considerable assistance to his supervisor in training new personnel. He demonstrated a deep feeling of responsibility for his job which, combined with the rare ability not only to meet stringent deadlines but also to search out and correct errors in the process, made him an outstanding employee.

Mr. Smiles demonstrated outstanding leadership and supervisory ability which enabled him to assist his entire crew to become outstanding for the uniform neatness and accuracy of their plotting work. In addition, he contributed a number of suggestions which increased the efficiency of the Charting Unit to a considerable extent. ■

On Recording Gusts

EVERY now and then similar suggestions come in almost simultaneously from a number of stations; a recent case has been the idea that a maximum index pointer be added to the dial of wind speed indicators to record peak gusts. Possibly these suggestions were "sparked" by the new experimental maximum-minimum dial thermometers (TOPICS, February, 1952, p. 25) which use index pointers of this type.

While there is general agreement that a method of indicating maximum gusts is desirable, thus far no practical means other than an expensive gust recorder has been developed. One of the leading manufacturers of the type of meter used on direct-reading wind equipment points out that the small amount of power delivered to the pointer is not sufficient to operate an index pointer.

We have, therefore, had to reject these suggestions. ■

To Conserve Helium

AN employee has suggested that in order to reduce the waste of helium gas the vent in the three-way stopcock, used to inflate pilot balloons, be sealed so that if the stopcock is accidently turned to the incorrect position, gas will not escape into the air. If two stopcocks are used on a single line, the observer should make certain that the one not in use is turned to the closed position, otherwise gas will accidently be discharged. If other stations are experiencing this same difficulty action should be taken in accordance with the above. Stopcocks procured in the future will have no vents.

DEATHS

Hardy H. Haight

MR. HARDY H. HAIGHT, Meteorologist at WBAS Boise died October 19, 1953 of lung hemorrhage. He was stricken in Iowa City, Iowa while en route to Boise, Idaho, from Washington, D. C., where he had been on vacation.

Mr. Haight was born at Missoula, Montana October 13, 1924. He was graduated from Missoula County High School and also from Montana State University in the same city. From June, 1943, to January 1946, he served in the U. S. Navy as an Aerographer's Mate. He was appointed as Meteorological Aid at Missoula, Montana, in September 1947. Three years later he was transferred to Boise, Idaho, with promotion to Meteorologist. He is survived by a wife and small son. ■

Another Automatic Phone Record

WE have just received word that the New York City automatic phone forecast (WE-6-1212) also set a new record during the late summer heat spell. On September 2, when the official temperature hit 99°, 378,047 calls were made in the midnight to midnight period, breaking the all-time record of 374,781 calls made June 26, 1952, when the temperature reached 97°.

