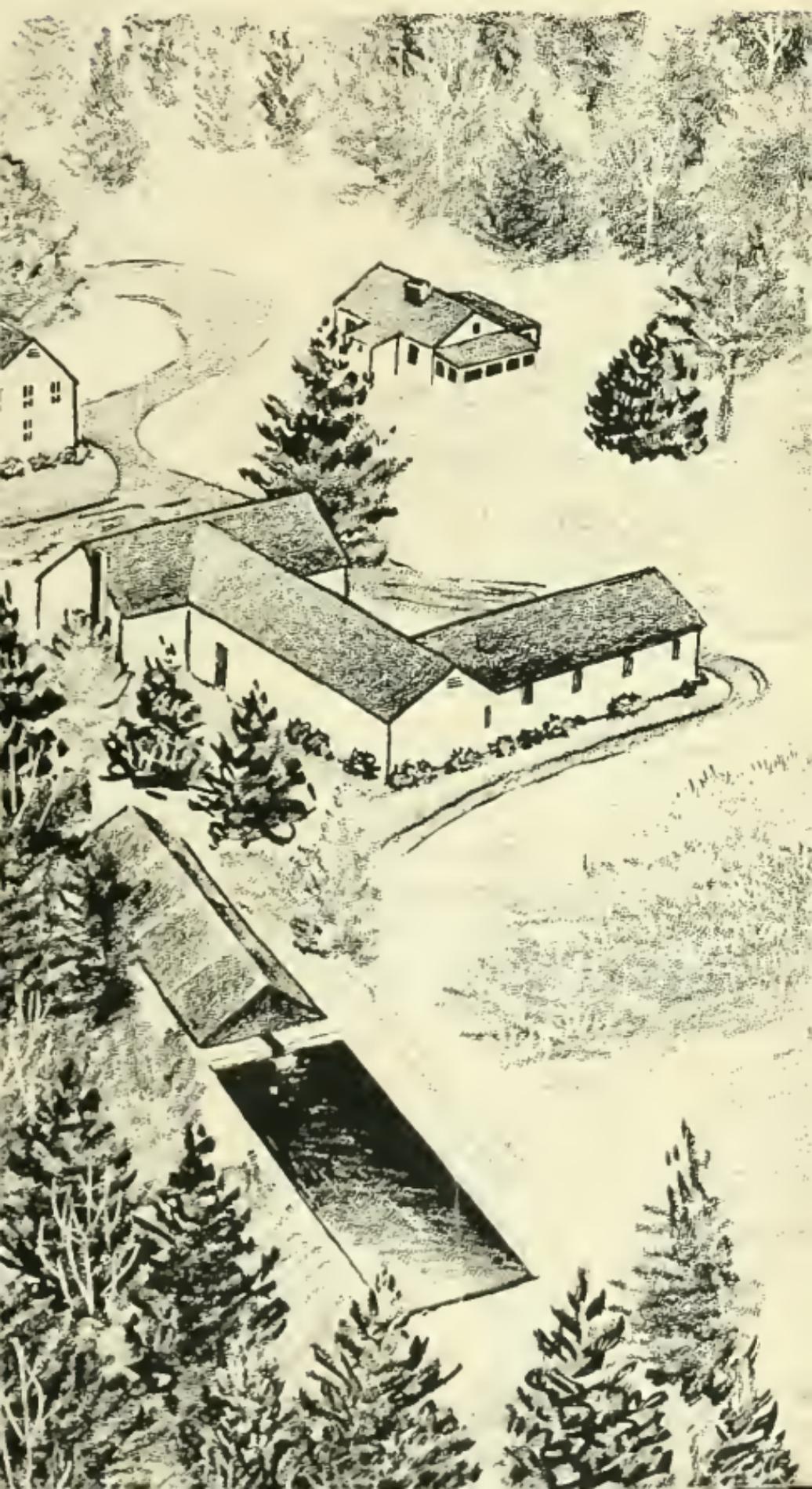


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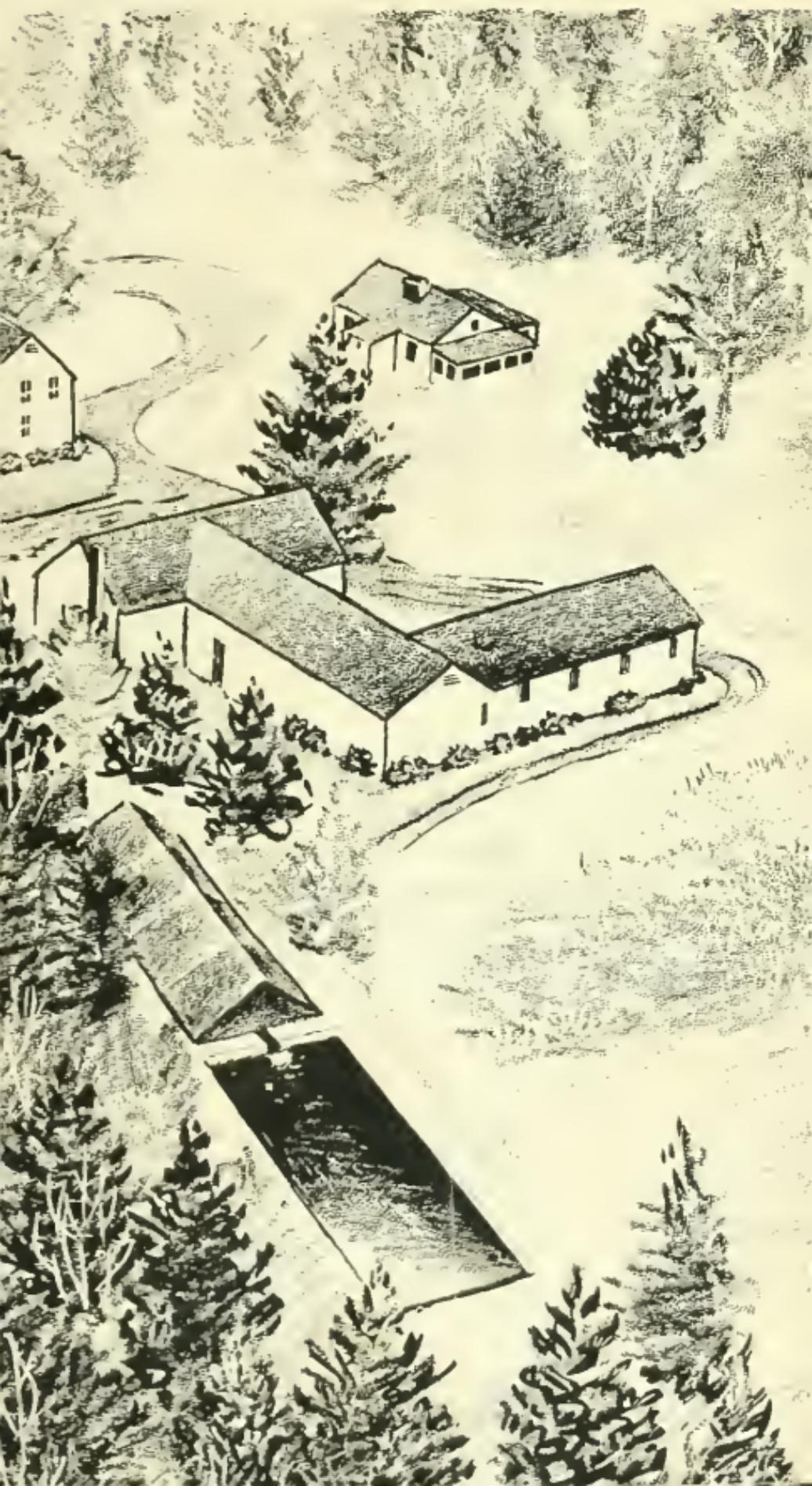
FISH-CULTURAL STATION
EXPERIMENTAL HATCHERY
TROUT-NUTRITION LABORATORY
IN-SERVICE TRAINING SCHOOL

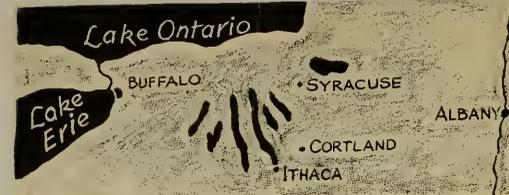


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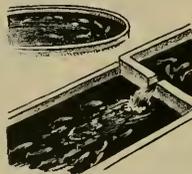




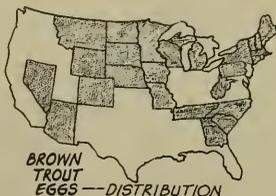
CORTLAND STATION was authorized by act of Congress in 1930, and in a quarter of a century this small establishment has made a considerable contribution to fish culture in general and trout fishing in particular. Here, the Fish and Wildlife Service, the New York Conservation Department, and Cornell University cooperate in a program that combines a production hatchery that collects trout eggs and rears trout for stocking, an experimental hatchery and nutrition research laboratory, and a fish-culture training school.

