

hang around the hive in unproductive idleness until frost threatens in autumn. Then their cross spinster sisters, the workers, either sting them to death or drive them out of doors to freeze.

In other cases, the male, having made progeny biologically possible, contributes also to making it physiologically possible: the female first accepts him for a mate, then eats him.

"Possibly you will recall the mating promenade of the scorpion," said Prof. Causey. "How coy and passive the female is as the male clasps her claw-like

hands and leads her about in a weird dance. At the conclusion of the dance, they retire to some secluded spot, a hole in the ground or under a stone.

"Some time later the female comes out—alone."

Certain spiders are guilty of the same kind of mate-murder, with a grisly banquet afterwards, unless the terrified male can get away fast enough. The Black Widow was accused by Prof. Causey of being a self-made widow.

At the last end of male decadence is male disappearance. Many insects, as well as lowlier and less familiar animal forms that live in the water, produce eggs or living young from virgin females, for generation after generation. In some species, no male individual has ever been found, though females swarm by millions. The common little green insect pest, the plant louse or aphid, pro-

duces only females all summer long, but when frost is near condescends to have a few sons. These mate with the daughters, and of these unions tougher eggs are born, that will survive winter—why, no one knows. But so long as times are good, these Adamless Eves seemingly want no males around, disturbing their green Eden.

Yet, after drawing up this pessimistic picture of the decadence of the male, Prof. Causey declined to make an outright prediction that males will disappear from the world altogether. "But I wonder," he concluded, "in those days of long ahead, will your daughters and my daughters some day point with amusement, in some great museum, to the beautifully preserved specimen of the last man, standing alongside the Great Auk and the Dodo? I wonder."

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8th PRINTING

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PHYSICS-MEDICINE

Method for Decreasing X-Ray Burns Developed in New York

A NEW method of decreasing materially the dangerous X-ray burns which have long been a hazard in the treatment of cancer and other malignant growths by these piercing radiations was described before the meeting of the American Physical Society by Dr. G. Failla, chief physicist of Memorial Hospital of New York.

One possibility of the new method is that better treatment of deep-seated cancers will be achieved, according to Dr. Failla, because the present limitation of the amount of radiation which can be given a patient is determined by the burning power of the rays on the skin. Any method to reduce the skin burning from X-ray will allow more potent radiation treatment.

Dr. Failla, long known in this country for his basic contributions to medical X-ray therapy, told how he is now cutting out much of the secondary electrons which are an essential part of any X-ray beam. It is these charged particles of electricity which actually split apart the atoms of the skin and produce ionization in them. It is the ionization which causes the skin reddening and damage even though seemingly adequate protection is afforded by heavy shields of lead.

The lead shield, Dr. Failla points out, protects other parts of the body than

the point where the radiation is desired but, of necessity, the opening for the X-rays allows any electrons also in the beam to come through.

Dr. Failla's new method takes advantage of the fact that when electrons strike matter they are deflected at large angles. By setting up a system of baffles or stops a beam of X-rays containing only the desired gamma ray type of radiation can be attained. The deflected electrons are caught by the baffles along the X-ray beam path. The useful radiation of the gamma type goes through the holes in the baffles undisturbed.

"The advantage of the use of X-ray beams stripped of secondary electrons," said Dr. Failla, "is apparent in X-ray therapy, since the ionization in the skin and the consequent damage are materially reduced."

While present work with the method is confined to energy ranges around 250,000 volts, the adaptation necessary to extend the method to X-ray tubes of more than 1,000,000 volts was described by the cancer therapy authority.

The new baffle method is a simpler device for obtaining results which now can only be attained by the use of electric and magnetic fields that will deflect aside the electrons as they come along the X-ray beam.

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