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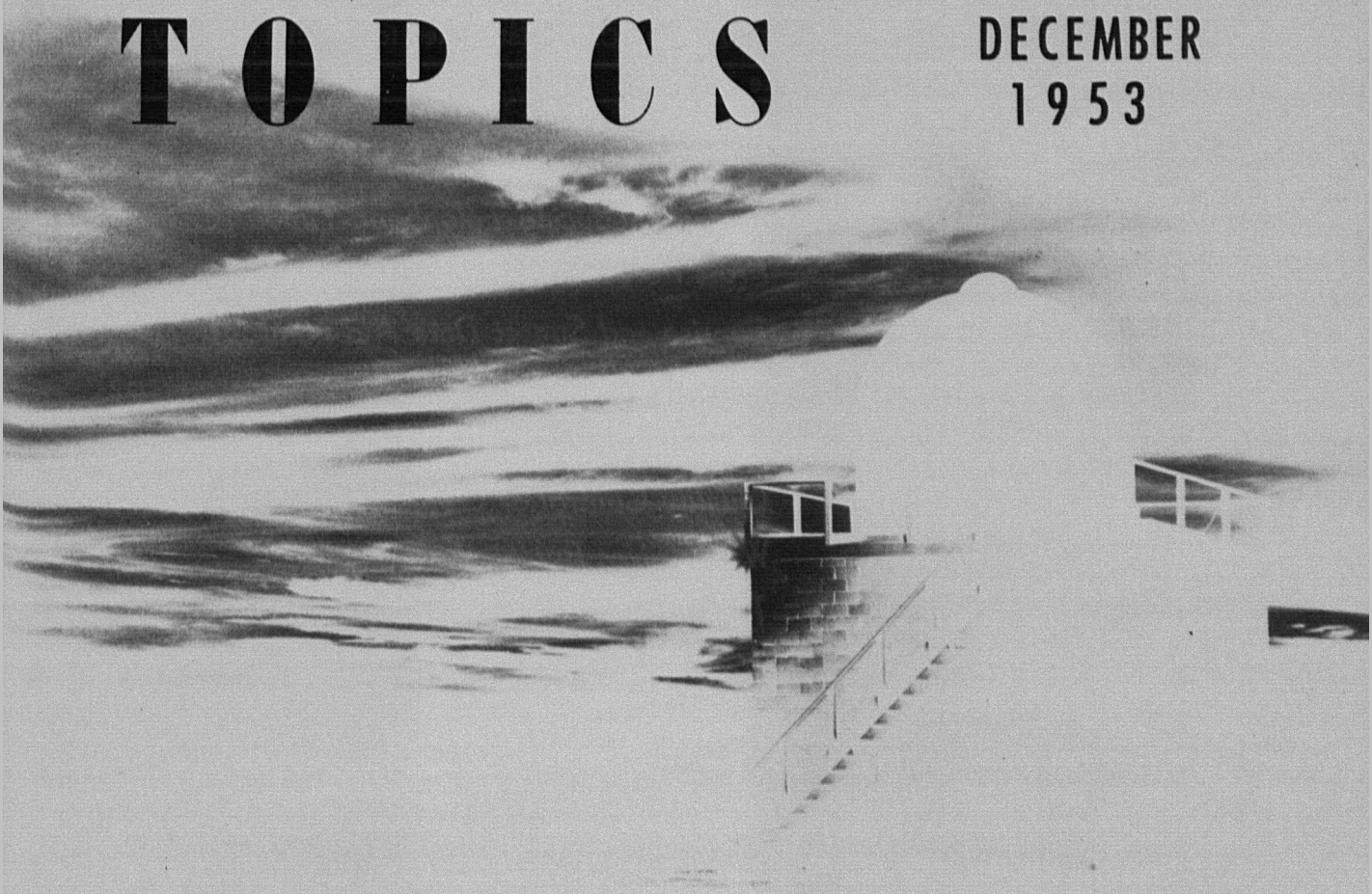
WEATHER BUREAU

TOPICS

DECEMBER
1953



Holiday Greetings
and
Best Wishes for 1954

Volume 12 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.

Volume 12 Number 10

Toward Reducing Telephone Time

The FIRST item in TOPICS, August, 1953, discussed the continued increase in the number of telephone calls at Weather Bureau offices and outlined Bureau-approved practices in force in handling these calls.

Since then a discussion of a number of specific proposals for reducing the time spent in answer-calls was submitted to a representative sample of field offices for comment and suggestions. These proposals were based on opinions and study of both Central Office and field officials.

All the replies received were constructive and helpful, and the officials participating have our thanks and appreciation both for the careful study given to this important subject and for the objectivity with which they approached it.

We hope, in the near future, to issue a summary, based on this survey, of approved methods of reducing the inroads of phone answering upon the basic work of the Bureau, for use by each station in working up recommendations on the best approach to the situation for its own case. Further information or instructions will be issued as a multiple address or circular letter.

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THE COVER

The photograph of the inflation shelter and dome at Nantucket was taken by Dick Williams, 544 W. 163d Street, New York 32, N. Y. who has given us permission to reproduce it.

TIMELY SERVICE

Frost Forecasting for Tobacco Growers

AN example of the effectiveness of forecast service for agriculture was recently brought to the attention of the Central Office. It demonstrates the importance of station officials' keeping in close contact with county agents and other agricultural interests so that agricultural forecast service can be tailored to fit the particular crop and area concerned.

