

GENERAL SCIENCE

# Finds Dry Summers Influence Fish and Animal Abundance

## Birds Eat Young Fish When Streams Are Low and Clear; Royal Society Hears of Living Fossil That Heat Kills

**S**CARCITY of salmon in the Atlantic is probable this year and the next, Dr. A. G. Huntsman of Canada's Biological Board told the Royal Society of Canada at its annual meeting at the University of Toronto.

Dryness and wetness of the summers is linked by Dr. Huntsman to the abundance and scarcity of not only salmon but other forms of wild life as well. There is a periodic recurrence of scarcity every 9.6 years shown in the records of both animals and fish, but until Dr. Huntsman's researches its cause has been a mystery.

Studying salmon statistics Dr. Huntsman came to the conclusion in 1931 that the unknown influence which caused these fish to be scarce every 9 or 10 years must have been acting upon them while they were still small and living in their rivers before going to the sea. The reason for this conclusion was the fact that, in localities where the salmon were the fewest years in the sea before being caught, the scarcity came correspondingly earlier, and where the salmon were longest in the sea, there the scarcity came last.

Dr. Huntsman has now found from other records of the past what the previously unknown influence must be. It proves to be one that can act also on the fur-bearing animals of the Northwest.

### Food for Birds

On that well-known salmon river in Cape Breton, the Margaree, the young salmon were found to be the chief food of the fish-eating birds, kingfishers and mergansers, when rearing their young along the river during the summer. In rainy weather, with the river high and murky, the young salmon are comparatively safe, but in dry summers, with the water low and clear, the birds can remove them very thoroughly.

Dry summers should thus be followed by a scarcity of salmon as many years later as the salmon remain in the sea before being caught. If dry summers were

responsible for the periodic scarcity of salmon on the average every 9.6 years, they would have to occur the proper number of years before each periodic scarcity.

The last one of these for the Margaree was worst in 1928 and the daily records of river height showed that the summers from 1923 to 1925 were dry as would be expected from the theory. Records of rainfall, if numerous enough, would give proof of dryness of the summers. Such as are available do show comparative dryness in the proper years, even back to the seventies of the last century, to explain the most pronounced scarcity of salmon that has been recorded, that centered in the year 1880.

### Wet Kills Animals

There are indications that the wet summers that alternate with the dry ones are likely to be the cause of the periodic scarcity of the animals of the interior of the continent, such as rabbits and grouse,

by making them more liable to disease. Dr. Huntsman now intends to see whether predictions can safely be made of the abundance or scarcity of all these animals through precise (*Turn to Next Page*)

ASTRONOMY

## Rotating-Dome Observatory Built Entirely by Students

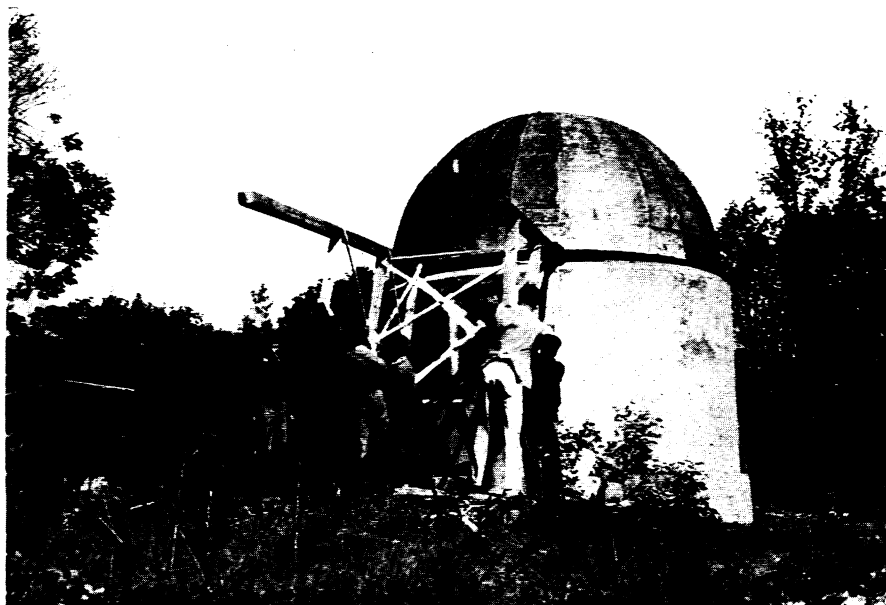
**A** COMPLETE astronomical observatory with telescope and rotating dome housing has been constructed by students of the Edgewood School, Greenwich, Conn.

Beneath the copper rotating dome that weighs nearly a ton is a concrete foundation, cinder block walls and an eight-inch reflecting Newtonian type telescope. All work on the entire observatory, including the removal of boulders weighing three tons each, was accomplished by the students. The only outside help was in the fabrication of the floor.

Stanley Reynolds, now a student at the University of Chicago, ground the mirrors of the telescope and designed the observatory. Alan Tucker built the copper dome. The project was directed by John L. Wallace, head of the shop.

Dr. Harlan T. Stetson, astronomer of Massachusetts Institute of Technology and former director of Perkins Observatory, and Dr. Orestes H. Caldwell, president of the Amateur Astronomers Association, spoke at the dedication.

*Science News Letter, June 5, 1937*



### PUTTING UP THE DOME

*The boys of Edgewood School have constructed their own astronomical observatory containing a telescope of their own manufacture.*

knowledge of the dryness or wetness of the summers.

