

METEOROLOGY

Flood Forecasting

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► FLOOD FORECASTING, such as warned residents of recent floods, is a relatively new but exact science.

It is founded on two of the oldest sciences, hydraulics and meteorology, but employs the newest in scientific tools. Meteorologists of the U. S. Weather Bureau compute river stages and flood crests by a mathematical formula in which the known quantities are the height of the stream farther up its course, precipitation along its banks and in the watersheds above, and the river's past performance. Gages at strategic points along the waterways provide the necessary information on river stages and a network of rainfall stations over the entire area furnishes the facts on precipitation.

Gages are of several types. Some, housed in small concrete structures on the river banks, are self-recorders. Their continuous-record sheets, showing the rise and fall of the waters below, are taken out from time to time by official observers.

Other gages are weights on wires, kept in locked boxes, usually attached to the sides of bridges. When information on a river stage is desired, U. S. Weather Bureau officials explain, readings with these gages are taken. Most of the gages, however, are measuring staffs in one form or another, marked off in feet, set up along the streams. A part-time Weather Bureau employe liv-

ing nearby makes these readings when requested and reports them by telephone or telegraph.

Last word in automatic river gages is a two-part instrument connected by leased telephone wires. The recording end at the river's edge measures the stream's rise and fall and electrically transmits the record to the receiving end of the instrument in the Weather Bureau office some distance away. There an observer keeps the shifting river stages under his eye without leaving his office. During the Ohio River flood in 1936 the long-distance recorder at Pittsburgh was unfortunately put out of commission. Other types of gages also sometimes are damaged or ruined by severe floods. Wire weight gages are sometimes carried away with washed out bridge spans.

How much water there is in a flood can be computed but requires rather complicated mathematics, Weather Bureau officials say. One inch of water spread over an acre weighs 117 tons, which gives a rough idea of the water in a flood.

Chief health dangers to people in flooded areas are typhoid fever and dysentery which spreads if the drinking water becomes contaminated.

The fact that these floods came in fall instead of winter or spring should not occasion surprise. Great floods may occur in the eastern United States at any time of year. Prof. Charles F. Brooks of Harvard University and Maj. Alfred H. Thiessen explain in a Smithsonian report that there is always an extensive warm-water surface nearby from which great volumes of vapor may be transported, while not too far distant throughout the year there are cold surfaces to furnish moving wedges of cold air to elevate the tropical air.

Science News Letter, October 31, 1942

Irritation of the skin due to *nail polish* is said to be increasing.

Pyrex glass contains boron and silicon, and was made in this country during the first World War when German Jena glass was unobtainable.

● RADIO

Saturday, November 7, 1:30 p.m., EWT
"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Tuesday, November 3, 7:30 p.m., EWT
Science Clubs of America programs over WRUL, Boston, on 6.04, 9.70 and 11.73 megacycles.

One in a series of regular periods, over this short wave station to serve science clubs, particularly in the high schools, throughout the Americas. Have your science group listen in at this time.

Monday, November 2, 9:15 a.m., EWT; 2:30 p.m., CWT; 9:30 a.m., MWT; and 1:30 p.m., PWT

Science at Work, School of the Air of the Americas over the Columbia Broadcasting System, presented in cooperation with the National Education Association, Science Service and Science Clubs of America.

"Power in the Air" will be the subject of the program.

MEDICINE

Source of Solvent May Vary Harmful Effects

► THE SOURCE of the petroleum from which industrial solvents, such as benzine, gasoline and solvent naphtha, are obtained plays a part in determining the possible injurious action of these chemicals on those who work with them.

This is one part of the "lesson" Dr. W. F. Von Oettingen, principal industrial toxicologist for the U. S. Public Health Service, gave a group of 50 Connecticut physicians attending the opening class of the new course on Industrial Health and Medicine in War Time at Yale School of Medicine in New Haven, Conn.

The increasing use of hydrocarbons in war industries is creating new health hazards, Dr. Von Oettingen warned.

"The appraisal of these hydrocarbons offers considerable difficulties," he said, "because most of these solvents represent mixtures, sometimes of heterogeneous nature, and because their composition is often incompletely known."

Certain solvents such as benzine, gasoline and solvent naphtha, he pointed out, may vary with regard to their chemical composition according to the source of the petroleum from which they are obtained and therefore vary also with respect to their injurious action.

Dr. Von Oettingen suggested that the older method of describing these substances in terms of their physical properties failed adequately to indicate their potential injurious effects. Therefore, he suggests that appropriate chemical analysis be made in order to detect possible noxious components.

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