The determination of the presence of adrenocorticotrophin in male urine and the identification of the adrenocorticotrophic protein in female urine are now under investigation.

Summary. Normal female urine contains adrenocorticotrophic activity which has been shown not to be due to its estrogen content. Being nondialyzable and thermolabile, the active material appears to be a protein. It is similar to pituitary adrenocorticotrophin in its ability to produce adrenal weight increases and to depress the adrenal ascorbic acid level in normal and hypophysectomized male rats.

15544

Effect of Boric Acid on Avian Malaria.

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The recent paper by Hardcastle and Foster[1] reporting encouraging results with the use of borax in the control of cecal coccidiosis in poultry suggested the possibility that boron derivatives might be effective as chemotherapeutic agents in certain types of avian malaria.

Trophozoite-induced *Plasmodium gallinaceum* infections were established in S.C. White Leghorn chicks weighing 50 g by intravenous inoculation of 200,000,000 parasitized erythrocytes per kg; trophozoite-induced *P. cathemerium* infections were induced in Peking ducklings weighing 50 g by the intravenous injection of 500,000,000 parasitized erythrocytes per kg. Sporozoite-induced *P. gallinaceum* infections were used in prophylactic tests and were established in chicks of 50 g weight by injecting intravenously 0.2 cc per chick of a suspension of sporozoites prepared by grinding 100 infected mosquitoes in 20 cc of chicken plasma.

[1] Hardcastle, A. B., and Foster, A. O., *Proc. Helminthological Soc. of Washington*, 1944, **11**, 60.

TABLE I.
Effect of Boric Acid on Trophozoite and Sporozoite Induced Avian Malaria Infections.

No. birds	Drug	Dose	Average % erythrocytes parasitized at peak of infection
	I. Trophozoite-induced *P. cathemerium* infections in ducklings.		
4	Boric acid	2.0% in diet	1.3
4	" "	1.0 " " "	6.6
3	Quinine	80 mg/kg p.o.	5.6
3	"	40 " "	3.1
6	Controls	—	25.6
	II. Trophozoite-induced *P. gallinaceum* infections in chicks.		
5	Boric acid	2.0 % in diet	2.4
5	" "	1.0 " " "	31.9
3	Sulfadiazine	0.05 " " "	<0.1
3	"	0.025 " " "	0.5
6	Controls	—	66.1
	III. Sporozoite-induced *P. gallinaceum* infections in chicks.		
4	Boric acid	2.0% in diet	0.01*
4	" "	1.0 " " "	1.7
4	Sulfadiazine	0.1 " " "	0.00
4	Controls	—	30.0
4	Quinine	0.4 " " "	22.0
4	Atabrine	0.4 " " "	19.7
4	Sulfadiazine	0.2 " " "	0.00
8	Controls	—	17.6

* One chick died, two showed zero counts.

The boric acid was administered by incorporating it in the diet, a commercial chick starting mash, in the amounts shown in Table I. The birds were given the drug-containing diet immediately after inoculation and were permitted to feed *ad libitum* throughout the period of the test. The trophozoite-infected birds were continued on the drug-diet for 5 days. The chicks receiving the sporozoite inoculation were fed the drug-diet for 3 days and were then transferred to the regular untreated stock diet for an additional 6 days.

At the end of the respective test period, thin blood smears were prepared, stained with Giemsa, and the effect of the therapy was judged by determining the number of parasitized cells among 10,000 erythrocytes. In each experiment a group of untreated birds and at least one group treated with a drug of known antimalarial activity served as controls.

The results of the experiments on trophozoite- and sporozoite-induced avian malaria are given in Table I. Whereas quinine, atabrine and sulfadiazine can be used interchangeably as suppressives for the trophozoite infections, only sulfadiazine has prophylactic activity against *P. gallinaceum*. It is apparent that boric acid at relatively high concentrations in the diet had a marked suppressive effect on both *P. cathemerium* and *P. gallinaceum* infections. Boric acid at high doses also showed definite prophylactic activity against *P. gallinaceum* infections.

Thus boric acid, unlike quinine and atabrine, possesses both suppressive and prophylactic activity. It should be noted, however, that the amounts of boric acid required to produce an effect on avian malaria closely approach toxic levels.

15545

Antifibrillating Action of N-Methyl-Dibenzyl-Amine and Some of Its Derivatives.

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Quinidine is the best known among the drugs effective against cardiac fibrillation induced by electrical stimulation or other agents. Other drugs have been reported, some with chemical structure resembling that of quinidine, and others entirely different, which also show some antifibrillating action.

We have found that α-fagarine, (an alkaloid isolated by Stuckert[1] from *Fagara coco* (collected by Gill Engler) exerts an antifibrillating effect as potent as, or more potent than, quinidine itself. It counteracts the influence of several fibrillating agents (faradic currents,[2,3] coronary occlusion[4]) and causes recovery of the sinus rhythm in cases of accidental or spontaneous auricular fibrillation[5] in animal experimentation or in man.[6,7]

Deulofeu and Labriola[6] have established that α-fagarine is a tertiary base to which the following tentative formula can be assigned:

[1] Stuckert, G., *Investigaciones de laboratorio de Quimica Biológica*, Córdoba, Vol. I, 1933; Vol. II, 1938.

[2] Moisset de Espanés, E., *Rev. Soc. Arg. Biol.*, 1937, **13**, 112; *C. R. Soc. Biol.*, 1938, **127**, 118.

[3] Martínez, C., *Medicina* (Buenos Aires), 1944, **4**, 109.

[4] Moisset de Espanés, E., *Rev. Soc. Arg. Biol.*, 1937, **13**, 116; *C. R. Soc. Biol.*, 1938, **127**, 233.

[5] Moisset de Espanés, E., *Amér. Clín.*, 1945, **8**, 41; Moisset de Espanés, E., y Moyano Navarro, B., *Rev. Soc. Arg. Biol.*, 1936, **12**, 137; *C. R. Soc. Biol.*, 1938, **127**, 510.

[6] Deulofeu, V., Labriola, R., Orías, O., Moisset de Espanés, E., y Taquini, A., *Science*, 1945, **102**, 69; *Ciencia e Investigación*, 1945, **1**, 527.

[7] Taquini, A., *Rev. Arg. Cardiol.*, 1945, **12**, 83.