

BOOK REVIEWS

N. G. GAYLORD, Editor

Technology of Non-metallic Coatings. A. Y. DRINBERG, E. S. GUREVICH, and A. V. TYKHOMIROV (translated by E. BISHOP). Pergamon Press, New York-Oxford-London-Paris, 1960. xvi + 531 p.p. \$15.00.

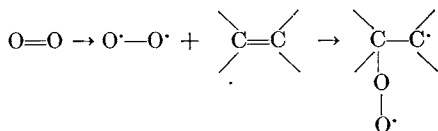
It is incredible that a book so pregnant with misconceptions, so naïve yet so archaic, could have been published in 1960. Only extensive quotation could make a review believable:

Page XIV: "The human eye can distinguish about 150 different colour shades." [Actually, the number is well over 1,000,000.] "The most important components of such equipment [instruments, machine tools and machinery] are painted in colours which attract the worker's attention and make it easier to find them."

Page 2: "Types of corrosion damage: 1 uniform, 2 non-uniform, 3 patchy, 4 pitting, 5 pinpoint, 6 intercrystalline, 7 sub-surface."

Page 3: "Polar or ionic bonds, also known as valency bonds, are formed between oppositely charged ions."

Page 60: "The Bach-Engler autoxidation theory (*Berichte*, 30, 1669 (1897)) is the most probable. It is based on the idea that the oxygen molecule is an unsaturated compound which is consequently capable of combining with an oxidizable substance, without prior dissociation into atoms...."



Page 75: "Macromolecules in which the carbon chain has no mobile substitutes [*sic*], such as polyethene, have the highest stability."

Page 76: "In hetero-chain polymers, the polarity of the molecules is connected with the molecular weight value. The higher the molecular weight, the smaller is the polarity of the molecules...."

Page 88: "The oxidation breakdown of saturated carbon-chain polymers, e.g. polystyrene, only proceeds at significant rates at high temperatures. At ordinary temperatures, oxidation breakdown in these polymers takes place vanishingly slowly, since the phenyl group is oxidation-resistant."

Page 95: "The products of extensive breakdown are normally crystalline: their accumulation in the film increases its brittleness."

Page 145: "Since the majority of coatings fail as a result of water penetrating through the paint film, the water resistance of the film is of profound importance."

Page 155: "Coatings based on lean enamels are hard and take a good polish, but have poor weather resistance. Enamels on a rich base give coatings which are elastic and weather resistant, but they have a poor finish."

Page 158: "The good adhesion of urea- and melamine-formaldehyde resins makes it possible to use them successfully as primers."

Page 162: "To obtain a weather-resisting finish, 3-4 coats of enamel must be applied on one coat of primer. For water and chemical resistant coatings, not less than 5-6 coats are applied. In certain cases the number of coats is increased to 10-12."

The use of this book to give polymer chemists a background in coatings technology would be worse than useless. On the other hand, if the book truly reflects the state of the painting art in Russia, that knowledge should be worth at least two U-2 flights.

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Organic Coating Technology. Vol. II. Pigments and Pigmented Coatings. HENRY FLEMING PAYNE, Wiley, New York-London, 1961. viii + (675-1399) pp. \$17.50.

This second volume of Payne's *Organic Coating Technology* has been anxiously awaited by many of the users of Volume I. They will not be disappointed. Take a dedicated man who has not merely "spent" but devoted a lifetime to his field, who has a passion for teaching and the ability to communicate, and who has the energy and ability to organize the data concerned with a very complex technology—there you have Henry Fleming Payne as revealed in his new volume.

The book opens with a concise chapter on "Fundamentals of Pigmented Coatings," which surveys the effect of pigmentation on the appearance, application, and durability of coatings. It is amazing how many of the practical considerations which must be met daily by paint chemists have been crammed into this short chapter. Naturally, a detailed discussion is limited by space, but the excellent bibliography at the end of this as well as each of the other chapters allows the reader to go as deeply into the subject as he desires.

The next six chapters cover the properties of a wide variety of white, colored, and inert pigments. While this section may be of less direct interest to polymer chemists, it provides important background information to those interested in the application of polymers in coatings.