

BIOLOGY

Science Raises Hybrid Fish Whose Young Are All Males

CONTROL of sex determination in animals, long an absorbing problem to biologists, promises to be less of a mystery following recent experiments in fish breeding by Dr. A. W. Bellamy, zoologist on the Los Angeles campus of the University of California. Two small species of subtropical fish, known as *Platypoecilus maculatus* and *variatus*, respectively, have yielded through hybridization the unusual results recently reported by Dr. Bellamy.

The maculatus fish, a chunky little creature about two inches long, carries its sex-determining factor in the female. On the contrary, as in many common animals, the variatus appears to control sex through the male. Dr. Bellamy crossed these two species of fish, and fortunately obtained fertile hybrids. Such hybrids, crossed by a certain scheme with one of the original species, produced nothing but males.

Taken as separate phenomena, such occurrences as sex determination by the female, and one-sexed progeny, are not new to the zoological world, though uncommon. Their combination in a se-

ries of fertile hybrids is novel, however, and useful to biologists in search of the rules governing sex. A most promising research program has been opened, in which not only the all-male progeny will be studied, but also other progeny which are of unbalanced sex ratio; also certain unfortunate finny offspring in which both male and female characters have been combined in one creature. The fact that a life generation of these fish spans but a few months enables more prompt answers to genetic questions than in the case of many larger animals.

Unfortunately the present state of scientific sex control is still far from application to animal husbandry. Such laudable schemes as the raising of White Leghorn hens only, sans the excess skinny roosters of this breed, receive no encouragement from Dr. Bellamy. Certainly no progress in economic application can be expected until a more thorough understanding is reached as to the microscopic structures, or bodily activities, which control the apparent accident of sex.

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MEDICINE

Patent on Safer Morphine Given to U.S. Government

ONE WEEK after the destruction by the U. S. Bureau of Engraving of \$15,000,000 worth of the narcotic drug, heroin, the Secretary of the Treasury accepted the patent rights to another narcotic drug.

This is the new, safer morphine prepared by Dr. Lyndon F. Small of the University of Virginia. Dr. Small formally presented his patent rights on this new morphine to Secretary Morgenthau on December 1.

Both these seemingly contradictory actions were taken as part of the government's fight to control the evil of narcotic drug addiction.

The destruction of the heroin was in conformity with regulations of the International Narcotics Convention.

Heroin, a morphine compound, is considered the most vicious of habit-forming drugs. The new morphine prepared by Dr. Small will, it is hoped, prove to be without addiction, or habit-forming, properties.

The goal of a non-habit-forming morphine is being sought in a fundamental attack on narcotic drug addiction launched in 1929 by the National Research Council, the U. S. Public Health Service and the U. S. Bureau of Narcotics. The research on morphine substitutes is being carried on at the Universities of Virginia and Michigan.

A morphine compound which it was hoped would be without addiction properties was prepared and patented by Dr. Small two years ago. The patent rights

on this were also turned over to the Secretary of the Treasury by Dr. Small.

When clinical trials showed that the compound was more habit-forming than ordinary morphine, the Surgeon General of the U. S. Public Health Service recommended to the Secretary of the Treasury that the United States Government prohibit the importation, manufacture, sale or distribution of this drug in the United States.

The latest morphine prepared and patented by Dr. Small is less poisonous, more powerful in relieving pain and acts longer than ordinary morphine. Whether it will be equally, more, or less habit-forming than ordinary morphine cannot yet be told. Clinical trials to determine this point are now under way but have not been concluded.

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METEOROLOGY

Radio Balloon Checks Weather at Great Height

RISING over 30,000 feet higher into the air than the regular weather observing airplane, a robot weather balloon has ascended high above the earth in the first night-time radio meteorograph balloon ascension in this country. This pioneering flight was conducted at five a.m. on November 30 immediately following the regular weather flight by airplane.

Dr. Charles F. Brooks, director of the Blue Hill Observatory of Harvard, found the minimum temperature of 77 degrees below zero Fahrenheit when the balloon reached its peak altitude of 50,000 feet, one hour and 12 minutes after its release from the earth.

While the radio speaking weather balloon shot up through the lower part of the atmosphere it showed the same form of temperature curve as that brought back by the weather-observing airplane. There was a 13-degree fall to 3,500 feet, then a sharp 2-degree rise, followed by 23-degree fall when 17,000 feet was reached.

The instrument was designed by Dr. K. O. Lange and A. E. Bent, research associates at Harvard and built by R. D. Feiber. Dr. Lange and Mr. Feiber released the three balloons and instrument, and C. B. Pear, Jr., received the radio signals, which were recorded by two chronographs.

The results, including a humidity record, will be reported to the International Commission for the Investigation of the Free Atmosphere.

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