netting may be anatomically and by inoculation tests entirely healthy. Whether the latency is the sequel, precursor or an intermediary stage of the disease is now the subject of further analysis since exposure experiments with parrakeets from infected aviaries have so far yielded negative results.

6540

Toxicity, Distribution, and Excretion of Thallium.

PAUL A. SHAW. (Introduced by C. D. Leake.)

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Thallium sulphate administered by mouth to quail, geese and ducks has been found to be fatally toxic in doses of 12, 15, and 30 mg. per Kg. respectively, calculated as thallium metal. Analyses were made of the distribution of thallium in various body tissues by a gravimetric iodide method, and by a new colorimetric method involving liberation of iodine from potassium iodide by thallium, and the estimation of the color intensity of the iodine in carbon bisulphide. The latter method is accurate to within 5% at a thallium concentration of 15 mg. per Kg. Thallium in liver, kidney, heart, and osseous tissue was estimated to be present in a concentration approximately equal to that which had been administered. Muscular tissue, however, was found to acquire a considerable higher concentration of thallium. Fat was found to contain practically none. Analysis of the tissues of a goose dying 15 days after the oral administration of 20 mg. per Kg. indicated a retention of 35-70% of the thallium given.

The first studies on the excretion of thallium were reported in 1890 by James Blake,[1] a physician residing in Middletown, California, who found by spectroscopic examination that thallium was eliminated in all secretions. Quantitative estimations of the rate of elimination of thallium in the urine after oral administration to dogs, by the colorimetric method noted above, indicated that 60% of the total amount given was excreted in 36 days, with a progressive diminishing rate of excretion.

Although thallium is very slowly excreted, and although the

[1] Blake, J., *Compt. Rend. Soc. Biol.*, 1890, **1**, 55.

edible tissue of birds seems to retain a relatively large amount of ingested thallium there would seem to be no great danger that secondary poisoning in man might result from the eating of game birds poisoned with thallium, since a relatively large amount of such flesh would be necessary to contain a toxic dose of thallium for man.

6541

Experimental Infection with Trypanosoma cruzi from Intestine of Cone-nose Bug, Triatoma protracta.

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Kofoid and McCulloch[1] described *Trypanosoma triatomae* from the digestive tract of *Triatoma protracta* from San Diego, California. Its morphological resemblance to *Trypanosoma cruzi* from *Triatoma megista,* the insect vector of Brazilian human trypanosomiasis, was noted, but failure to find the trypanosome in the blood of the wood rat (*Neotoma fuscipes macrotis*) in whose nests infected *Triatoma* were taken, and the failure to infect young white rats by permitting infected bugs to feed upon them, led to the tentative opinion that the trypanosomes of the 2 species of bugs might not be identical. Findings here reported establish the identity of *T. triatomae* of California with *T. cruzi* of Brazil.

Examination of the blood of wood rats (*Neotoma fuscipes annectens*) from the vicinity of Berkeley, California, has shown them to harbor a trypanosome. This parasite, however, has the morphology of *T. lewisi,* the non-pathogenic trypanosome of the Norway rat. *Ceratophyllus fasciatus,* the common rat flea, which infests both the nests and bodies of the wood rats, has been found to contain trypanosomes in developmental stages, identical with those described by Minchin and Thomson[2] for *T. lewisi. Triatoma protracta* also lives in the nests of wood rats from this vicinity, but examinations of its digestive tract have never revealed trypanosomes in any stage of development. Experimental feeding of these bugs on wood rats naturally infected with *T. lewisi,* from the region of Berkeley has in 22 cases given only negative results.

[1] Kofoid, C. A., and McCulloch, I., *Univ. Calif. Publ. Zool.,* 1916, **16**, 113.

[2] Minchin, E. A., and Thomson, J. D., *Quar. J. Micr. Sci.,* 1915, **60**, 463.