

ROOC-CH <sub>2</sub> -CH <sub>2</sub> -COOR		Activity*		
R=	m.p.	H.D.D.	L.D.	R.P.D.
I -CH(CH <sub>3</sub> ) CH <sub>2</sub> N(CH <sub>3</sub> ) <sub>2</sub> I	222-24°	30	46	180
II -CH(CH <sub>3</sub> ) CH <sub>2</sub> N(CH <sub>3</sub> ) <sub>2</sub> C <sub>2</sub> H <sub>5</sub> I	174-75°	10	20	90
III -CH(CH <sub>3</sub> ) CH <sub>2</sub> N(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> CH <sub>3</sub> I	163-65°	7	10	40
IV -CH(CH <sub>3</sub> ) CH <sub>2</sub> N(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> I	229-30°	5	10	40
V -CH(CH <sub>3</sub> C <sub>6</sub> H <sub>5</sub> ) CH <sub>2</sub> N(CH <sub>3</sub> ) <sub>2</sub> I	232-33°	8	10	20
VI -CH(CH <sub>3</sub> C <sub>6</sub> H <sub>5</sub> ) CH <sub>2</sub> N(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> I	202-3°	7	10	15
VII -CH(C <sub>6</sub> H <sub>5</sub> ) CH <sub>2</sub> N(CH <sub>3</sub> ) <sub>2</sub> I	222-23°	30	40	—
VIII -CH <sub>2</sub> CH <sub>2</sub> N(CH <sub>3</sub> ) <sub>2</sub> I (2)	252-54°	0·2	1	1
IX -CH <sub>2</sub> CH <sub>2</sub> N(CH <sub>3</sub> ) <sub>2</sub> C <sub>2</sub> H <sub>5</sub> I (2)	195-96°	0·8	1·5	3·5
D-Tubocurarine		0·18	0·2	0·075

\* H.D.D.: head drop dose in mgm./kgm. } obtained by intravenous injection  
 L.D.: lethal dose in mgm./kgm. } in the rabbit's ear.  
 R.P.D.: rat's phrenic nerve-diaphragm preparation; dilution in mgm./100 cm.<sup>3</sup>  
 to obtain curarization.

compounds are shown in the accompanying table, together with the results of the preliminary investigation of their pharmacological properties.

It is noteworthy that in this series the curare activity of the triethylammonium compounds (V, VI) is the same as, or greater than, that of the corresponding trimethylammonium salts (I-IV), in contrast with the choline derivatives, where opposite results were obtained<sup>2</sup>. Moreover, the curare activity of the compounds we investigated is less intense and of longer duration.

Details of the preparation and pharmacological properties of these compounds will be published elsewhere.

Since writing this communication we have received the results of the chemical analysis of the newly synthesized compounds: they show that the proposed formulae are correct.

I wish to acknowledge the Société Anonyme R.I.S.T. and M. G. Derudder for help in the chemical part of this work, and MM. Empain and Vandenberg for some of the pharmacological assays.

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<sup>1</sup> Bovet, Courvoisier, Ducrot and Horclois, *C.R. Acad. Sci., Paris*, 223, 597 (1946). Bovet, Depierre and deLestrangé, *ibid.*, 225, 74 (1947).

<sup>2</sup> Bovet, Nitti, Guarino, Longo and Marotta, *Rend. 1st Sup. San.*, 12, 106 (1949).

<sup>3</sup> Simonart, *J. Pharmacol.*, 46, 157 (1932). deLestrangé and Lévy, *Bull. Sci. Pharmacol.*, 36, 353 (1929).

### Thiocyanate and Endemic Goitre

THE amount of thiocyanate has been determined in the blood of volunteers from Šumperk in Moravia and Roudnice in Bohemia, two districts in Czechoslovakia where the incidence of endemic goitre is high. In Šumperk, the investigations were carried out in both spring and autumn, but in Roudnice in the autumn only. The Roudnice district has a greater production and consumption of fruit and vegetables.

The findings in the accompanying table show the average thiocyanate-levels in subjects with normal

thyroids, with slight hyperplasia and with medium and large goitres. The last two lines show the average thiocyanate values in the autumn in subjects with evidence of vascularization of a goitre and with definite evidence of thyrotoxicosis. Smokers were excluded because the thiocyanate values were found to be increased, without evident hyperplasia of the thyroid gland, in direct proportion to the consumption of cigarettes.

It is evident from the table that the average thiocyanate values in each individual group are greater in the autumn, and also that there is an obvious relation between hyperplasia of the thyroid and its vascularization and activity.

The thiocyanate values of the serum corresponded to those found in subjects who had been given less than 0·1 gm. potassium thiocyanate *per os* over a long period. This dose had no goitre-producing effect even when administered for a long time. The increase in the thiocyanate-level in the blood without corresponding increase in the hyperplasia of the thyroid is explained by the view that the inhabitants consume not only foods containing a substance which leads to an increase in the thiocyanate-level in the serum but also certain quantities of a goitre-producing substance which we have not yet been able to identify. Since the thiocyanate-values are greatest in the autumn when the consumption of fruits and vegetables is greatest, we consider that the substance comes from fresh produce.

The results show that, apart from iodine deficiency, endemic goitre has other biochemically detectable causes.

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<sup>1</sup> Barker, *J. Amer. Med. Assoc.*, 108, 762 (1936).

### Gram-positive Cells of the Human Anterior Pituitary

THE following is a preliminary report upon an investigation which is being carried out upon the reaction of the glandular cells of human anterior pituitary to Gram's stain.

Interest in this subject arose from (a) the brief statement, in a recent paper by Pearse<sup>1</sup>, that the basophil cells of the human pars distalis are Gram-positive, and (b) the extensive biochemical investigations of Stacey and his colleagues<sup>2,3</sup>, which suggest that the retention of the dye by certain Gram-positive bacteria is to be correlated with the presence of ribonucleoprotein material in association with their cell membranes.

	Šumperk district				Roudnice district	
	May 1950		September 1950		September 1950	
	No. of persons investigated	CNS (mgm. %)	No. of persons investigated	CNS (mgm. %)	No. of persons investigated	CNS (mgm. %)
Subjects with normal thyroids	13	0·115	19	0·248	32	0·265
Subjects with slight hyperplasia (prominence less than 2 mm.)	92	0·220	82	0·309	72	0·371
Subjects with medium or large goitre (prominence more than 2 mm.)	38	0·333	36	0·337	41	0·391
Subjects with evidence of increased vascularization of the thyroid gland	—	—	1	0·360	4	0·478
Subjects with definite evidence of thyrotoxicosis	—	—	11	0·368	5	0·510

These estimations were carried out according to the method of Barker<sup>1</sup>.