

CLIMATOLOGY-POPULATION

# Population Centers Should Be Moved from Flood Zones

Cities Must Be Moved From River Bottoms;  
Geologist Urges Man Not to Dispute With Nature

By DR. CHARLES P. BERKEY, Professor of Geology, Columbia University; Secretary, Geological Society of America

IN EVERY emergency arising from an extraordinary display of the forces of nature, especially the destructive work of natural agents, question is raised sooner or later as to causes and the possibility of prevention.

Most popular explanations are unsound and many of the cures proposed are hopelessly inadequate. Nature is blamed for the mistakes of man. Lack of appreciation of geologic processes and failure to take note of the danger signals leads to one disaster to another year after year.

## Inadequate Efforts

Special reforestation, levees and a few dams are expected to do what they have no competence for. Spoonfuls of water are impounded while lakefuls on upper reaches flood the courses of our river systems. Nature has its own way of disposing of an oversupply of rain or melting snow.

It would be immeasurably more distressing if these waters were spread out over the surface of the ground to lie there stagnant until dried up by evaporation. Gravitation compels it to flow and the gathering of this run-off forms the streams that finally on occasion build up great floods.

But they all follow the lines charted by the river itself in more orderly times when its chief work was to dig a channelled course for its own accommodation.

The plain fact is that a river has nowhere else to go. The inner channel carries the stream in normal times, but in flood the valley bottom is covered also, and in great floods even the lower terraces are reached. The point is that these lands are its own property. Anyone encroaching on these particular lands is a trespasser in yearly danger and will learn by experience, if not otherwise, that nature is still master.

Although in occasional instances spe-

cial protective measures or diversions or impoundings are partially effective, the principal move indicated by the facts is very different. We are slowly learning that some of the things we have tried to do cannot be done. Our effort by comparison is too puny. But this does not mean that there is no answer. We have found out lately that agricultural settlement of the arid plains was carried too far. Everyone now knows that some of the settlement must be abandoned.

The cure for flood disaster is essentially the same. Dangerous bottomlands should not have been occupied, of course. We know full well how they came to be and why the stricken people return to the same spot in the vain hope that such a visitation may never come again. But the time must come when better plans will be laid. Helpless populations now crowded along the river bottoms in our great cities will be provided habitations beyond the reach of

danger. Cities can even be replanned.

Instead of praying that the windows of heaven may be closed, or instead of attempting to dispute the right of way of one of nature's giants, perhaps it would show great wisdom to accept the situation and turn such portion of the river bottom as it must occupy on occasion back to the river again. Nature has provided a very demanding use for these places and apparently the thing for man to do is to observe nature's danger signs and provide other ways of meeting his own needs.

*Science News Letter, February 6, 1937*

METEOROLOGY

## Real Flood Cause Lay Off the Southeast Coast

A STUBBORNLY unmoving mountain of tropical air off the southeastern coast of the United States, that would not get out of the way and permit the normal midwinter traffic of storms to flow in from the northwest, is the ultimate explanation of the nation's flood woes. Ordinarily the northwesterly storms bring real winter cold, and the cold holds most of the seasonal precipitation in storage as snow and ice until time for the spring thaws. But with this persistent southeastern "high" keeping temperatures abnormally warm ever since well back into December, there was no snow, repeated rains have kept



LANDING FIELD—WITH NO LAND IN SIGHT

*Penalty is exacted without remorse or opportunity for appeal, when man thrusts his works too confidently into the path of the major forces of nature.*