

## METEOROLOGY

# Thaw-Saturated Earth Forced Eastern Rivers to Overflow

Winter of Above-Normal Rain and Snowfall Combined With Below-Normal Temperatures Led to Catastrophe

**R**AINS gorged Eastern rivers into disastrous flood in just a few days, but behind the rains was a background of excessive snow, that lay in the mountain valleys all winter long and had the soil saturated when the rains began to fall. The new water thus could not sink into the earth, any more than it could on a thatched roof, and had nowhere to go but off.

That in a nutshell is the meteorological background of the recent crucial situation in a dozen Eastern and Southeastern states and all along the course of the Ohio river.

Weather Bureau records show that in the area responsible for the Ohio-Potomac flood situation, there was more than normal precipitation all winter long. During December and January, the rain and snowfall averaged from normal to above 125 per cent. of normal, and in February the precipitation ran up to more than 150 per cent. in a small area near the coast.

At the same time that the precipitation records were running above normal, temperatures dropped far below normal and stayed there for the duration of the winter. That meant that what normally falls as winter rain or short-lived snow came down this time as snow that remained unthawed on top of the hard-frozen ground. The rivers also were thickly sheathed with ice, so that when the first thaw came, at the beginning of March, there was some anxiety lest it be accompanied by rains, which might have caused even worse floods than the recent ones.

However, the river ice broke up quietly and went away without trouble, and the snow in the mountain valleys simply melted and soaked down into the ground. This might have been a fine thing—but the rains piled up on top of this saturation.

The floods were the evil-doing of a single massive storm area, that moved up along the southern Appalachian highlands and became practically stationary over central Virginia. Heavy with moisture from the Gulf, the storm area poured its waters with almost tropical violence into the steep-sided moun-

tain valleys that drain to the Ohio on the west and the Potomac on the east, as well as into the northward-draining Conemaugh valley in Pennsylvania, famed for the Johnstown flood of 1889. From three to five inches of rain were wrung out of the clouds, at some of the upland weather observation stations.

The severest effects were felt at Pittsburgh, where the Allegheny and Monongahela rivers unite to form the Ohio. Here the river gage registered higher than it had previously in all recorded history—and scientific observations of the Ohio at what is now Pittsburgh go back into pre-Revolutionary times, to include the only flood of comparable magnitude, in 1763. On the Potomac, Washington, D. C., experienced the highest water since 1889.

The narrowness of the inter-mountain valleys is mainly responsible for the distressed condition of the Virginia, Maryland and Pennsylvania towns, of which Johnstown is a classic example. These towns are built along the only available routes for highways and rail-

roads, which are right along the rivers. Frequently they are "one-street" towns, so that a flood "catches them endwise."

In the emergency, aviation proved its value not only for transportation but for instantaneous, effective, and accurate estimation of the conditions existing in any locality. One of a series of aerial survey photographs made by the U. S. Army Air Corps appears on the front cover of this week's SCIENCE NEWS LETTER. At the upper right it shows the U. S. Naval Air Station at what is usually the bank of the river. At the left is Bolling Field, army air station.

*Science News Letter, March 28, 1936*

## ASTRONOMY

## Finest Fireball in Years Being Tracked By Observers

**M**ETEOR observers are on the trail of the "finest fireball seen for years" in the Middle Atlantic section, but are not yet able to plot its sky path accurately.

Prof. C. P. Olivier, director of the University of Pennsylvania's Flower Observatory, Upper Darby, Pa., has studied reports on the meteor that flashed early on Saturday morning, March 14.

Apparently the meteor path started above a point not far from over Norristown, Pa., and ended over the ocean off Asbury Park, N. J. Prof. Olivier is asking observers for more information in order to complete this record for science.

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### C. C. C. BUILDS RAMPARTS FOR THE ARMY

When flood waters in Washington, D. C., threatened the office buildings of the War and Navy Departments, an army of "shoveleers" drafted from the C. C. C. and other emergency work labored in the rain to erect a formidable defensive earthwork faced with sandbags, strong enough to withstand the fire of artillery as well as the water of the Potomac.