In describing the forecast service furnished to tobacco growers this fall, Mr. Wiley Sims, MIC at Winston-Salem, reported as follows:

"This section of North Carolina grows an enormous amount of tobacco as one of its main 'cash' crops. Due to a dry season the poundage was cut some 10% or more. But August rains caused the crop to take on a second growth. This second growth made it one of the latest maturing crops of record. So, it developed that the longer the tobacco could remain in the field for maturing, without getting nipped by frost, so much the better.

"There was, more or less, an informal agreement made between the tobacco growers and the local Weather Bureau office. The local WBO agreed to broadcast daily about any frost situation. This agreement was 'played up' by the radio stations and the local press.

"At the beginning of the period when frost could occur, there were approximately 60 million pounds of tobacco still in the field. On Oct. 7-8 when there developed some threat of frost, there were still approximately 50 million pounds in the field. However, on that occasion, we advised them to leave their tobacco in the field. Fortunately, no frost of consequence occurred—none in this immediate area. We continued to advise daily until October 30. On that date, we advised that considerable frost would occur on the morning of October 31, and that farmers leaving tobacco in the field would be taking a real gamble. However, by that date there was only a little tobacco left in the field."

In reporting this in the local newspaper Mr. Joe R. Williams, sales supervisor in Winston-Salem is quoted as saying, "Wiley Sims has saved tobacco farmers in his forecast area five million dollars.* By keeping farmers constantly posted on weather prospects he encouraged growers to leave their leaf in the fields until it ripened and increased in value. Otherwise, they would have pulled it green."

In his report Mr. Sims gives full credit to the rest of his staff for their participation in this service program. ■

*Approximately 18% of our annual appropriation.

HANDY TABLES

Sunrise and Sunset Data Aid Nimrods

AN interesting application of the usefulness of the Sunrise and Sunset tables was recently brough to our attention. The October, 1953, issue of "Texas Game and Fish" carried an article indicating the importance to sportsmen of knowing the official time of sunrise and sunset in their areas since most shooting hours are determined with reference to the official times of sunrise and sunset. Along with the article were sunrise and sunset tables for nine Texas cities in which Weather Bureau offices are located. Data covered the months of October, November and December.

The article credits Mr. Dunham, MIC at Austin, with the idea, and the eight other Weather Bureau offices that supplied the basic data. ■

Two Awarded Salary Increases

SUPERIOR Accomplishment salary step increases were approved effective October 11, 1953, for Mr. Donald H. Pack, Meteorologist at Portsmouth, Ohio, and for Mr. Robert L. Fulk, Meteorologist at the River Forecast Center, Cincinnati, Ohio.

● Mr. Pack's award was for his outstanding performance as Chief Field Aide in Alaska from April, 1950, to July, 1953. He devoted a tremendous amount of time, thought, and energy to establishing orderly procedures for the field inspection program and to the improvement of observations throughout Alaska. He exercised an unusual amount of patience, understanding, tolerance, and ability in working with employees of the Bureau and other agencies. He made outstanding contributions to the improvement and rehabilitation of office and instrumental installations, usually with very limited funds. He consistently demonstrated ingenuity in meeting unusual and difficult situations and at no time did he display any reluctance or concern about traveling under the difficult and hazardous conditions frequently encountered in Alaska. In all respects and at all times he demonstrated outstanding willingness and ability.

● Mr. Fulk's award was for his outstanding performance during the past several years at the River Forecast Center at Cincinnati, where he not only demonstrated the ability to turn out prodigious amounts of work which conformed to the highest professional standards but also to exercise initiative and leadership as well. He demonstrated an exceptional ability as an instructor, supervisor, and manager of other people and their work. During the absence of the Hydrologist in Charge, he willingly undertook and did an outstanding job in assignments above his grade level including such activities as supervision of procedures development and the supervision and coordination of tributary forecasting. During the past two years he played an important part in the training of newly assigned personnel. He planned and directed completion of a complete River Forecast Manual for the Fort Wayne River District as well as assisting with major revisions of Ohio River forecasting for four sections of the river. In addition to his official duties he also found time to collaborate in the writing of professional papers dealing with flood forecasting.

