of practically pure cyclopentenyl ethanol boiling over a range of 2°. On redistillation the alcohol boiled at 86–87° (corr.) at 16 mm.; n_D^{20}, 1.4721; d_4^{20}, 0.9446.

Anal. Subs., 0.1928: CO_2, 0.5259; H_2O, 0.1852. Calcd. for $C_9H_{12}O$: C, 74.93; H, 10.80. Found: C, 74.39; H, 10.70.

The yield of alcohol decreased slightly when larger quantities of ester were reduced, dropping to about 82% on a 0.5 mole run.

Summary

A process is described for preparing Δ^2-cyclopentenylacetic acid and β-(Δ^2-cyclopentenyl)ethanol. These substances are valuable intermediates for the syntheses of derivatives and homologs of hydnocarpic and chaulmoogric acids.

URBANA, ILLINOIS

[CONTRIBUTION FROM THE HAVEMEYER CHEMICAL LABORATORY, NEW YORK UNIVERSITY]

THE COMPOUND OF ORTHO-CRESOL AND PARA-CRESOL: A CORRECTION

BY ARTHUR E. HILL AND THOMAS W. DAVIS

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In a recent paper on the cresols from this Laboratory,[1] evidence for the existence of a 1:1 compound was presented. Our attention has been directed to two earlier investigations of this system, by Fox and Barker[2] and by Dawson and Mountford;[3] the former found no evidence of compound formation and the latter found evidence of a compound of two molecules of the *p*-cresol with one of the *ortho*. We have repeated our investigation of the system by means of freezing-point determinations, and find that the conclusion of Dawson and Mountford is correct. Working with the greatest care to avoid undercooling and with the apparatus previously described[1] to insure absence of water, we have obtained the following data, which show a maximum for the freezing point of the compound lying near the

TABLE I

FREEZING POINTS OF *o*-CRESOL-*p*-CRESOL MIXTURES

o-Cresol, % by wt.	100	86.12	72.34	63.92	57.31	54.55	53.5[a]	52.11	
F. p., °C.	30.80	24.61	14.71	8.25	3.02	1.13	0	1.81	
Solid phase	*o*-	*o*-	*o*-	*o*-	*o*-	*o*-	*o* + comp.	comp.	
o-Cresol, % by wt.	44.70	37.19	37.19[b]	35.13[b]	33.3[a]	32.36	20.10	9.66	0
F. p., °C.	6.62	7.84	5.13	7.19	8.1	10.10	21.25	29.19	34.61
Solid phase	comp.	comp.	*p*-	*p*-	comp. + *p*-	*p*-	*p*-	*p*-	*p*-

[a] By extrapolation.

[b] Metastable.

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[1] Hill and Mosbacher, THIS JOURNAL, **47**, 2544 (1925).

[2] Fox and Barker, *J. Soc. Chem. Ind.*, **18**, 268 (1918).

[3] Dawson and Mountford, *J. Chem. Soc.*, **113**, 923 (1918).

composition 2 *p*:1 *o*. Our earlier conclusion was probably in error because of failure to obtain equilibrium owing to the extreme viscosity of the cresols and their outstanding tendency to remain undercooled. The possibility that there exist both a 2:1 compound and a 1:1 is, of course, not excluded, but we have been unable to repeat the results showing the existence of the latter.

The eutectic between *o*-cresol and compound at 0° and the transition point of the compound to *p*-cresol at 8.1° were obtained by extrapolation; they are, respectively, 0.6 and 1.2° lower than found by Dawson and Mountford. The curves for the two components are in reasonable agreement with those of the same investigators.

NEW YORK, N. Y.

[CONTRIBUTION FROM THE FURMAN CHEMICAL LABORATORY OF VANDERBILT UNIVERSITY]

ESTERS OF THE PROCAINE TYPE DERIVED FROM NICOTINIC ACID

BY A. W. INGERSOLL AND B. H. ROBBINS

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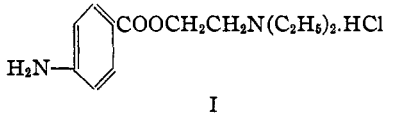
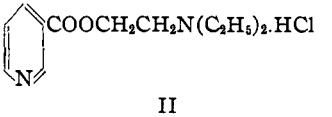
The work reported in this paper was undertaken with a view to determine to what extent, if any, the local anesthetic properties of procaine (I) and its homologs would be retained in compounds of the same type derived from the pyridine-carboxylic acids. For this purpose the esters of nicotinic acid with β-diethylamino-ethyl alcohol (II) and with γ-diethylamino-propyl alcohol have been prepared and tested.



I



II

Of the pyridine-carboxylic acids, nicotinic acid is apparently the most closely related in structure to *p*-aminobenzoic acid, and was chosen for this reason.

Although several derivatives of partially hydrogenated nicotinic acid, notably arecoline,[1] are included among the potent alkaloids, few other derivatives of nicotinic acid have been studied as to their physiological behavior. Nicotinic acid itself is stated to be slightly poisonous and is detoxicated in dogs by conversion in part to the corresponding methyl-betaine (trigonelline) and in part to nicotinyl glycine.[2] The diethyl- and dipropylamides and the piperidide have been patented as drugs.[3] While

[1] S. Frankel, "Die Arzneimittel Synthese," J. Springer, Berlin, **1921**, pp. 41 and 311.

[2] Ackermann, *Z. Biol.*, **59**, 17 (1912).

[3] U. S. pat. 1,403,117 (1922).