

Why Fish Die

ere penalties unless its ways are oxygen than wild fish. of the increasing mortality of the fish the water. He says:

Alarming reports reach us from quantity of dissolved oxygen, depend- gen when exposed to light include time to time of the decrease in the ing upon various conditions; and a countless organisms belonging to the numbers of food fishes of both fresh- certain minimum is requisite to sup- green plankton and also such higher masses of offensive odor. The prowater and salt-water species. Two of port the life of fish. Our white fish plants as algae, and peat mosses. The the chief causes, we are told, are the begin to die when the quantity sinks microscopic green algae evolve oxygen discharge of chemical residues from below this minimum, and they begin even in the winter under a thick crust mills and factories, and the disposal to migrate, if the opportunity is pres- of ice, so that in this way the carp of city garbage by dumping it into ent, before the content of oxygen falls, in the pond are prevented from sufrivers and seas. So serious has this as low as this. Different varieties of focating matter become in New York City that white fish behave very differently in Useful and necessary as the green the Federal Government has recently respect to their need of oxygen; pond vegetation is in maintaining a proper threatened the metropolis with sev- fish will stand a much greater lack of percentage of dissolved oxygen when

scientist, Dr. A. Splittgerber, in the falling raindrops and by the turbulent as by night. To quote further: pages of Die Umschau (Frankfort). waters of mountain brooks. Another Even pure and uncontaminated

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The chief cause is a lack of oxygen. the mass at intervals of a few sec-All surface waters contain a certain onds. The plants which evolve oxy-

the growth becomes too thick it premended. Of special interest, there-! The author then considers the orig- vents the penetration of the water by fore, is a recent discussion of the in of the oxygen held in solution in the rays of the sun, so that the formacauses of fish mortality by a German water. This gas is absorbed both by tion of oxygen ceases by day as well

He comments on the pollution of wat- source of large quantities of oxygen, water may be deficient in oxygen. The er by chemicals and by sewage—and is found in the green waterplants, excessive development of plankton justly remarks that the interests of which through the agency of chloroph- algae in the dark may lead to such the few must give way to those of the yl and sunlight decompose the carbon a deficiency of oxygen as to cause many. He adds, however, that in view dioxide given out by animal life in the death of the fish. Even in waters which are commonly comparatively in the waters which supply Germany, If, for example, we place in a glass poor in organisms which evolve oxyin spite of increased attention to the of water plankton, which consists of gen, it frequently happens that there matter during the last decade, we must green algae, to the depth of 2 milli- is quite a tremendous development at seek additional causes for the death meters and expose it to light, bubbles certain times of plankton, especially

ust. This term is meant to include various organisms growing in water, some of which are at times highly disagreeable. When these are present the water becomes murky and discolored, often slimy, and sometimes has a highly offensive odor. In such cases, the fish fice from their erstwhile home, which has become so inhospit-

The author tells us that such development of water organisms occurs in certain parts of Germany regularly year after year, and is responsible for the death of many fish, tho it is uncertain whether the active cause is the absorption of the free oxygen in the water by the life-processes of the plants or the formation of a poison by products of the plankton.

When the evolution of these organisms is rapid, it may even cause mortality among fish overnight. Among these are the so-called "verdigris" algae and filaments, which disappear as suddenly as they come, perishing after a few weeks, sinking to the bottem in the form of slime and giving off evil-smelling gases (sulfureted hydrogen) which are destructive to fish. The matter is aggravated in bodies of water where the water-fern is present, since algae settle among its fronds, and when they die form sticky duction of oxygen and its acceleration or retardation is also dependent upon certain meteorological factors. namely, currents of earth magnetism and earth electricity evoked by heat and light. To quote again:

Most important of all is irradiation by sunlight or its cessation in cloudy weather, so that when the weather is continuously clear, the amount of oxygen in the water undergoes a constant increase, whereas in continu ously gloomy weather there is apt to be a poverty of oxygen.