Both of these employees received outstanding performance ratings for the period ending March 31, 1953. ■

Providing Degree Day Data

The ADVENT of the winter season generally brings with it a substantial increase in the number of telephone requests at field offices for mean temperature and degree-day information to be used in connection with fuel consumption comparisons. As one way of handling this seasonal increase in requests for temperature data without a corresponding increase in station telephone loads, it has been suggested that station officials encountering appreciable requests for such information look into the possibility of adding the necessary data either to their direct radio broadcasts or to weather bulletins regularly provided to local radio stations for studio broadcast purposes. If necessary, the information could be deleted in the spring when seasonal demand for the information fell off to the point where it was no longer considered a problem. The Central Office will appreciate being kept advised of the experience of station officials if they decide to give this suggestion a try.

Quality Control of Observations

The foundation on which any weather service must be built is its program for observing and collecting data; this is an elementary fundamental about which no one would argue. The soundness of this foundation is measured directly by how well it serves the major functions of the Bureau—the immediate operational jobs of weather intelligence and forecasts, as well as those of long-term meteorological research and analyses of climate.

The design of the observing program (the kind of data observed, the frequency of making observations, and the selection of an adequate network of stations) has always been given careful attention, to make it fit the needs of the Bureau as well as possible within the means at hand. The quality of the observing program (the reliability and accuracy of the data) has not always received the same degree of attention; yet quality of observations has an important effect on the ability of the program to fit the needs of the service. No forecasts, and more particularly no research or climatological analyses can be better than the data on which they are based.

Programs for instrument development, inspection programs, and observer training through courses, training aids, and on-the-job supervision are basic and necessary tools in the establishment and maintenance of high quality in observing; the effectiveness of these tools, however, depends to a large degree on the speed and sensitivity of the methods used for analysing and detecting weaknesses in the end product—the observational record. Corrective measures (clearer instructions, more accurate or easier-to-use instruments, better training aids, as well as personal on-the-job training sessions and discussions) can only be designed and applied when and where they are needed, and only after a timely and thorough knowledge of the nature, extent, and cause of errors or biases in the recorded data is available.

The methods employed in editing the record thus become very important for establishing and maintaining good quality control. In recent years, considerable effort has been put into developing such methods, with emphasis on both timeliness and thoroughness, to assist the managers of the observing program in attaining the highest possible standards of reliability and accuracy. Mass production techniques have been put into extensive use at the WRPCs and RAVU, using punched card machines and machine processes as an aid to the data reviewing staffs, to perform, as soon as possible after the observations are made, the otherwise prohibitively laborious manipulations of the data. The result has been the transformation of a previously somewhat superficial checking program, which was swamped by the mountain of data confronting it, into a comprehensive, sensitive tool for analysing the quality of observations, with assurance of more reliable data for use in research and climatological analyses.

The role of the WRPC and RAVU is to perform this analysis and report the weaknesses disclosed by the editing process. The responsibilities of the WRPC and RAVU end there—they are neither teacher, policeman, nor judge. Corrective action (if any is required) must be taken by those concerned directly with the observing program.

Processes for editing data basically have always employed tests for one or more of a number of general characteristics, such as:

1. Consistency among related elements in an observation.
2. Consistency of observed values with their usual or reportable ranges of occurrence.
3. Consistency of derived values with observed values.
4. Time series continuity in observed values.
5. Synoptic pattern between observing stations.
6. Accuracy of computation for computed values.
7. Freedom from bias in the mass, frequently undetectable in any single observation.

The great majority of observations made by a reasonably competent observer will pass all of these tests; observations of poor quality (resulting, perhaps, from a misinterpretation of instructions for unusual or fringe weather; from instrumental weakness; from arithmetic or copying error; or from occasional care-

lessness) are generally hidden in the mass of reasonably correct data. To apply the editing tests manually or visually to all observations in order to uncover the few that need attention is an impossibly laborious and expensive task. Prior to the WRPC program, all first-order station data checking was necessarily confined to editing a small sample of the record, supplemented by a hasty, inadequate skimming over of the rest. Many tests could not be applied, since they involved extensive rearrangements of the data, and were therefore prohibitive in time and cost. The punched card machines have made it feasible to apply all of the tests for reliability to all observations on a current basis, at high speed, and with relatively low cost.

