

**Kräfte und Strukturen bei Kolloiden. Sonderausgabe der Kolloid-Zeitschrift, Band 136. Vorträge und Diskussionen.** Gehalten auf der 16 Hauptversammlung in Hamburg am 19 und 20, September, 1953. Herausgegeben von Prof. Dr. HANS ERBRING, Vorsitzender der Kolloid-Gesellschaft, Köln/Rhein, und Prof. Dr. F. HORST MÜLLER, Herausgeber der Kolloid-Zeitschrift, Marburg/Lahn. (Powers and Structures of Colloids. Lectures and discussions offered at the 16th General Assembly of the Kolloid-Gesellschaft in Hamburg on September 19 and 20, 1953. Special issue of Kolloid-Zeitschrift, Vol. 136, 1954.) Verlag Dr. Dietrich Steinkopff, Darmstadt, Holzhof-Allee 35, Germany. 1954. 174 pp. 19.5 × 27 cm. Price, kart, DM 26.--.

Dr. H. Erbring, Chairman of the Kolloid-Gesellschaft, opened the meeting by greeting all foreign guests, and then he paid special tribute to the memory of the founder of colloid science, Wolfgang Ostwald.

Instead of discussing every paper, the reviewer will limit himself to those of most general interest.

Dervichian, Joly and Titchen of the Pasteur Institute in Paris discuss "Mechanical and Optical Investigations of the Structure of Colloidal Solutions." They used potassium laurate in combination with potassium carbonate and chloride, and found isotropic phases in a large field of concentrations, the phase changes becoming noticeable only with a sudden change in viscosity. Their results are comparable with the deformation of high polymer substances when present in the plastic condition.

Bourgoin and Joly of the Pasteur Institute reported "New Research on the Mechanisms of Gelification." By the use of stream double refraction they studied the sol-gel changes of several colloids under various conditions, and found that one must differentiate between two phases of the sol-gel transformation, namely, the formation of ordered regions in the solution, followed by solidification in the mass.

Per Ekwall of the Physico-Chemical Institute of the Abo Akademi in Abo, Finland, reported on "Limits of Concentration in Solutions of Association Colloids." He offered proof that substances like soaps differ pronouncedly in their water content when present in different concentrations and that these fields of concentration are more or less separated by concentration limits. Above or below them, changes take place more or less suddenly. Only below the lowest concentration limits do the association colloids act in every respect as normal, monovalent electrolytes.

Verwey of Eindhoven, Netherlands, spoke on the "Play of Forces Between Particles in Lyophobic Colloidal Systems," referring mainly to his contribution on "The Role of the Electric Double Layer in the Behavior of Lyophobic Colloids" in J. Alexander's "Colloid Chemistry." Although most of his material has already been published, his contribution certainly deserves the attention of all those interested in this topic.

K. Heckmann of the Max Planck Institute at Göttingen, Germany, discusses "Conductance and Activity Determinations on Soaps." He found that hexyl alcohol in general causes an increase in the ion activity and conductance and that a sharp maximum in the equivalent conductance curve of Na-cetyl-sulfate is always found. He believes that the cause is the formation of mixed micelles of soap and alcohol, and he offers a new theory to explain these maxima.

H. Thiele of Kiel, Germany, discusses some interesting and important "model experiments" for the synthesis of micellar structures, drawing specific attention to biological structures and how they can be studied and interpreted by this method.

In a paper on "Molecular Interactions at the Solid-Liquid Interface with Special Reference to Flotation and Solid Particle Stabilized Emulsions," Schulman and Leja of the University of Cambridge, England, discuss experiments carried out with a variety of pure surface-active agents usually used in ore flotation as collectors or frothers. The measurements of air/water/solid and oil/water/solid contact angles revealed the importance of the density of collector-coverage. This work indicates that there is a direct correlation between: molecular association, adsorption onto solid surfaces by collector and frother molecules, solidification of monolayers of collector molecules, emulsification of oil-water systems stabilized by coated solid particles, and boundary lubrication by mixed films.

The reviewer feels that we owe Prof. Dr. Hans Erbring

a special vote of thanks for the way he organized and conducted this symposium of varied and valuable contributions.

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**Fortschritte der Chemie Organischer Naturstoffe, Volume XI. (Progress in the Chemistry of Organic Natural Products).** Edited by L. ZECHMEISTER, California Institute of Technology, Pasadena. Springer-Verlag, Mölkerbastei 5, Wien 1, Austria. 1954. viii + 457 pp. 16.5 × 23.5 cm. Price, \$17.20, Ganzleinen, \$18.00.

For the eleventh volume of this series, Dr. Zechmeister has again assembled a group of outstanding collaborators, who treat a number of subjects among which are many of biochemical interest.

S. Peat presents a concise survey on the constitution, enzymic synthesis and degradation of starch. With proper historical perspective, the reader is led safely through the maze of terms, definitions and concepts that have become outdated or altered in the light of current knowledge, in order to arrive at the main theme of the chapter: starch enzymology, a field to which the author has notably contributed.

K. Freudenberg interprets recent results from synthetic, analytical and physical findings on lignin, its degradation and biosynthesis, and notes that "lignin, in spite of its great variegation, is a polymeric natural product like so many others, and the principle of its construction has become lucid."

The complicated changes attending ultraviolet irradiation of  $\Delta^5,7$ -dienoid steroids have undergone further elucidation, as reported by H. H. Inhoffen and K. Brückner in a well balanced chapter on the chemistry of Vitamin D, which also covers new preparative routes to D, pharmacological-structural work, and a discussion of the problem of absolute steroid configuration in the light of Reichstein's  $\alpha$ -methoxy-adipic acid. An extensive review of model substance syntheses, aimed at construction of the A/C as well as the C/D ring systems is included, and the problem of the isomerization of Vitamin D is treated extensively; a number of very interesting partial syntheses of Vitamin D isomers are described.

In recent years, naturally occurring chromones have attracted considerable interest because they are hypotensive, spasmolytic, and cause coronary dilatation. H. Schmid has provided a thorough review of the degradative and synthetic work on the extractives of *Ammi visnaga*, *Peucedanum Ostruthium*, *Eugenia caryophyllata*, and *Eleutherine bulbosa*. Pharmacology and clinical applications are briefly described. An appendix is devoted to certain naphthalene derivatives of natural origin which accompany the naphthopyrone, eleutherinol, and to the fungus pigment, fusarubin.

Two chapters are devoted to a discussion of the remarkable progress made in the chemistry of proteins. L. Pauling and R. B. Corey present results from crystallographic work; accurate measurements of the dimensions of single amino acids and peptides lead to the construction of the ingenious  $\alpha$ -helix model of polypeptides, and further to detailed models for fibrous, and interesting suggestions about globular proteins. The models are represented by reproductions of the excellent perspective and projection drawings which appeared in the original publications. W. A. Schroeder has collected the advances made in the use of column chromatography for analytical and preparative work on amino acids, peptides and proteins. The limited field chosen by the reviewer allowed him to evaluate in detail many of the published methods and data, and the review will be of great value to investigators in need of orientation, as well as of practical advice.

Apart from advances in the structural and physiological chemistry of natural porphyrins, which are thoroughly described by P. Lemberg, the reader will be fascinated by the section on porphyrin biosynthesis included in this section. The last contribution to the collection is A. Albert's chapter on the natural pteridines. There is an outline of physical and chemical properties of the substituted members of the series that have become known since the last review in 1945. Then follows a section on naturally occurring pteridines, including a helpful table juxtaposing the exact chemical names with various common names and synonyms. The