SODIUM TETRATHIONATE AND METHYLENE BLUE IN CYANIDE AND CARBON MONOXIDE POISONING

HYDROCYANIC acid or compounds capable of liberating hydrocyanic acid are, in the light of our present knowledge, the sole toxic principles of the poisonous plant arrow grass (*Triglochin maritima*). In this laboratory various agents have been tried in some preliminary work relative to the procuring of a satisfactory antidote for cyanides. According to published bibliographies the effective treatment of cyanide poisoning by methylene blue in laboratory animals has been known for some time. In 1932 a human case of cyanide poisoning was successfully treated at the University of California. Recently Foresti[1] has reported that sodium tetrathionate is an effective antidote for cyanide poisoning.

Of the various antidotes advocated to treat cyanide poisoning two, according to results in this laboratory, are quite effective. A dose of three to four milligrams of a hydrocyanic acid solution per kilogram of body weight is fatal for the rabbit when administered orally. The intravenous injection of two to three milliliters of a 2 per cent. solution of sodium tetrathionate per kilogram of body weight is effective in saving rabbits having received orally three times the minimal lethal dose of hydrocyanic acid (10 milligrams per kilogram of body weight). The sodium tetrathionate solution is administered with the onset of the first symptoms of cyanide poisoning. Rabbits tolerate three times the above therapeutic quantity of tetrathionate without exhibiting any toxic effects.

Methylene blue administered intravenously in the form of a 1 per cent. aqueous solution does not afford quite as much protection. Rabbits receiving more than two times the minimal lethal dose (more than six or seven milligrams of hydrocyanic acid per kilogram of body weight) could not be saved. The intravenous injection of quantities in excess of 2.5 cc of a 1 per cent. solution of methylene blue was injurious to the rabbit.

The results obtained with the use of sodium tetrathionate in cyanide poisoning suggested a trial of the effectiveness of this salt in other types of poisoning, particularly that due to carbon monoxide. Rabbits were placed in a special gas chamber arranged so that the supply of air (that is, the oxygen source) and the concentration of carbon monoxide could be regulated. The animals were gassed to a point from which recovery was impossible without treatment. Sodium tetrathionate is more effective than methylene blue in reviving the animals poisoned with this gas. Animals can be revived from definitely more severe stages of carbon monoxide poisoning with tetrathionate than with the methylene blue.

Carbon monoxide will always be more or less of a serious source of poisoning so long as the automobile, the illuminating gas and the coal-burning appliances are used by man.

This laboratory confines its work to the study and treatment of plant poisoning in live stock. These observations on the effectiveness of sodium tetrathionate in treating carbon monoxide poisoning are produced here in the hope that it may be given due study and trial by those who are called upon to treat human cases of carbon monoxide poisoning. There are no greater achievements of man than the saving of human life.

Mr. C. S. Gilbert has kindly prepared very pure sodium tetrathionate and has helped in the construction and manipulation of the gas chamber.

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[1] B. Foresti, *L'Ateneo parmense*, Vol. 3, No. 6 (1931), through *Chem. Abst.*, Vol. 26, p. 5662.

THE OCCURRENCE OF IXODES AURITULUS NEUM. IN NORTH AMERICA (OREGON)

THE type locality for *Ixodes auritulus* is recorded as the Straits of Magellan, South America. Neumann's four type specimens were taken from an unidentified bird, and two additional females in the British Museum came from the South American blackbird, *Trupialis militaris*. It is of interest, therefore, to record the recovery of a single, fully engorged female tick of this species from an English sparrow (*Passer domesticus*) near Hebo, Oregon, on August 25, 1932. The specimen was forwarded through the kindness of Mr. H. E. Staples.

Comparison with the description of this species as given by Nuttall and Warburton[1] in their Monograph of the genus shows an almost precise agreement with the characters as listed. The anterior projection of article one of the palpae is very distinct. Measurements agree almost exactly, except that the scutum is not quite one and one half millimeters in length; the shape of the latter agrees with the remarks of the above authors in being "more angular" on the sides than in Neumann's figure of the type. This specimen also lacks the yellow suffusion between the cervical grooves, although there is a faint indication of it anteriorly. The characters of the hypostome are obscured by adherent tissues, but it is otherwise in a well-preserved condition.