It should be emphasized that the machines do not replace the reviewing specialist; on the contrary, they enhance his role. No machine has ever been built which can originate a single thought; no machine can make the simplest judgment or perform the simplest clerical operation without complete detailed direction. The machines serve merely as efficient, high speed tools for the meteorological reviewer, subjecting the data to the criteria and tests which he has designed, in strict accordance with his instructions. The 99% of observations which fit the criteria (and can therefore be presumed to be reasonably accurate) pass through the machine screening; the 1% which do not fit are flagged by the machines for further study and determination by the reviewer. He can thus concentrate his attention where it will do the most good, wasting no time on preparatory data shuffling, or in fruitless study of accurate record.

The manner in which machines are used to apply the various types of reliability tests to meteorological data can be made clear by discussion of some examples:

(1) Consistency among related elements in an observation.

On the punched card all codes or values whether qualitative or quantitative can be treated as having numerical magnitude. It is a relatively easy matter therefore to check for consistency among related elements on machines such as the Collator, the heart of which is a mechanism for comparisons of numerical magnitudes, either with each other or with constants. A simple example is the check made for the relation between reports of "obstructions to vision" and visibility. Observing instructions permit entry of "obstructions to vision" on the record only when the visibility is restricted thereby to 6 miles or less. The collator control panel, accordingly, is wired for the circuitry which will carry out this instruction: "Select into a separate pocket those cards in which obstructions to vision have been reported, but visibility is reported to be greater than 6 miles." (These cards are then examined in detail to determine which is wrong: visibility or obstruction to vision.)

This simple instruction uses only one sixteenth of the collator's capacity, and represents only a small portion of the work performed in a single run of the cards, at the rate of 240 observations per minute. In a similar manner other relationship which involve visibility and obstructions to vision can be speedily reviewed.

(2) Consistency of observed values with their usual or reportable ranges of occurrence.

This type of check can also be performed successfully through comparisons of numerical magnitude, plugging an "allowable" range into the machine as constants, and selecting those unusual cases which fall outside the range allowed. Some obvious examples are temperatures above 100 F. in January; wind speeds of 50 m.p.h. or more; wind direction codes which fall outside the 16 point range provided; sea-level pressures less than 900 mb. When the machine screening of observations turns up any such unusual cases, they are then reviewed by competent observers or meteorologists in the light of the existing synoptic situation to determine whether these unusual cases actually happened or were reported in error. (Occasionally, these unusual cases do actually happen.)

(3) Consistency of observed values with derived values.

A good example is the check made of hourly observations of dew point and relative humidity. The psychrometric tables have been punched into a "master deck" of cards; each card (or cell in the table) carrying a specific whole degree dry bulb and wet bulb combination, and the allowable upper and lower limits for both dew point and relative humidity for this combination of dry-and wet-bulb temperatures. On a sorting machine (operating at 650 cards per minute), the hourly observation cards are arranged into the same order as the psychrometric master deck. is placed in one input feed of the collator; the observation deck in the other. The collator locates for each observation the appropriate cell in the master deck table, and compares the reported dew point and relative humidity with the ranges allowed in the table, rejecting into a separate pocket all cases where dew point or relative humidity do not fall within the limits for the reported dry-and wet-bulb temperatures. In three minutes of collator time, an entire station month of hourly psychrometric values is screened for consistency with related temperatures.

(4) Time series continuity in observed values.

For conservative elements and with frequent observations, this test is very useful. An example is the check made for chronological continuity of both station pressure and sea-level pressure, as reported hourly. With the hourly observation cards arranged in chronological order, a run is made on the tabulator which performs these operations at a speed of 150 observations per minute:

(a) Computes the hourly change in both sea-level and station pressure.

(b) Tests each change for magnitude.

(c) Prints the hour during which station pressure changes .10 in. or more, or sea-level pressure changes 3 mb. or more, and indicates which pressure(s) changed by these amounts.

The reviewer then studies those observations which have thus been flagged as indicating an unusual discontinuity in recorded pressures.

(5) Synoptic pattern between observing stations.

