and acid successively. After recrystallization from alcohol a yield of 32.5 g. (72%) of buff-colored crystals was obtained, melting at 96–97°.

Anal. Subs., 0.2230: CO_2, 0.3133; H_2O, 0.0715. Calcd. for $C_9H_{10}O_2NI$: C, 37.11; H, 3.46. Found: C, 38.31; H, 3.59.

Several attempts to make 3,3′-dinitrodimesityl by the action of Naturkupfer C on nitro-iodomesitylene between temperatures of 200–300° gave only tars from which no definite compound was obtained. An attempt with nitrobenzene as a solvent yielded no better results.

Summary

1. 3,3′-Diaminodimesityl has been prepared and resolved through the dicamphorsulfonate to yield pure *l*- and *d*-modifications.

2. The active diamines were converted into the corresponding active diacetamino derivatives.

3. These are the first diphenyl derivatives resolved with the 2,6,2′,6′-positions, all occupied by the same group. This lends support to the mechanical theory for explaining the optical isomerism in certain diphenyl compounds.

URBANA, ILLINOIS

NOTE

The Electrolysis of Metallo-Organic Compounds.[1]—Gaddum and French[2] have recently reported a series of experiments on the electrolysis of ether solutions of the Grignard reagent. In their paper they comment on the chemical reactivity of the metallic magnesium which was deposited at the cathode but do not describe its physical properties. Some time ago the authors made a series of experiments on the electrolysis of magnesium ethyl bromide in ether solutions, using platinum electrodes. The solutions showed a good conductivity and a beautiful crystalline deposit of metallic magnesium quickly formed upon the platinum cathode. This deposit adhered quite firmly to the electrode surface. Products were detected in the solution similar to those reported by Gaddum and French, which are to be attributed to the anode reaction, but it is impossible to say whether these were produced by direct electrolysis or by a secondary reaction of bromine, which had been liberated at the anode, with the Grignard reagent. In order to get away from the effects of the halogen liberated at the anode, zinc diethyl was used in place of the Grignard reagents in some of the electrolysis experiments. Zinc diethyl in the pure state shows no appreciable conductivity but an ether solution showed a specific conductivity of 10^{-4}. With an applied potential of 110 volts

[1] The experimental results noted here were originally included in a paper which was submitted to THIS JOURNAL for publication in June, 1926.

[2] Gaddum and French, THIS JOURNAL, **49**, 1295 (1927).

appreciable quantities of metallic zinc were deposited upon the cathode. The zinc deposit was smooth, firmly adherent and not of as brilliant a luster as the magnesium deposits obtained in the earlier experiments. The products at the anode dissolved in the solution and were not satisfactorily identified but there can be little doubt that the ethyl radical was liberated at the anode.

CONTRIBUTION FROM THE
CHEMICAL LABORATORY OF THE
UNIVERSITY OF ILLINOIS
URBANA, ILLINOIS

RECEIVED OCTOBER 29, 1928
PUBLISHED FEBRUARY 5, 1929

WORTH H. RODEBUSH
J. MERRIAM PETERSON

NEW BOOKS

The Collected Works of J. Willard Gibbs, Ph.D., LL.D. Formerly Professor of Mathematical Physics in Yale University. Edited by WILLIAM RAYMOND LONGLEY and RALPH GIBBS VAN NAME. Two volumes. Longmans, Green and Co., 55 Fifth Avenue, New York, N. Y., 1928. xxviii + 434 pp. xviii + 284 pp. 15.5 × 23.5 cm. Price, $6.00 per set.

This is the first complete edition of the writings of J. Willard Gibbs. It is a reprint of the 1906 publication, with the addition of "The Elementary Principles of Statistical Mechanics." The first volume contains the various contributions to thermodynamics, while the second comprises Statistical Mechanics, Dynamics, Vector Analysis and Multiple Algebra, Electromagnetic Theory of Light and some shorter papers, including a biographical sketch of Clausius and of H. A. Newton.

When the 1906 edition appeared, a very eulogistic foreign review expressed regret that the price of the volumes was so high; it was felt that the University or the Nation whose privilege it was to claim Gibbs as their own should have offered the world this fundamental contribution to science at a nominal price, "as a duty of honour." This reproach is now removed by the publication of the present collection at a price which "has been made possible by the generosity of Professor Irving Fisher of Yale University, a former pupil of Willard Gibbs, and by the economy resulting from the use of photographic reproduction, which was also desirable as a means of avoiding typographical errors."

It is now fifty years since the last of the articles on the "Equilibrium of Heterogeneous Substances" was published in the *Transactions of the Connecticut Academy*. The reviewer cannot help wondering how many books on thermodynamics written at the present day will bear republishing fifty years hence, without apology, without adaptation and without a single verbal change. Gibbs' thermodynamics has not been changed by other writers during this period, but the attitude of chemists has been changed profoundly. The durability characteristic of Gibbs' work is due to the