Area of the station is about 100 acres. The hatchery receives water from excellent springs that furnish a constant supply at 47° F., for hatching trout eggs.

PRODUCTION HATCHERY

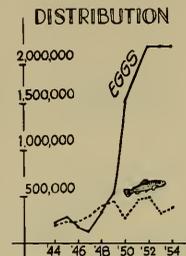


Cortland collects brown-trout eggs from brood fish kept in the station's brood ponds. Recently the spawning season of these trout has been pushed forward by the use of arti-



ficial light. Note the covering over one of the brood ponds. Brown-trout eggs have been supplied by Cortland to Federal and State hatcheries in 25 States.

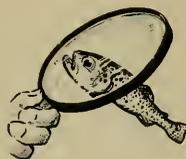
The station rears brown trout, and also rears brook trout and rainbow trout from eggs supplied by other Service hatcheries.



fingerlings, to give fishing opportunities to an increasing number of anglers. Rearing trout to legal size takes longer hatchery care—and costs more.

Cortland's production facilities also supply trout of the sizes and species needed at the station for study under controlled conditions.

NUTRITION LABORATORY



The Cortland Trout Nutrition Laboratory was instituted in 1932. Trout hatcheries needed feeding formulas that were less expensive but just as efficient, or better, than the diets they were using. Some of the components of older diets were difficult or expensive to store. In ponds and raceways at this station, many foods have been tested in terms of production, growth, and mortality of fish.

When new products, like pellets—compressed feed mixtures—come on the market, they are tested on trout held here.

So successful has its nutrition research been, that "the Cortland diet" is a common reference at trout-culture stations everywhere.

In its annual reports, Cortland makes available the results of its experiments to determine the effects of various substances on trout. The vitamins needed, the levels at which these should be fed, the digestion and use of fats, proteins, carbohydrates, and minerals, the cause and prevention of nutritional deficiencies, the effects of foods on the chemical composition of the trout's body: these are a few of the topics on which the laboratory's biochemists have already reported.

Since more efficient use of foods must be based on better understanding of the trout's physiology, the laboratory studies the body processes of trout. What happens to its blood when the trout feeds on sugar? on fat? or on starch? Is there a change in the blood when the fish receives a salt bath? What effect has dissolved oxygen on the red-cell content of the blood? What changes occur in the presence of enzymes? What identifying stains can be used safely on trout? What factors are involved in trout coloration? Answers to questions like these will affect more than the feeding practices in a hatchery; they will influence the spawning operations, water use, pond construction, and many other phases of hatchery management.

FOOD ALLOWANCE TABLE - BROWN TROUT (PERCENTAGE OF BODY WEIGHT) POUNDS OF FOOD FOR 100 POUNDS OF FISH

AVERAGE SIZE OF FISH INCH	WATER TEMPER.										
	UNDER 1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	OVER 10
NUMBER OF FISH TO POUND	2,542	304	88.3	37.8	19.7	11.6	7.35	4.94	3.47	2.53	1.87
	and more	to 2,542	304	88.3	37.8	19.7	11.6	7.35	4.94	3.47	2.53
37"	4.0	4.1	3.3	2.4	1.8	1.5	1.2	1.0	0.9	0.8	0.7
37"	5.0	4.2	3.4	2.5	1.9	1.5	1.3	1.1	1.0	0.9	0.8
38"	5.2	4.4	3.5	2.6	2.0	1.6	1.3	1.1	1.0	0.9	0.8
39"	5.4	4.5	3.7	2.7	2.0	1.6	1.4	1.2	1.0	0.9	0.8
40"	5.6	4.7	3.8	2.8	2.1	1.7	1.4	1.2	1.1	1.0	0.9

Trial-and-error testing of new products in ponds and raceways is complemented by chemical analyses and blood tests. Bioassays determine whether a particular food is doing its job.

