INTERPRETATION OF DISTRIBUTION

All these prehistoric remains have been found either along marginal zones (coasts or islands) or in places of refuge (islands, rocky coast, deserts or very cold climate). This seems an evidence of antiquity and of having been pushed aside and away as by a central drive from newer and stronger tribes splitting an early population into small groups, isolating them, reducing them to live in less favorable districts and at the periphery of the country.

POSSIBLE KINSHIP WITH POPULATIONS OUTSIDE OF AMERICA

After a comparison of cranial measurements, proportions and characteristics of skulls, it seems more and more acceptable to believe that this type of prehistoric Indians is resembling, and even is possibly related to, populations scattered in Oceania between Australia and New Caledonia in the southwest, New Guinea and New Britain in the northwest and as far east as Hawaii and Easter Island. Ten Kate, Rivet, Sullivan and other anthropologists speak of Polynesians and Melanesians; Verneau and a few others favor the Papuans.

Recent investigations by Dr. Rivet, of Paris, seem to establish a relation between Australian and Polynesian languages on the one hand and on the other the Tson dialect of the Tehuelche of Patagonia and the Hoka of California. Linguistic and anthropological considerations appear then to point out in the same direction.

The center of origin and dispersion of these people, their respective routes of migration, the time of their arrival in America and other highly interesting problems must remain unanswered questions, at least for the present.

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THE LOSSES IN TROUT FRY AFTER DISTRIBUTION

THE losses in trout fry which were found by the Biological Board of Canada for three months of each of the summers of 1923, 1924 and 1925 have ranged from 73 per cent. to 100 per cent.

Probably all fish culturists will agree that the two most effective means of reducing losses are (1) to protect the fry from enemies and (2) to provide them with an adequate supply of food. These are fundamental conditions for avoiding loss, whether in the hatcheries, in the retaining ponds or after distribution.

It does not seem to be a wise policy to protect and feed fry in hatcheries and in rearing ponds and then distribute them in wild ponds and streams where they have no protection from enemies and in many cases an inadequate food supply.

If seining or other forms of netting wild lakes and streams are carefully carried out, then both protection and food will be assured and losses will be greatly reduced. This was well shown by the Biological Board of Canada in the summer of 1923. One brook was partially seined of enemy fish and five thousand fry distributed in it. A second stream similar to the first was left unseined and five thousand deposited in it. At the end of three months both streams were seined and the survivors counted, with the result that fifteen hundred or 30 per cent. were alive in the former and only 175 or 2 per cent. in the latter.

Another example has been communicated to me by Mr. Albert French, vice-president of the Mastigouche Fish and Game Club, of New York City. The fishing areas of this club are about one hundred miles northeast of Montreal. Mr. French sent me the following letter after reading my article in SCIENCE of December 25, 1925.

> The failure of our trout to breed satisfactorily has been due, we are told by the authorities in Washington, to the fact that our lakes were out of "balance," that is to say, the suckers were in the ascendant, and we therefore started a warfare upon them in aggressive manner. At the mouth of the various brooks leading into our lakes we placed fyke nets in the early spring, as the suckers have a habit of going up stream (practically as soon as the ice is out) for spawning purposes. They went into these nets and were destroyed by men employed for this purpose.
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> In addition to these fyke nets, I had built a large number of wire traps (which were made out of one half inch mesh galvanized wire) the size of a flour barrel, with one end flat, the other conical shaped, allowing convenient ingress for a sucker weighing two pounds. These traps were baited with stale bread and were placed at various points in our lakes, with a rope and float attached, and every second day were emptied by the man in charge. Carefully kept records show that up to the present time we have destroyed 767,000 suckers, and in the instance of at least one of our lakes, we feel that we have now gotten it in "balance."

The Mastigouche Club runs its own hatchery and Mr. French tells me that all the food which is required to feed both fry and fingerlings while in the hatchery or retaining ponds is obtained from the enemy fish. For a change of diet they are occasionally fed on liver and heart.

The expense of this investigation was borne by the Biological Board of Canada, and the work was done under the supervision of the chairman, Dr. A. P. Knight.

A. P. KNIGHT

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