verts the compound to the known trimethylplatinum iodide.

These two organoplatinum compounds are interesting because they demonstrate for the first time that true organoplatinum compounds not having acid radicals can be prepared. A detailed account of these and other organoplatinum compounds will be published shortly.

THE CHEMICAL LABORATORY OF IOWA STATE COLLEGE
AMES, IOWA
HENRY GILMAN
M. LICHTENWALTER

RECEIVED OCTOBER 31, 1938

THE IDENTIFICATION OF METHYLCHAVICOL IN AMERICAN GUM SPIRITS OF TURPENTINE

Sir:

Recent investigations have shown that gum spirits of turpentine of slash and longleaf pine contain about 95% of pinenes [Dupont, *Ann. chim.*, [10] **1**, 184 (1924); Aschan, "Naftenföreningar, Terpener och Kamferarter," Helsingfors, 289 (1926); Palkin, Technical Bulletin 596, U. S. Department of Agriculture (1932)]. We have been able to obtain physical and chemical evidence, including the fact that homoanisic acid is obtained on oxidation, that the fractions boiling above those of the pinenes contain considerable amounts of methylchavicol (4-methoxyallylbenzene).

This was shown by the isolation of methylchavicol from turpentine by the method described by Balbiano [*Ber.*, **42**, 1504 (1909)], for the separation of methylchavicol from anethole. Seventy-five grams of a fraction, b. p. 88–95° at 10 mm., obtained by fractionation of steam-distilled residues of spirits of turpentine was dissolved in 400 cc. of ether and shaken for one hour with a solution of 81 g. of mercuric acetate dissolved in 350 cc. of water. After separating the ether, the aqueous solution was heated for ten hours at 70–80° with 70 g. of sodium hydroxide and 80 g. of granulated zinc. The mixture was then distilled with steam, the distillate extracted with ether and the ether solution dried and distilled, leaving 8 g. of methylchavicol, the main fraction of which boiled at 213–215°; d^{25}_{25} 0.9600; $n^{22}D$ 1.51372. Physical constants recorded in the literature are: b. p. 214–215° [Klages, *Ber.*, **32**, 1439 (1899); d^{21} 0.9645; n_D 1.5236; (Beilstein, "Handbuch der organischen Chemie," fourth edition, **6**, 571 (1923)]. Ten grams of this product was oxidized at room temperature with 630 cc. of 4% potassium permanganate solution. After removal of manganese dioxide, the filtrate was evaporated to about one-third of its original volume and acidified with hydrochloric acid. The precipitated anisic acid was recrystallized from water and melted at 184–185° (corr.); yield, 2.5 g. Calcd. for $C_8H_8O_3$: C, 63.18; H, 5.30. Found: C, 63.32; H, 5.46. The acid did not lower the melting point in the mixed melting point test with an authentic sample of this material.

The aqueous filtrate from which the anisic acid had been removed was evaporated to a small volume, extracted with ether and dried. The ether was distilled and about 0.3 g. of a substance, apparently homoanisic acid, was obtained. It was recrystallized from water and melted at 85.5–86.5°. Homoanisic acid melts at 85–86° [Pschorr, Wolfes and Buckow, *Ber.*, **33**, 172 (1900)]. Calcd. for $C_9H_{10}O_3$: C, 65.04; H, 6.07. Found: C, 65.30; H, 6.54.

We assume that the difference in odor between highly purified turpentine and American gum spirits of turpentine can be partly attributed to the presence of phenol ethers.

G. & A. LABORATORIES, INC.
SAVANNAH, GEORGIA
TORSTEN HASSELSTROM
BURT L. HAMPTON

RECEIVED OCTOBER 28, 1938

PANTOTHENIC ACID AS A GROWTH FACTOR FOR THE DIPHTHERIA BACILLUS

Sir:

It has been shown in experiments already presented elsewhere that β-alanine and nicotinic acid are essential for the growth of certain strains of the diphtheria bacillus [Mueller, *Proc. Am. Exptl. Biol. Med.*, **36**, 706 (1937)]. β-Alanine has long been known to be a constituent of meat extract both in the free form and also combined with histidine in the compound carnosine, in which form it has also been shown to be available to the diphtheria bacillus [Mueller, *J. Biol. Chem.*, **123**, 421 (1938)]. In a personal communication, we have recently learned from Dr. R. J. Williams that pantothenic acid [Williams, *et. al.*, THIS JOURNAL, **55**, 2912 (1933); **60**, 2719 (1938)] also yields β-alanine upon hydrolysis. Dr. Williams suggests, further, that β-alanine may be effective in producing growth with *C. Diphtheriae* only insofar as it serves as a building stone for the production of pantothenic acid, which may be the material actually required by the organism,