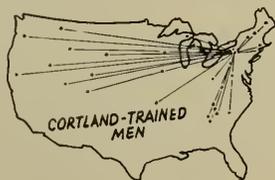
Biochemical research with radioactive tracers is adding greatly to knowledge of fish nutrition and growth. Radioactive isotopes provide Cortland's biochemists with a means of tagging mineral elements, for example, to determine whether trout absorb calcium direct from the water they are in.

TRAINING SCHOOL

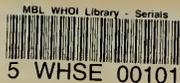


Some of the most promising fish-culture employees of the Fish and Wildlife Service receive a year of training at Cortland. In formal classes, in the laboratory, and in supervised work on the station's trout, the men are trained in fish culture and its related fields. Instruction includes such topics as nutrition, fresh-water biology, physiology, disease identification and control, water analysis, hatchery techniques, and hatchery administration.

Because of the notable success of its combination of theory and practical application, Cortland has been visited by numerous fishery administrators from other countries, as well as by those from many parts of the United States



VISITORS



Every year, Cortland receives thousands of visitors. These include fish-culturists and anglers, school classes, scouts, and other groups, and families on a holiday.

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The Fish and Wildlife Service is a Federal agency dedicated to the conservation of the Nation's fish and wildlife resources. The Service operates salmon, trout, and bass hatcheries for stocking public waters; maintains wildlife refuges; controls predatory animals; enforces Federal laws for the conservation of fish and migratory birds; promotes commercial fisheries; and engages in fish and wildlife research. The Service's regional office in Boston, Mass., supervises activities in the Northeastern States.

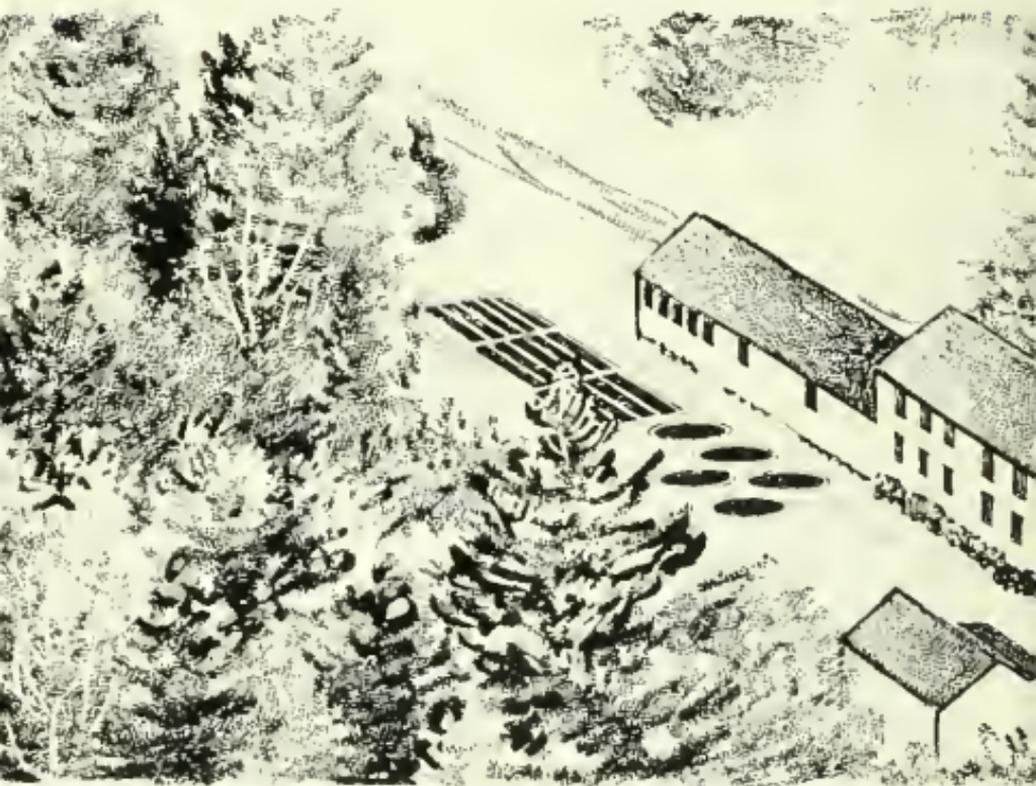
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