METEOROLOGY

Weather Cycles Make Possible 25-Year Rainfall Predictions

Study of Thousands of Years of Climate History Reveals Long Cycle Fluctuating Under Influence of Sunspots

WEATHER cycles, first observed by noting the years when good and bad wines were made, will tell the flow of the Colorado River during the next ten or twenty years, A. F. Gorton of the Scripps Institution of Oceanography, LaJolla, Calif., told the American Geophysical Union in Washington this week.

For huge water-storage projects like the Boulder Dam it is becoming increasingly necessary to be able to forecast far in advance, and this, said Mr. Gorton, is promised by the cycle theory of weather.

The Brueckner cycle of 22 years has been detected in recent years in records of rainfall, river flow, and lake levels, in spite of the fragmentary and inaccurate data available.

Several thousand years of climate history have now been written from observations of eccentricities of the weather before the thermometer and rain gauge were introduced. Floods, droughts, severe winters, prolonged freezing of harbors, rivers, lakes and seas and the devastation of hot, dry summers have been noted by people throughout history. From this dramatic if slender narrative the essential correctness of Brueckner's 22-year period has been demonstrated successfully.

"Coupled with this history of recurring anomalies of the weather," said Mr. Gorton, "we have vague but persistent evidence of a gradual drying-up or dessication of climate in certain regions, such as Mongolia, Tibet, Iraq, Northern Africa, Peru, Mexico, and in our own country, New Mexico at the site of the cliff dwellers. In most cases the evidence of dessication is based on lower lake levels.

"It is possible to establish the existence of certain cycles by means of official weather bureau records of rainfall and temperature, although in no case are they older than 60 years. Also fairly accurate observations have been made in the older cities of the east since revolutionary times."

Rainfall records from both the east and the west coasts of this country show the Brueckner cycle though the crests of the curve or years of maximum rain are completely out of step. The floods of the Murray River in Australia show the same periodicity but there is a six-year difference between southern Australia and southern California.

Rainfall and stream flow on the west coast show other regularities, of two to three years, five and one-half years, and eleven years. All of these cycles are deducible from the periods of fluctuation of sunspot numbers and are simply related to the longer Brueckner cycle.

From facts of this kind it will be possible to make forecasts of the trend of precipitation up to 25 years. The value of such predictions to agricultural, economic and financial interests, not to mention the large utility companies, can hardly be overestimated, said Mr. Gorton in conclusion.

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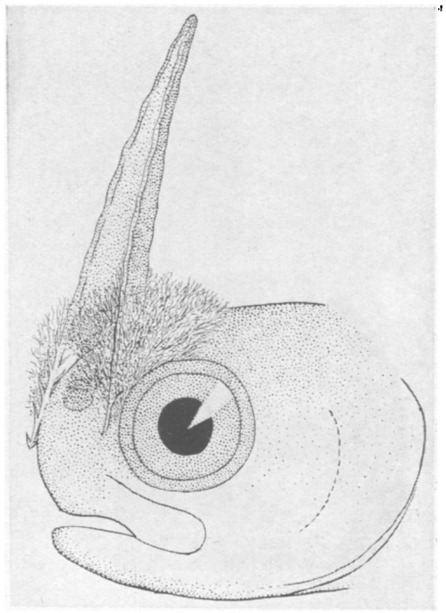
ICHTHYOLOGY

Weed Seed "Horn" Brings Death to Baby Trout

HOW A LUCKLESS infant trout made an imitation horn out of the seed, or rather fruit, of a common weed, and did so good a job as to fool a competent scientist, is told by E. W. Gudger of the American Museum of Natural History, in a new publication of the Museum.

A little fish, only about an inch and a quarter long when it died, had been found and preserved by Frank J. Rieger, superintendent of the fish hatchery near Waynesville, N. C. From the front of its head, squarely between the eyes, there projected a four-sided little horn, sticking up rhinoceros-fashion. Around the base of this horn there was a fuzzy growth of fungus, which had caused the death of the fish.

When Dr. Gudger was first shown the fish, and even when he studied it later in the laboratory, he took this "horn" at full face value. Only later, when it was examined under a microscope, did its true nature become apparent. Then it was identified by Dr. J. K. Small of the New York Botanical Garden as the four-pronged fruit of the sticktight or bur marigold, a weed closely related to the common Spanish needle.



AN "ACQUIRED" CHARACTER

That never got a chance to be inherited, was this achene of the bur marigold that fastened itself on the nose of a young trout, eventually killing the poor little fish.

It seems likely that this particular fruit, with one of its prongs missing, somehow got into the pool in which a batch of new-hatched troutlings were swimming. By a weird accident it became saddled over the nose of one of them in such a way that one prong slipped right down the center line and the other two took hold on either side, hanging fast by the minute barbs with which these fruits are armed.

These barbs also made minute scratches in the skin, permitting the entry of the parasitic fungus that caused the death of the luckless little fish, at the same time holding the irritating fruit more firmly in place and concealing the mode of its attachment.

Dr. Gudger has not found a similar case of "horned fish" on record, though one German investigatior has discussed the fruits of this same weed as destroyers of young fish into whose ponds they fall.

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There are about 158,000 forest fires in the United States in a year.