When salmon are scarce along the Atlantic coast all sorts of theories are advanced to explain it, such as poaching, drift-netting, general over-fishing, failure to breed from the right fish, winds from the wrong quarter, some cataclysm in the ocean.

The scarcity is a matter of deep concern to many fishermen who depend to a greater or less extent upon catching and selling salmon as a source of livelihood, to many guides and hotels catering to the salmon anglers, and to the anglers themselves, who in New Brunswick alone pay the Provincial Government more than \$80,000 a year merely for the angling rights on certain rivers.

The Hudson's Bay Company has kept records of the furs it has taken from the Northwest for more than a hundred years and these show that such animals as the rabbit, the lynx, the marten, the fox and others, have been scarce on the average every 9.6 years. So is it with the partridge or ruffed grouse, in Ontario. Statistics of Canada's fisheries, which have been collected since Confederation, show that also the salmon of the Maritime provinces have been more or less scarce on the average every 9.6 years.

### Twin Fingerprints

So alike are the finger and palm prints of so-called "identical" twins that Dr. John W. MacArthur, University of Toronto geneticist, told the Royal Society of Canada that this type of twinning can be correctly diagnosed 4 times out of 5 from finger and palm prints alone without comparing faces. Left and right hands of the same person average about 27 per cent. unlike in twins as well as single born, using a new method devised by Prof. MacArthur. Matching left hand with left and right with right, pairs of identical twins differ by only 19 per cent. in their patterns, lines and ridges. Ordinary brothers and sisters and fraternal twins differ by 38 per cent.

### Only Thunderheads Electrified

Only thunderheads, technically known as clouds of the cumulonimbus type, contain localized electric charges, Dr. D. C. Rose of the Canadian National Research Council told the meeting. Airplane flights among the clouds, during which delicate potential gradient and conductivity measurements were made, furnished this proof of the non-electrical character of ordinary clouds.

### Living Fossil Hates Heat

A "living fossil" insect that thrives at a temperature a few degrees above freezing and is overcome with the heat in the palm of a human hand was described by Dr. E. M. Walker, professor of biology of the University of Toronto, in his presidential address to the biological section. This primitive creature, which evolution has passed by, is found at heights of over a mile in Canadian Rocky Mountains among moss, decaying logs and rocks near glacial bogs.

A slender, light amber-colored, wingless insect,  $\frac{3}{4}$  inch when full grown, its name is *Grylloblatta*, after *Gryllus*, the cricket, and *Blatta*, the cockroach. It is a link between these two common groups of insects.

So slow are its life processes in its cold surroundings that instead of taking a few weeks to develop and a year to pass through a life cycle, as do most insects, its growth from egg to adult requires about five years and the period from one generation to another is no less than seven years.

To carry some of these insects to Toronto it was necessary to pack them in ice-cooled containers.

### Poison Weeds

There is a chance that practical weed control under field conditions may be achieved by use of relatively small doses of plant poison, it was reported to the Royal Society of Canada by Dr. W. H. Cook of the Canadian National Research Council. Unwanted plants are often reduced to half their usual size by a chemical dose only one-tenth that required to kill them.

*Science News Letter, June 5, 1937*

### POPULATION

## Japan Will Double Numbers While Europeans Decrease

**P**RESENT-DAY struggles of single European nations to stamp their own culture on the world seem peculiarly futile and pathetic when viewed in the light of certain figures now published for the first time in an American publication by Princeton University and the Population Association of America.

Will the world of future years be one peopled by the nations of the East?

This is the question that can be read between the lines of those marshalled rows of figures in the Population Index. Japan, although losing a grievous number of infants in extremely high infant mortality, is growing at a rate so

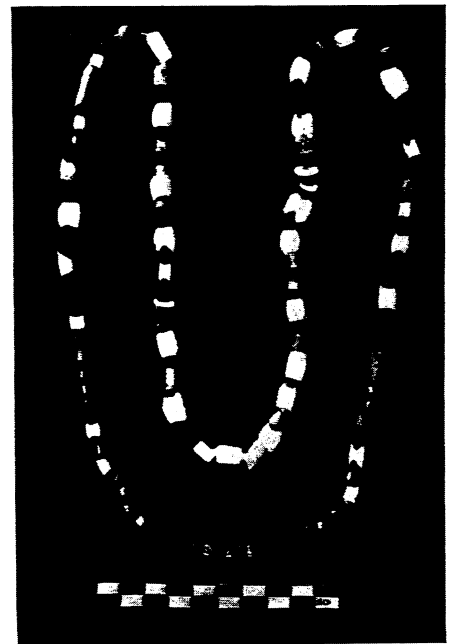
high that it is not comparable with that of either the Northern European nations or North America.

Although the girl child is not so important as her brother in some civilizations, she is the one who counts most in the calculations of the vital statistician. It is the number of daughters born to the women of proper age for motherhood that eventually determines (along with death rates) how many of their kind shall walk the earth. So figures of total population increase or decrease do not interest statisticians so much as those more significant ones showing how many daughters may be expected to be born and grow to child-bearing age for each woman now living and at a reproductive age.

In the United States, births of daughters are not numerous enough to insure replacement of one generation by the next. In Japan, the reproduction rate is high enough to double the population in each succeeding generation. France, in the depression year 1933, lacked 18 per cent. of enough births to insure replacement. England lacked 27 per cent., Germany 30 per cent. and Austria 33 per cent.

The hand that rocks the cradle appears to be working out a new destiny for the future of the world.

*Science News Letter, June 5, 1937*



### WEALTH OF THE ANCIENTS

*This necklace on which are strung beads some of which are of gold was an adornment worn in the Stone Age.*