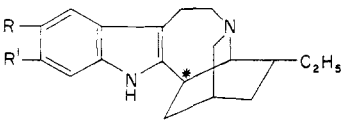
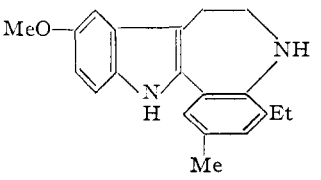
was found to be identical in all respects with the compound obtained from ibogamine.

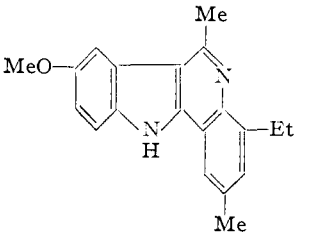
It is possible that the work reported here and the structure Ia[9] derived for ibogaine may prove applicable to the group of indole alkaloids which are known to furnish 3,5-dialkylpyridines by drastic methods of degradation.



I



II



III

a: R = OMe, R^1 = H
b: R = H, R^1 = OMe
c: R = R^1 = H

(9) It is of interest to note that Robinson's hypothetical "dihydroibogaine" ("Structural Relations of Natural Products," Clarendon Press, 1955) is closely related to this structure. A seven-membered ring C for ibogaine was also a feature of the earlier proposal, ref. 6.

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BOOK REVIEWS

Introduction to Solid State Physics. Second Edition. By CHARLES KITTEL, Professor of Physics, University of California, Berkeley, California. John Wiley & Sons, Inc., Publishers, 440 Fourth Avenue, New York 16, New York. 1956. xvii + 617 pp. 16 × 23 cm. Price, $12.00.

This book is the first volume in a new series on the science and technology of materials. It is intended as an introductory textbook in solid state physics for students of physics, chemistry, and engineering. The second edition is about two hundred pages longer than the first and is superior, both in the clarity of the explanations and in the extent of the material. A good general knowledge of physics and mathematics is required for complete understanding of the argument, but the non-mathematical reader will find a large amount of interesting and helpful information. Although the chemical topics of heterogeneous catalysis, thermal and photochemical decomposition, and adsorption are neglected, the neglect is compensated by a thorough discussion of the topics that are included and by excellent references at the end of each chapter.

The sections on the classification of solids and on crystal structure have been greatly expanded and clarified by the use of two-dimensional crystal models. The discussions of lattice energy, lattice vibrations, elastic constants, heat capacity, thermal and dielectric properties, ferroelectrics and diamagnetism and paramagnetism are essentially unchanged. However, they have been modernized and recent data are included.

The free electron theory of metals and the band theory of solids are introduced relatively early in the book and they are used to explain the properties of metals, alloys, insulators and semiconductors. Again, the theoretical discussion is supplemented by two-dimensional models. New information about cyclotron resonance and transistor manufacture is included.

The discussion of ferromagnetism, antiferromagnetism and superconductivity has been modernized and placed after the theoretical sections.

The description of imperfections in solids has been rewritten. The discussion of lattice vacancies, diffusion, color centers and excitons is improved. The problem of describing three-dimensional dislocation structures with two-dimensional pages has been reasonably well solved, and several striking pictures of dislocation phenomena have been included.

Occasionally, some humor enlivens the grim procession of solid state phenomena. The author describes the difference of e^{-3000} between the experiments of Volmer and Schultze and the theory of growth of ideal crystals, and then states, "This has been referred to as an all-time record for disagreement between observation and theory." At another point, he reports, "The highest surface recombination velocities are found for sand-blasted surfaces; the lowest velocities are found for surfaces polished smooth and then etched with empirical solutions. A certain amount of magic is thought to be involved in a good etch." This is a real challenge to the chemist to help the alphysicist.

The new series on materials begins well. If succeeding books maintain the high standards set by this one, they will be a valuable addition to the library of every chemist who is interested in solids.

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pH Measurements. Their Theory and Practice. By VICTOR GOLD, B.Sc., Ph.D., Reader in Physical Organic Chemistry, King's College, University of London. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y., 1956. 125 pp. 11 × 17 cm. Price $2.25.

This little monograph covers quite thoroughly the subject of pH measurements, particularly from the theoretical side. It discusses the theory of proton transfer equilibria, of galvanic cells, the definition and interpretation of the pH scale. The determination of pH by potential measurements and by optical methods is described. There is a discussion of pH relations in the ionization of acids and bases, including titrations of strong and weak acids and bases. Buffers are also discussed. The relation between pH and reaction ve-