

alkaloid present and we consider that further investigation (for which we have not the opportunity) would be worth while.

Composition of Ash.—Insoluble in 2-N hydrochloric acid: 6.6, CaO 36.8, K₂O 7.6, Cl 0.33 per cent. The high calcium content is noticeable, corresponding to 1.0 per cent. CaO on the original stems.

Coconut Research Scheme,
Lunuwila, Ceylon, R. CHILD.
September 1, 1943. W. R. N. NATHANAEL.

I. Varier N. S., and Pillai, P. P., *Curr. Sci.*, August 1943, 12, No. 8, pp. 228-229.

THYROXINE-IODINE CONTENT OF THYROID GLAND POWDERS OF INDIAN MANUFACTURE

In June 1942, Prof. B. B. Dey of the Madras Presidency College stated in a personal communication to the writer that "the thyroid glands of cattle collected in Madras have been found to contain a much higher iodine content than the continental specimens". This statement, not being in consonance with the widespread belief that Indian cattle are poor sources of glandular products, did not attract much attention of the writer and his co-workers at that time. Evidences have since been obtained which strongly support the statement of Prof. Dey and as this is likely to have a definite bearing on the manufacture of glandular products in India, the publication of a 'note' is considered worth while.

Desiccated Thyroid gland powders prepared from local glands in a University Chemical Laboratory, in a Research Institute and in a commercial firm were carefully tested for their thyroxine-iodine contents by the method outlined in the B.P., 1932, and the First Addendum to the B.P., 1936, with the following results:—

Sample from:	Thyroxine-iodine
(1) Univ. Lab. (S. India) (Average—3 determinations)	0.33 per cent.
(2) Research Institute (S. India) (Average—3 determinations)	0.20 per cent.
(3) Commercial Firm (Bengal) (Average—3 determinations)	0.18 per cent.
B.P. limits—(0.09 to 0.11 per cent.)	

Three samples of Thyroid powder obtained from Great Britain and Canada in 1939 and stored in the Refrigerator in sealed amber bottles were simultaneously tested for their thyroxine-iodine contents with the results given below:—

Sample from:	Thyroxine-iodine
(1) A. H. & Co., Ltd. (Average—3 determinations)	0.142 per cent.
(2) B. D. H. & Co. (Average—3 determinations)	0.235 per cent.
(3) Canadian Sample (Average—2 determinations)	0.120 per cent.

It will be seen that excepting in one instance (No. 2), thyroxine-iodine content of foreign thyroid gland powders are lower than the values obtained with powders prepared from glands of Indian cattle.

In addition to this, the author has carried out biological assays on several samples of thyroid bearing the name of Indian manufacturers but where no information was available with regard to the exact origin of the powders. Presumably some of these are of Indian make and in many such cases, a potency higher than B.P. (using a standard powder with known thyroxine-iodine content as control) was obtained by the 'tadpole method'.¹ Some of these samples were received in such small quantities that confirmatory chemical assay and determination of thyroxine-iodine contents were not possible.

While it is realised that the data available are not comprehensive, a tentative opinion may be expressed that, at least as far as the thyroid gland preparations are concerned, Indian manufacturers need not always feel that the raw material obtainable in India is of an inferior grade than that obtainable in Western countries where the nutrition of the cattle is definitely superior.

I am indebted to my colleagues in the Laboratory for carrying out most of the tests.

Bio-Chemical Standardisation
Laboratory, Calcutta,
August 11, 1943.

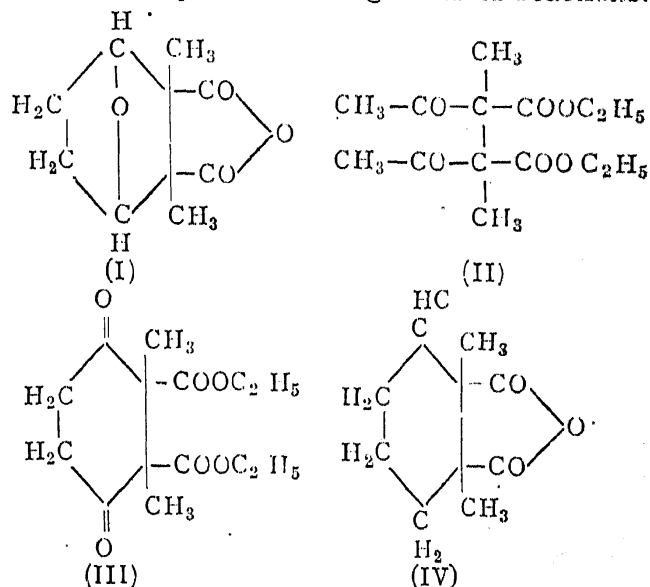
B. MUKERJI.

1. Dutt and Mukerji, *Curr. Sci.*, 1942, 11, 104.

SYNTHESIS OF CANTHARIDIN

CANTHARIDIN, the active principle of *Cantharis vesicatoria* and *Mylabris pustulata* Fb. India, has been assigned the structure (I) mainly on the basis of analytical evidence by Gadamer and collaborators.¹ Recently the synthesis of desoxycantharidin (IV) by Woodward and Loffield² has confirmed the structure (I) for cantharidin.

Various unsuccessful attempts at the synthesis of cantharidin have been recorded.³ We have now synthesised cantharidin and desoxycantharidin by the following series of reactions.



Sodio derivative of ethyl methyl acetoacetate when treated with iodine gave diethyl $\alpha\alpha'$ -dimethyl $\alpha\alpha'$ -diacetyl succinate (II). Bromination of (II) followed by debromination by