In general, the machines make this type of test feasible by their capacity for high-speed, economical rearrangement and transcription of the data. The sorting machine arranges all simultaneous observations for an area into geographic order; the tabulator then prints the data in this array, so that the reviewer can readily locate and analyse apparent synoptic discontinuities or anomalies. Upper-air wind data, for example, are reviewed in this fashion. Also the daily maximum and minimum temperatures and 24-hour precipitation amounts for thousands of stations, including substations, are reviewed in this manner.

(6) Accuracy of computation for computed values.

Here good advantage is taken of the ability to perform arithmetic operations on the machines, making it possible to check computed values by recomputation. An excellent example is a run made on the Card-Programmed Calculator of radiosonde data, wherein the mathematical relationship between pressure, temperature and height is tested. From the observer-recorded pressures and temperatures, layer thicknesses are computed and compared by the machine for agreement with the thicknesses reported by the observer in terms of height for each level. The machine flags all cases for review in which the differences exceed the tolerances allowed for each layer.

(7) Freedom from bias.

It is sometimes the case that an instrumental idiosyncracy or unconscious bias on the part of the observer will result in a bias in the records. Frequently, such biases have only a small effect on any single observation and cannot be detected; but their cumulative effect on the entire record may be large, and quite apparent from summaries made from the record. Machine tests have, on occasion, been used to disclose and analyse such biases. A case in point is the bias toward the eight prime wind directions which has in the past occurred in wind records taken from dial recorders. A tabulator run getting total counts of incidence of the 8 prime directions as compared with the alternate (intermediate) directions for each station quickly disclosed the stations with this bias, and the extent of the bias. As a result of study, new easier-to-read dial faces were designed

DISTINGUISHED SERVICE

Waco Giv u Award

ALTHOUGH the local met orologist, accustomed being blamed whenever anyo is dissatisfied with the weath (and someone always seems be, no matter what conditio are), may be surprised to he it, letters of appreciation fr individuals, corporations, Cha bers of Commerce, etc., gratifyingly frequent.

The Chamber of Commerce Waco, Texas, however, has co up with something new. Follow the disastrous tornado whi struck Waco on May 11, 19 the City of Waco presented United States Weather Bure with a certificate of distinguish ice "for paramount assistance outstanding skill in meeting emergency...."

While the certificate has been rned to WBAS Waco for mount- nd display, the Chief of Bu- , in a congratulatory letter e station, pointed out that, ut minimizing in any way the rtance of the warnings dis- nated by the Waco office nor e efficiency with which they e handled, this is another ple of the Bureau's effective as a team, with equal credit the New Orleans forecast and the SELS Center in hington. ■

and installed, to remove the bias at its source. (An interesting point should be reported here concerning this wind direction bias study. It had previously been thought that this bias which always showed up in any wind rose tabulation was due to observers who were inclined to favor the cardinal points of the compass when recording observed wind directions. The ability of machine techniques provided the means for making a thorough study of this problem; and the study revealed that the bias was in the equipment, not the observer.)

When the punched card machine program was first conceived, it was immediately apparent that the entire Bureau activity would benefit if the emphasis were placed on strengthening the Bureau's control of quality at the very foundation of the weather service—the observing program—through a quick, intimate assay of the observed data. True, errors in the climatological record are removed—but they are removed, ultimately, by prevention at the source, before they can adversely affect the immediate urgent operational needs of the weather reporter, the pilot briefer and the forecaster. The WRPC and RAVU checking program is geared to this end. Its prime intent is to give the observer and his mentors an accurate up-to-date appraisal of the quality of his work; and to assist him in locating the points at which the tools of his trade could bear sharpening. The WRPC and RAVU reports to the observing station are intended only as information—useful information if applied by the observer in the spirit of making his best work even better. ■

CHARLESTON, S. C.

Tide Forecasting System

The MIC at Charleston, South Carolina, recently submitted information describing the tide forecasting system in use at his office. The following is quoted from his report:

"The spring tide for each month is set up in our suspense file and about a week or ten days before the high stage is due the forecasters are alerted to watch for northeast winds and low offshore barometric readings which separately or in combination will cause a higher than predicted stage.