[1] G. H. F. Nuttall and C. Warburton, "Ticks—A Monograph of the Ixodoidea," Part II. Cambridge University Press, 1911.

This is the first known record of its occurrence in North America. It is possible that the species has been introduced on some migratory bird.

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PROTECTIVE AMPUTATION OF LIMBS BY STAGOMANTIS CAROLINA

(DEVIL'S WALKING STICK, DARNING NEEDLE OR HORSE)

AN adult form was observed in Columbia, Missouri, in July, 1932, on a sugar pear tree, in a state of quiescence with his feelers shielded by the fore legs. An attempt was made to move it to another place by grasping the fore limbs with thumb and finger, but they at touch, were shed—the two points of separation exuding droplets of greenish liquid. Acting upon humanitarian impulses, the insect was decapitated with a sharp knife. Then carrying out the intention of moving it from the tree—the right hind limb was lightly grasped by thumb and finger, and this too was shed as in the case of the fore limbs. The procedure was then repeated with the left middle leg with identical results, and likewise with the left hind leg. The right middle leg, the only one remaining, was then grasped and notwithstanding the vigorous struggling of the trunk, the limb remained attached to the body. From this it would seem that: 1. A mechanism independent of the head controls the reactions and, 2. That the reaction does not occur when only one leg remains, the minimum for any kind of limb locomotion. Similar studies were conducted on undecapitated less mature forms—in the green stage—without like results, that is, in less mature stages the insect could be handled by any of its limbs without their being detached. Like negative results were obtained with undecapitated *Mantis religiosa*.

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SPECIAL CORRESPONDENCE

THE RACES OF MANKIND

IN presenting the Hall of Races of Mankind (Chauncey Keep Memorial Hall) to the public in June, 1933, Field Museum of Natural History, Chicago, has departed boldly from all precedence for anthropological exhibits. The hall contains 87 life-size bronze sculptures (30 full-length figures, heads and busts) representing typical members of the more important divisions of the human race. This gigantic task was accomplished by a great artist and a great humanist, Malvina Hoffman, an American sculptor of international repute. Her work proceeded with the enthusiastic cooperation and under the close supervision of eminent scientists.

In 1915 plans for a new anthropological exhibit were prepared by Dr. Berthold Laufer, curator of anthropology in Field Museum since that time. During the past six years the writer has studied exhibits in the foremost museums of America and Europe, and in this project the cooperation and advice of leading scientists of the world has been generously given. It was felt that a display of skulls, charts, casts and photographs, extensive and accurate as they might be, would nevertheless fail to make a clear and lasting impression on the mind of the varying forms and characters which distinguish one race from another. A new and a more satisfactory solution to the problem was sought—and a great artist was called upon.

Malvina Hoffman, a favorite pupil of the great French sculptor, Rodin, has for twenty years enjoyed a notable reputation for her portrayals of the human face and form; and her sculptures are exhibited in some of the great museums and art galleries on both sides of the Atlantic.

Since her appointment by the museum, Miss Hoffman has spent nearly five years in studying, photographing and modeling typical members of the various human races. In addition to the technical advice rendered by the museum's department of anthropology, Sir Arthur Keith was indeed most generous with his advice and his letters of introduction, which, together with those from Dr. Laufer, opened every door to her. She traveled around the world in search of material, and in each country visited, leading anthropologists offered her every assistance and gave her aid in choosing her models. Field Museum's requirements for scientific accuracy above all else have been most satisfactorily fulfilled.

Miss Hoffman, having employed the precise methods of the anthropologist, has, in addition, achieved something far greater than the accuracy afforded by calipers and camera. She has immortalized in bronze the spirit and character, as well as the bodily form of each of her subjects. Not a single type has been idealized or subjected to racial prejudice; each model is portrayed in a natural pose, with sympathy and appreciation of his individuality. The Hall of Races of Mankind offers a unique and unprecedented opportunity for studying and comparing the many divergent forms and the striking similarities of the various branches of the human family.

The center of the spacious hall is dominated by a symbolic group of heroic size, the Unity of Mankind,