(2) About sixty-six per cent. of the eggs are in early prophase (two new asters have arisen; chromosomes are becoming organized; and the nuclear membrane is still intact). In normal, untreated, control eggs, under comparable conditions, only about twenty-five per cent. are in prophase.

There is also some evidence that in these DNC treated eggs, darkly staining chromatin may be recognized somewhat earlier than in normal eggs, that is during the late resting phase instead of early prophase.

These experiments, as well as others on unfertilized eggs and the fertilization process, indicate that so far as suppression of division is concerned, DNC acts on the nucleus rather than on the cytoplasm or plasma membrane, and that this effect may be due to some modification of or interference with an oxidative process occurring in the late resting phase or early prophase. Further experiments are being conducted to determine the mode of action of the dinitrophenols and their reduction products.

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POSITIVE INFECTION TRIALS WITH ELM "WILT" FUNGI

FOLLOWING the isolation of a variety of fungi from diseased American elms in Illinois, as reported by Harris[1] in 1932, a considerable series of inoculation tests has been carried out and success in reproducing infection has been obtained with 3 of the fungi considered by Harris as most important, namely, two strains of Coniothyrium, designated as "A" and "B," and Phoma "B." It now appears advisable to announce the results of some of these tests.

Each of four three-year-old elm seedlings were inoculated with Coniothyrium "A" in the laboratory on April 6, 1934. A sliver of elm wood, previously sterilized and then well inoculated with a pure culture of the fungus, was inserted through a T-shaped slit in the bark so as to lie in contact with the xylem of the seedling. A glass tube, containing moist cotton at the base, was fitted on the inoculated branch and held in place by perforated corks, in order to surround the inoculation with a moist atmosphere, and the cotton was kept moist during the first few weeks. Pycnidia of the Coniothyrium soon formed on the exposed xylem in the T-shaped slits of all four of the seedlings as well as on the wood slivers used as carriers of inoculum. By the middle of July the inoculated lateral branch of one seedling had shown a slowly progressing but definite "wilt" and, three weeks later, was dead from the tip down to 9 cm below the point of inoculation. Cultural platings from this seedling yielded the Coniothyrium "A," with which it had been inoculated, as far as 20 cm below the point of inoculation and 11 cm below any external evidence of infection.

In another test a positive result was obtained with Coniothyrium "B." Two three-year-old seedlings were inoculated on January 4, 1934, in the following manner. The bark was scraped off one side of the stem for a vertical distance of 1 cm, exposing the xylem. Corn-meal agar containing actively growing mycelium of the fungus was placed in contact with the xylem and covered by a layer of moist cotton. This was enclosed by Cellophane held in place by adhesive plaster. Of these seedlings, one showed symptoms of a general infection by the end of March, and cultural isolations were made from it on April 10. Coniothyrium "B" was obtained from points as far as 15 cm above and 12 cm below the point of inoculation.

Phoma "B," the third agent used, was found to be capable of infecting elm leaves within a very short time. Drops of a spore suspension were placed upon living, detached leaves suspended in a petri dish with the open end of the petiole immersed in water, in modification of the method described by Clinton and McCormick.[2] Development of mature pycnidia took place in the mesophyll within five days. A more abundant infection took place when spores were planted on the upper leaf surface, in spite of the fact that stomates are much more numerous on the lower surface. While these experiments with the Phoma do not furnish conclusive proof of the ability of that fungus to infect a healthy elm tree, they suggest the means by which it gains entrance to the trees from which it is isolated in culture.

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AN ANTIRACHITIC DERIVATIVE OF CHOLESTEROL[1]

RECENTLY Koch, Koch and Ragins[2] reported that provitamin D is not limited to ergosterol but can be formed from cholesterol. In this laboratory an antirachitic substance produced from cholesterol but different from vitamin D has now been isolated in pure form and known constitution through an investigation of the chemistry of the Bills[3] method for the

[1] Hubert A. Harris, "Initial Studies of American Elm Diseases in Illinois," *Ill. St. Nat. Hist. Surv. Bull.* 20(1): 1–70, 1932.

[2] G. P. Clinton and Florence A. McCormick, "Rust Infection of Leaves in Petri Dishes," *Conn. Agr. Exp. Sta. Bull.* 260: 475–501, 1924.

[1] Journal paper No. J182 of the Iowa Agricultural Experiment Station, Ames, Iowa. Project No. 103.

[2] F. C. Koch, E. M. Koch and I. K. Ragins, *Jour. Biol. Chem.*, 85: 141, 1929.

[3] C. E. Bills, *Jour. Biol. Chem.*, 67: 753, 1926; C. E.