"We are now at the time of the October peak and have issued a tide bulletin as of today as follows:

'A combination of north and northeast winds and low barometric pressure over the Atlantic to the eastward of this area is causing higher than normal tides. Tomorrow morning the tide is expected to be about eight feet with considerable flooding in the city along the Ashley River and in the marshes all along the South Carolina Coast. The northeast winds will also prolong the slack water for a longer period at tomorrow's high tide'."

Local officials should keep in mind that whenever tropical storms or hurricanes are in progress and approaching coastal sections, statements regarding tides should be coordinated with those contained in the hurricane advisory. ■

Well, How Would You Answer?

FROM the MIC of WBO New York comes the following copy of a letter received in that office:

"Mr. Weather Man:

"I hope you can answer my question. Have they found out how the forces of nature cause the rain and snow to come down in drops and flakes and not in lumps and chunks?

Thanking you,"

We regret that we do not have a copy of the MIC's answer. ■

Publication of "Prog" Charts

NEWSPAPER clippings of the 30-day prognostic temperature and precipitation charts sent in to the Central Office recently by field offices have in some instances been accompanied by letters inquiring if the Central Office has changed its policy in regard to publication of these charts. The information which follows is a brief resume of the situation to date.

For several years after the inauguration of the Average Monthly Weather Resume and Outlook in 1948, the printed prognostic charts carried the notation "Not for Publication." During this period, the Central Office consistently discouraged the republication of the prognostic charts by newspapers and magazines on the basis that without the special data on page 1 the charts are too rigidly interpreted with respect to local areas and can not be properly interpreted anyway without the auxiliary charts and guidance material carried in the original publication. Several months ago it was decided to remove the "Not for Publication" label from the publication as the Central Office was informed that there is no restriction of any kind on republication of any information issued by the Government to the public. In the meantime a word summary of the outlook had been developed for use of the press services and radio stations and the Central Office did its best to encourage use of the word summary in place of the prognostic charts. In spite of this, a press association began distribution of the prognostic charts to subscribers via wirephoto a few months ago and some magazines and papers also began republication of the charts taken from the printed outlook.

Although it is still considered preferable that the Weather Bureau refrain from encouraging republication of these charts, field officials may advise prospective publishers (upon inquiry) of the availability of the charts through the subscription procedure or via wirephoto. ■

DODGE CITY

Emergency Warning Distribution Plan

IN addition to distributing severe-weather warnings through commercial radio stations, WBAS Dodge City has arranged for the relay of emergency weather warnings through key distributors in the 22 counties comprising its area of county responsibility. An outstanding feature of the Dodge City plan is that one telephone call from the Weather Bureau results in the warnings reaching 66 distributors, each of whom has a definite interest and responsibility in having the warnings reach specific groups in his county. Here is how the plan works.

Emergency weather warnings are telephoned to the police office for broadcast over the police and highway radio network to the county sheriffs. Each sheriff's office telephones the warnings to three distributors: the county superintendent of schools; the county agricultural agent; and the county civil defense coordinator. These three distributors then relay the warnings to their own interests within each county. The county superintendent of schools contacts the schools; the county agricultural agent notifies the livestock interests; and the civil defense coordinator warns the other interests in the county.

Such arrangements should not only be helpful for the emergency distribution of winter warnings, but should be very desirable to have in effect for strengthening tornado reporting and warning networks.

One time-saving feature of the Dodge City plan is that only one letter, addressed jointly to the county officials concerned, was required to outline the procedures and request cooperation. ■

IN A NUTSHELL?

Record Depository

AT the recent Walnut Festival at Walnut Creek, California, a "time capsule," to be opened in 50 years, was buried. According to an article in the Walnut Creek Herald, "Most interesting, perhaps [of the items included], was meteorological data collected by Ray Whittemore, Walnut Creek's weather man. Contents included rainfall records from 1887 through 1900 (none 1901-13), and 1914 to date. Temperature records were kept between 1887 and 1900, none until 1947 when Whittemore resumed them."

