position as far from the axis as possible. In each case the action is due to the difference in direction of the "apparent vertical" for the center of mass of the floating body, and that for the center of mass of the displaced fluid.

The phenomenon is easily observed by placing a crystallizing dish on the turntable of a victrola, fastening it centrally, half filling it with water, and after steady rotation has been established using the ping-pong ball and the weighted wooden ball as described above.

The experience recalls Edgar Allan Poe's tale "A Descent into the Maelstrom," where the old fisherman saved himself by abandoning the faster moving ship (center of mass above the water surface) for the cask that barely floated him. If Poe's tale were not merely a wild dream, one would look for the explanation of the motions of the floating objects, not in the reference he gives to the second book of a hypothetical work by Archimedes on *Hydrodynamics* (!)[1] but in the principles herein described. The vortex imagined by Poe would be probably more like a free vortex with the curvature convex to the axis, in which case it would have been better perhaps if the fisherman had stuck by his ship.

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SELENIUM AS AN INSECTICIDE

A RENEWED interest in the use of selenium compounds as insecticides prompts this communication, which may serve as a warning against such use without adequate investigation as to the possible dangers involved. In the search for better insecticides attention has been directed from time to time to the fact that selenium compounds possess many desirable qualities for this purpose. A number of patents have been granted in this country and abroad covering the use of selenium compounds for making insecticides. Although the use of such compounds may be very limited, it is believed that the danger of even minute quantities of selenium in soils on which food products are grown has not been fully appreciated.

Studies carried out during the past year in the Bureau of Chemistry and Soils and the Bureau of Plant Industry of the Department of Agriculture show that selenium in the soil is assimilated by plants and that a particularly toxic compound is elaborated. Fifteen parts per million of selenium in the soil, added as sodium selenate, and under some conditions even lower concentrations, produce distinct chlorosis and stunting of wheat plants. Quantities as small as one part per million permit growth and maturation with no visible symptoms of injury to the plant. However, when the grain or straw from such plants is fed to experimental animals, such as rats and guinea-pigs, it produces a pronounced toxicosis characterized by retardation in growth, and death occurs in a few weeks. Wheat which has been found by analysis to contain 8 to 10 parts per million of selenium, absorbed from the soil, produces fatal injury with, in many cases, readily detectable macroscopic changes in the liver. Selenium is present in the grain in intimate association with the protein, but in what form has not yet been determined.

In the case of common insecticides used in spraying fruit trees and vegetables, complete removal of the spray residue from edible food products, where this is possible, should eliminate the danger of the food being toxic. However, selenium can be assimilated from the soil by at least some and possibly all plants, and the degree of toxicity of the particular compound used in spraying a plant is not a measure of the toxicity of the compounds formed in the plant. Furthermore, there is evidence that selenium compounds may be reduced by soil organisms, so that spray residues ordinarily considered innocuous may be made available to the plant and be converted into highly toxic combinations.

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THE CHROMOSOMES OF XIPHOPHORUS, PLATYPOECILUS AND THEIR HYBRIDS DURING MATURATION STAGES

IT has been known for several years that two genera of poeciliid top minnows, *Xiphophorus* and *Platypoecilus*, will readily hybridize and produce some fertile offspring.

An investigation of the chromosomes during the maturation stages of two species of *Xiphophorus*, *Platypoecilus couchiana* and *Platypoecilus maculatus* and of *Platypoecilus-Xiphophorus* hybrids has just been completed, and the detailed results of the investigation will appear in print in several months. Part of the material studied was collected in the field in Mexico and part was obtained from dealers.

The haploid number of chromosomes is twenty-four in *Xiphophorus*, *Platypoecilus* and in the hybrid. The chromosome picture is so nearly identical in all three that it is difficult to find any distinctive differences. In the primary spermatocyte division the heterotypic chromosomes are seen as nineteen spherical chromosomes of about equal size and five slightly larger ones, one of which is the sex chromosome.

[1] I take Poe's spelling *incidentibus* not for a misprint for *insidentibus* but as deliberate, and as a joke that he is trying to pull on the reader.