A more or less considerable portion

of the dissolved oxygen, finally, is used up by the water in the process of biological self-purification. By this we mean the process by which masses of water burdened with putrescent organic substances gradually lose them. This self-purification is due to the activity of certain organisms. consisting in the disintegration of complex organized substances by the vital processes of oxygen-loving baceria, which make use of the oxygen ontained in them. This process is no means confined to sewage, but everywhere purifies natural waters. The amount of oxygen enployed in his purifying process is various, deending upon the amount of organic natter contained in the water. Hence water overloaded with organic substances has its oxygen supply impovrished and this results in the death of both high and lower forms of aninals dwelling in it. When this proess results in a total loss of oxygen, he aerobic bacteria entirely disappear, their place being taken by other roups. Some species of the latter are not only able to dispense with carbondioxide but are actually inimical to oxygen, so that these so-called anaerobic bacteria are capable of livng only in water free from oxygen.

Anaerobic bacteria exist not only n extremely impure sewage but also rtificial refuse. They form communities of a very peculiar character, ropels occur in many waters as a result of the lack of oxygen, especially in ponds into which the sunlight can not penetrate because of a thick covering of bladderwort. The anaerobic bacteria which compose this slime decompose the organic matter at the bottom of the water, evolving at the same time sulfuretted hydrogen. When there is a violent atmosphere disturbance, such as is caused by a summer thunder-storm, this temporary alteration of atmosphere pressure allows the bubbles of sulfuretted hydrogen to rise from the mud in which they have been held, the result being that both the fish and the water itself are pois-

Fish poisoned in this manner can not be revived even when quickly placed in pure water.

CONFEDERATION LIFE. -

Will Notify U.S. When Suspicious Vessels Clear

anada Undertakes to Reciprocate-Uniform Anti-Smuggling Rules Announced.

OTTAWA, Ont., Oct. 1 .- (Canadian Press)-Regulations for the suppression of smuggling between Canada and the United States ,approved recently by the Governments of the two countries, were made public last night. Provisions are announced to prevent clearances of small motor boats and similar craft for points in Cuba and Mexico, where it is suspected the cargo is to be smuggled into the United States or Canada; and for the exchange of information regarding perons engaged in the narcotic traffic

These regulatons, which were draftd by representatives of Canada and of the United States at a conference held in Washington in August, are deigned for the purpose of giving prac ical effect, it is stated, to the treaty igned last year by Hon. Ernest La nte, Minister of Justice, and United States, Secretary of State Hughes,

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71	66	x	88,	Reg.	\$12.70	pair.	Special	Price	 	\$11.25
11	70	x	88.	Reg.	\$14.50	pair.	Special	Price	 	\$12.90
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and ratified here by Parliament at it n natural waters not burdened with last session. Provision is made for the immediate transmission of advance information respecting the clearance the so-called sapropels. These sap- of vessels to any port, "when there is reasonable ground to suspect that the cargo is intended to be smuggled into the territory of either of the contracting parties and for the refusal by Customs Officers of the two Governments of clearances of vessels when it is evident from the tonnage, and general cargo of the vessel or the from Mrs. James P. Donahue, daughtlength of the alleged voyage to be er of the late Frank W. Woolworth,

the shipment."

Jewels Valued at

MRS. JAMES P. DONAHUE'S SUITE IN PLAZA HOTEL, NEW YORK, WAS ENTERED.

NEW YORK, Oct. 1 .- Two pearl necklaces valued at \$700,000 and other jewellery valued at from \$50,000 to \$100,000, were stolen yesterday undertaken that the application for who with her two sisters inherited his clearance contains false statements \$50,000,000 estate, while she was in regarding the actual destination of her suite in the Plaza Hotel. Entrance was gained into Mrs. Don-

the jewels in a drawer of her dressing \$800,000 Were Stolen table, either while she was in her ath late yesterday afternoon or during the time that she took her afternoon nap until 7 p.m.

Keys left dangling in the door furnished a means of entrance. Police found two strings of imitation pearls, valued at about \$100 which had been placed in the drawer as substitutes The robbery apparently was deliberately planned after a careful study of Mrs. Donahue's movements, they

One of the pearl necklaces was valued at \$450,000 and the other at \$250.-

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