Mr. Whittemore is Weather Bureau Cooperative Observer. ■

AID IN RESCUE

Wake Island Staff Commended

A LETTER of appreciation and commendation from the Chief of Bureau recently went to the staff of WBAS Wake Island. The letter was a result of their performance of additional duties in support of the extra flights from the Island during the search for the Transocean Airliner lost at sea last summer and was occasioned by a letter of commendation by the commander of of the local Coast Guard SAR Group. ■

NEW METEOROLOGISTS IN CHARGE

Williston, North Dakota

ARNOLD MATROS, now in charge at Pocatello, Idaho, has been selected for reassignment to Williston, North Dakota, as Meteorologist in Charge, replacing Mr. Charles Chibka, who is being transferred to Portland, Maine.

Mr. Matros is 46 years of age and has been in the Weather Bureau since August 1, 1930, serving at Dallas, Oklahoma City, Fort Worth, Billings, and Pocatello. He has been in charge of the latter station since May, 1946. ■

RETIREMENTS

Heston A. Forbes

HESTON A. FORBES, Meteorological Aid, WBAS Reno, Nevada, retired November 30, after completing an aggregate of more than thirty years in the civil and military branches of the Government service.

Mr. Forbes was born in Fayette County, Iowa, March 15, 1892, attended high school in Clovis, California and college in Fresno, California. He served 6 months with the California National Guard on the Mexican Border, followed by three years of active duty (1917-1920) in the Navy during World War I. Prior to entering the Weather Bureau in 1931 he served three years as a Mail Carrier and eight years with the Bureau of Public Roads. He entered the Weather Bureau as an Under Observer at Fresno and remained there for twelve years with successive promotions through the positions of Junior Observer and Assistant Observer. In 1943, when the CAA Station at Paso Robles, California, was transferred to the Weather Bureau, Mr. Forbes was assigned as Observer in Charge. Two years later he was transferred to the newly activated station at Santa Catalina, California, in the same capacity. In November 1945, he finally left California and moved further west to join the staff at WBAS Reno, Nevada, where he served for the remainder of his Weather Bureau career.

Aloysius E. Osborn

ILL health necessitated the voluntary retirement of Mr. Aloysius E. Osborn, MIC at Fort Smith, Arkansas, at the close of November 30, 1953. Mr. Osborn was born November 19, 1893, at Le Sueur, Minn., where he grew up and attended the public schools. While in high school he moved to Dubuque, Iowa, where he continued his education, graduating from the Columbia College with an A.B. Degree in 1921. During World War I he served nine months in the Army (May, 1918, to February, 1919).

He began his Government career on November 17, 1921, with an appointment to the position of Assistant Observer at St. Louis where he remained for nearly four years. He was then promoted to Junior Meteorologist and transferred to Wausau, Wisconsin, in charge. He later served at Helena, Montana, as an assistant and at Dodge City as Official in Charge. In December, 1939, he was placed in charge of the station at Fort Smith, Arkansas, where he remained until his retirement.

He was a member of the American Meteorological Society and wrote several papers on meteorological subjects including "Weather and Silver Foxes" and "Application of Military Range Finder to Measuring Visibility for Aircraft".

His hobby has been collecting and his collections have included such items as firearms and old and rare books.

Mr. Osborn's address is: Box 1, Fort Smith, Arkansas.

DEATHS

Robert C. Aldredge

THE career of Mr. Robert C. Aldredge, Weather Bureau Librarian at the Central Office was terminated by death on October 27, 1953.

Mr. Aldredge was born in New Bern, North Carolina, on July 4, 1905. His early years were spent in New Bern and Charleston where he attended the public schools. He graduated from the Charleston College with a B.S. degree in 1926 and supplemented his education by attending Columbia University in New York in 1928 and again returning to the Charleston College in 1935 and 1936 where he obtained his M.A. degree.

Prior to entering the Weather Bureau he taught high school mathematics for two years. He began his Government career with an appointment to the position of Junior Observer at Macon, Georgia, on January 7, 1929. Later that same year he was transferred to Key West and in November 1931, was again transferred to Charleston, where he remained until 1939 when he came to the Central Office with a promotion to Junior Meteorologist assigned to the River and Flood Division. In April, 1941, he was reassigned to the position of Assistant Librarian. During World War II he served for a year and a half as a meteorologist assigned to the Office of Executive Secretary, Advisory Council on Meteorology. In September, 1944, he returned to the library as Librarian where he continued to serve until his death.