possibility that simple incubation of estrone in blood will lead to degradation to inactive compounds as well as conversion to the new compound suggested. Previous determinations on short-time incubation of estrone in blood have led to recoveries approaching 100% of the activity added. Such tests were made both by us and by Pincus and Schiller (*6*).

It therefore appears reasonable to assume from these data that an alcoholic ketone derivative of estrone is normally present in human and rabbit blood.

It may be added that our experience with the compound indicates an extreme degree of lability. To this, more than to differences in metabolic activity, we ascribe the deviations in results such as those seen between the two experiments using rabbit muscle (Experiments 1 and 2).

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Increase of Herbicidal Action of Concentrate 40 and Oil Emulsion by 2,4-D

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It is well known that 2,4-D is ineffective as a herbicide in the control of grasses. Nonselective herbicides such as Concentrate 40 and oil emulsions are often used to control grass weeds. Preliminary experiments conducted at the Federal Experiment Station in Puerto Rico have shown that Concentrate 40 + 2,4-D[1] and oil emulsion fortified with Santophen 20 + 2,4-D[2] both suppressed the population of "cohitre," or day flower (*Commelina longicaulis* Jacq.), and "bejuco de puerco" (*Ipomoea* spp.) (broadleaf plants easily eradicated with 2,4-D sprays) more than the same nonselective sprays without 2,4-D. The combination sprays also suppressed more weeds than 2,4-D alone. The results indicated that Concentrate 40 and oil emulsion fortified with Santophen 20, when used as a combination spray with 2,4-D, did not inhibit the lethal effects of 2,4-D and that it may be more effective than either nonselective herbicides when used alone on grass control.

In another experiment, an area completely covered with Bermuda grass (*Cynodon dactylon* (L.) Pers.), which is unaffected by 2,4-D and very resistant to arsenical, was divided into 10 equal plots. Five plots were treated with Concentrate 40 and 5 with 0.1% sodium salt of 2,4-D in Concentrate 40 at the rate of 175 gal/acre. Two uniform applications of both spray treatments were made at 4-week intervals, and the results recorded 20 days after the last application. The addition of 2,4-D to Concentrate 40 increased its herbicidal action against Bermuda grass by 50%. Plots sprayed with Concentrate 40 alone were completely covered with weeds, 60% Bermuda grass and 40% nutgrass (*Cyperus rotundus* (L.)). In plots sprayed with 0.10% 2,4-D in Concentrate 40 the area was covered with only 40% Bermuda grass and 5% nutgrass.

The results indicate that 2,4-D possibly activated the constituents in Concentrate 40, or vice versa, with a resulting synergistic reaction. The increased herbicidal effectiveness of the combination sprays may also be due to the injury caused by the constituents of Concentrate 40 (arsenic trioxide, Santobrite, and sodium chlorate), which enables the 2,4-D to enter the plant and exert its physiological effect.

[1] Consisting of 0.42% arsenic trioxide, 0.25% Santobrite (sodium pentachlorophenate), and 0.25% sodium chlorate plus 0.10% 2,4-D.

[2] Consisting of 10% diesel oil emulsion fortified with 0.7% Santophen 20 (pentachlorophenol).

Importance of the Methoxy Group in Antifibrillatory Compounds[1]

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It is of singular interest that all the potent compounds now in clinical use for their antifibrillatory activity possess a methoxy group. These include quinine (*7*), quinidine (*4*), α-fagarine (*3*), and recently atabrine (*5*). The methoxy group is present in a number of other drugs —notably, the antimalarial drugs, certain of the opiates, and colchicine. Of these later drugs, only to papaverine has antifibrillatory activity been attributed (*6*). In a preliminary study to clarify this point, measurements were made of the antifibrillatory activity of cinchonine and N-methyl-dibenzyl-amine with quinidine and α-fagarine as controls. Cinchonine was selected because it has the exact structure of quinidine minus the methoxy group. Similarly, N-methyl-dibenzyl-amine is closely related in structure (one less carbon in the amine chain) to α-fagarine, but lacks two methoxy groups and one dioxymethylenic group.[3] To aid in the comparison of these drugs the changes induced on blood pressure, pulse, electrocardiogram, and the acute fatal toxicity were also studied.

Cats anesthetized with Dial-urethane given intraperitoneally were used. The chest was opened and a pericardial cradle made. Electrodes were attached to the right auricle about 8 mm apart, always in the same location. The stimulating current was generated by a thyra-

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[3] N-methyl-dibenzyl-amine and α-fagarine were obtained from the Sterling-Winthrop Research Institute; quinidine and cinchonine, from the Fisher Scientific Company.