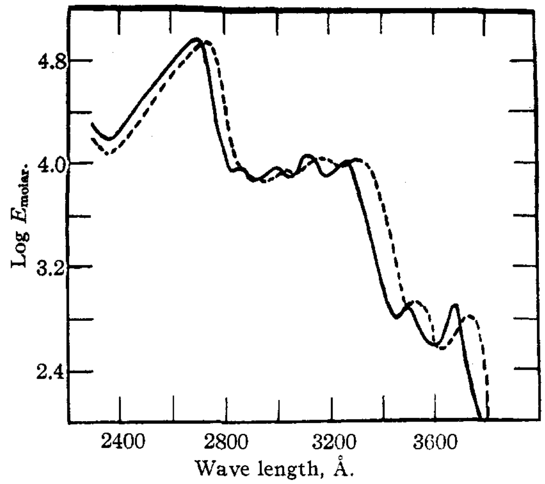


Fig. 1.——, 5-Methylchrysene; - - -, 5,6-dimethylchrysene.

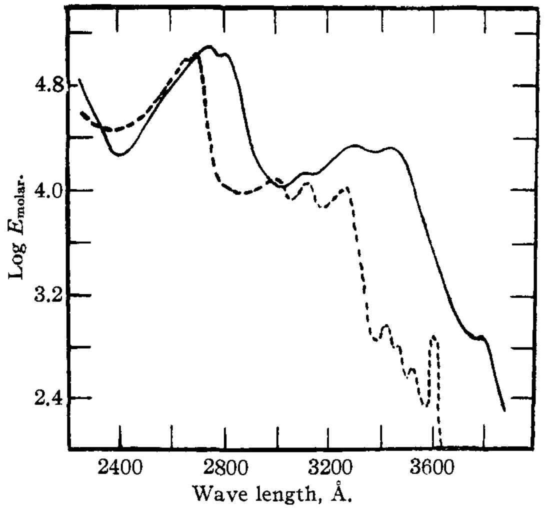
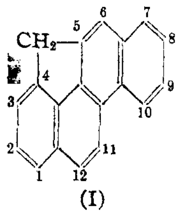


Fig. 2.——, 4,5-Dimethylchrysene; - - -, 4,5-methylenechrysene.

1,2-benzanthracene series as all attempts so far made to synthesize 1',9-dimethyl-1,2-benzanthracene have failed.

These variations in structural detail among the spectra, while significant, are not sufficiently great to prejudice the use of absorption spectrophotometry as a means of characterizing the chrysene ring structure.



(I)

CONVERSE MEMORIAL LABORATORY
CAMBRIDGE, MASS.
RECEIVED OCTOBER 19, 1940

The Preparation of N-Allylnormorphine

BY ELTON L. MCCAWLEY, E. ROSS HART AND DAVID FIELDING MARSH

In the course of a biochemorphic survey of morphine derivatives, N-allylnormorphine has been prepared. Using von Braun's method[1] morphine is acetylated with acetic anhydride to protect the hydroxyl groups. The nitrogen-methyl group is removed by the action of cyanogen bromide and decomposition to normorphine. The normorphine base reacts with allyl bromide at 70° to form N-allylnormorphine hydrobromide, m. p. 126°, soluble in water, sl. sol. in alcohol and insoluble in ether; N-allylnormorphine free base melts at 92–93°.

Anal. Calcd. for $C_{19}H_{21}O_3N$: C, 73.3; H, 7.0; mol. wt., 311.2. Found: C, 74.6; H, 7.5 (Kirk); mol. wt., 313 (Rast).

An iodoxybenzoate test indicates a free phenolic hydroxyl group.

The preparation of normorphine by evolution of formaldehyde from morphine oxide and chromic acid and also the decomposition of N-nitrosonormorphine by alcoholic potash are unsatisfactory due to excessive breakdown of the ring structure. These procedures[2] are unsuitable for the preparation of norcodeine, for the same reason.

N-allylnormorphine appears to have a stronger antagonistic action toward the depression of respiration evoked by morphine than N-allylnorcodeine.[3]

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[1] Von Braun, *Ber.*, **47**, 2312 (1914).

[2] Diels and Fischer, *ibid.*, **49**, 1721 (1916); Speyer and Walther, *ibid.*, **63**, 852 (1930).

[3] Pohl, *Z. exp. Path. Therap.*, **17**, 370 (1915).

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Thioanilides of Malonic Acids

BY AVERY A. MORTON, A. R. OLSON AND J. W. BLATTENBERGER

Phenyl isothiocyanate has been used[1] as a test for organometallic compounds. If reactions of this reagent with amyl- or benzylsodium parallel those observed[2] with carbon dioxide it should be possible to prepare directly the thioanilides of the corresponding malonic acid according to the se-

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[1] Sach and Loevy, *Ber.*, **36**, 585 (1903); Schlenk, Bergmann and co-workers, *Ann.*, **463**, 1; **464**, 1 (1928); Gilman and Breuer, THIS JOURNAL, **55**, 1262 (1933).

[2] Morton and Fallwell, Jr., *ibid.*, **60**, 1426 (1938).