

terminated by stratosphere conditions at the given altitude.

Cosmic ray intensity is transmitted by a special electrometer measuring the electrification of air molecules in the apparatus. Gradually the air ions formed by cosmic rays charge up the electrometer which is arranged so that

for a given constant charge it will energize a photoelectric cell. The photocell current then cuts off the radio transmitted. The frequency with which the incoming signal is interrupted is, therefore, a measure of the cosmic ray intensity at the point in question.

Science News Letter, December 15, 1934

PSYCHOLOGY

Human Behavior Too Complex To be Studied Statistically

THE BEHAVIOR of a human child is too complex to express in a mathematical formula or to study by the use of the statistics, Dr. Paul Hanly Furfey, of the Catholic University of America, told members of the Society for Research in Child Development. The use of measurement and statistical analysis, probably the most representative technique now employed by American child psychologists, was condemned by Dr. Furfey as not being practically useful.

"Those who loyally follow the assumptions of the statistical method to its ultimate conclusion, calculating tetrad differences and fitting Pearson curves, are merely performing a sort of sacred rite, interesting and stimulating to themselves, perhaps, but without scientific significance," Dr. Furfey declared.

"The physicist proceeds by measuring his quantities as objectively as possible and then subjecting these measurements to a mathematical analysis which often succeeds in discovering relationships not apparent on a superficial examination of the data," Dr. Furfey explained.

"We psychologists have perhaps, more or less unconsciously, imitated these methods in the past, hoping that a method so brilliantly successful in another science would prove equally successful in our own.

"Too many of us have nourished a secret ambition to be the Einstein of psychology, to discover some formula—preferably a rather unintelligible one—which would summarize neatly a great mass of experimental data."

The physicist is able to deal with quantities that remain constant during his experiment or which change according to simply expressible laws, Dr. Furfey explained. But the position of the psychologist is not so easy. It is doubtful whether there are any behavior traits constant enough to be treated by

mathematical analysis, he said. Certain abilities, such as that known as general intelligence, may be constant enough so that it is useful to measure them mathematically. But when we turn from the ability to behave in certain ways to the actual behavior of the child, the difficulties begin to multiply.

The physicist can also isolate two variables such as temperature and expansion rate for mathematical study. Child behavior is too complex to make such a procedure possible.

Observation of the child and his environment, and comparison, following methods in use in the biological sciences, were recommended by Dr. Furfey to replace the technique of measurement and statistical analysis.

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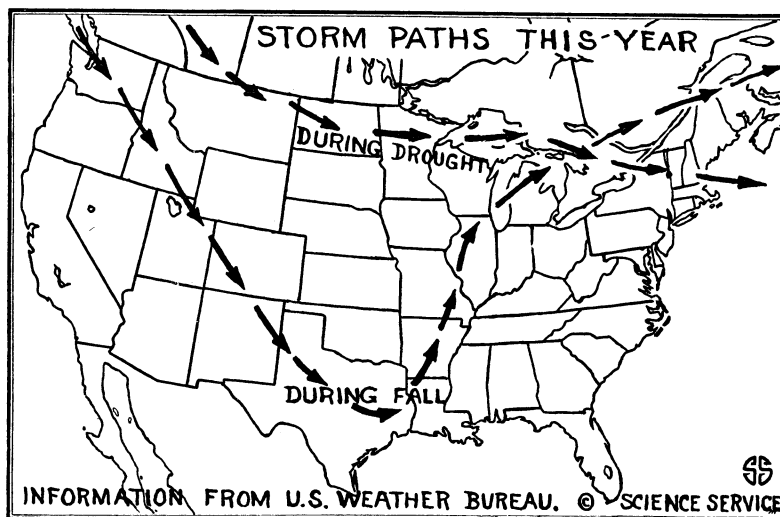
PLANT PATHOLOGY

Campaign to Save Elms Covers Historic Ground

THE SCENE of George Washington's first field venture against the British is to be the theater of an entirely different kind of warfare during the coming winter and spring. And just as Washington struck there for all America of the future, so the Government campaigners against the dreaded elm disease will be fighting for America's most beautiful trees not only in the East but far into the South and West.

With \$527,000 of PWA funds, the Federal forces will move into the area around New York City, to start a campaign of extermination against all trees found to be harboring the disease or the beetles that carry its causal fungus. In the wooded country, men of the CCC will cut down and destroy the sick and dead elms. In the cities, workmen under the direction of experts will take out the doomed trees, sawing them limb by limb as they stand rather than felling them, to avoid damage to telephone and electric wires as well as to buildings. This greatly increases the cost of removal, but the expense cannot be avoided.

An area with a radius of some 45 miles around New York City is known to harbor the diseased trees. Elimination must be made complete in this region,



THE RAINS BECOME BOLDER

This diagrammatic map shows why the Corn Belt had deadly drought last summer, but has been receiving saving rains this fall. The upper line of arrows shows the approximate path of the rain-bearing summer "lows." In normal years these dip down into the country, perhaps as far south as Kansas, then turn and slide off the map, usually through the St. Lawrence valley. When they just skim the top of the map, as they did last summer, drought comes. The lower arrow-line shows how the autumn storm areas have been driving in far to the south of their usual turning point, and then counter-marching squarely up the great central valley.