Sixth, although we cannot violate the confidential character of the passport files by making public confidential information contained therein, the disclosure of which would affect the national security, an effort is made to inform the applicant of the reasons for the denial to the fullest extent possible within the security limitations.

The procedures which I have just described are pointed out to him, so he may have opportunity to present his case. He is also informed that he may be represented by counsel of his choice and that he or his counsel, or both, may be heard by the chief of the Passport Division, or some other responsible officer.

At the present time, the Passport Division does, in the way that I have described, hear many appeals from a preliminary decision to deny a passport. In many cases this hearing, generally conducted by the chief or assistant chief of the Passport Division—far from being capricious or arbitrary—has led to the reversal of the preliminary procedure, and granting of the passport.

Furthermore, the chief of the Passport Division does not have final authority in the denial of passports, and the fact that this is so is made known to the applicant so that the applicant can ask for what further consideration he or she thinks necessary.

These are the procedures under which we are operating. As I say, they are the best that we have been able to develop to date, in order to protect both the interests of the United States, which are very great in this matter, and the interests of the citizen, which are also great.

We are continually reviewing these procedures. They are being reviewed now, as they have been many times before; and if any improvements can be found, anything recommended by Mrs. Shipley, by the Deputy Under-Secretary in charge of Administration, or by the Legal Adviser, all of whom are interested—deeply interested in perfecting these procedures—those improvements will be put into effect.

We are doing the best we can. We know that this is a situation in which we never can please everybody because we must, in the national interest, reject some applicants, and those applicants are always going to feel aggrieved by our action. Therefore, there will always be criticism. Some of the criticism will be honest criticism. I don't for a moment wish to impugn the motives of any of the persons other than this group of Communist-front organizations who are attacking the State Department in this manner. We know that our task is difficult. We know that we have great public responsibilities which we are trying to discharge in the best way that we can. We are doing the best that we know how to do.

Cationic Detergents in the Babcock Test

A MODIFICATION of the Babcock test for homogenized milk has been developed that employs cationic surface-active agents. The quaternary ammonium compounds used are capable of dispersing milk proteins when in the cationic form, even though the proteins are not completely hydrolyzed. The ability of the detergent to disperse proteins in the cationic form and the additional lyophilic property of the substance make possible the successful de-emulsification of milk fat in homogenized milk.

The regular Babcock equipment reagents and procedure required by the AOAC and now used in dairy laboratories are employed in this modified test. In addition, 9 g of a 50% solution of alkyl dimethyl benzyl ammonium chloride is mixed with each liter of sulfuric acid, and a meniscus remover is used when the readings are made. The alkyl dimethyl benzyl ammonium chloride used in this study is known as "BTC" and is manufactured by the Onyx Oil and Chemical Company. The detergent is stable in concentrated sulfuric acid for at least two weeks.

The results obtained by this test had an average mean difference of −0.04% fat, a standard deviation of differences of 0.06% fat, and a standard error of mean differences of 0.02% fat when compared with an ether extraction procedure. Readings in this method are made to the nearest 0.1% fat.

Less skill is needed to obtain satisfactory results with this test on homogenized milk than is required with the Babcock test on regular milk.

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Book Reviews

Color in Business, Science, and Industry. Deane B. Judd. New York: Wiley; London: Chapman & Hall, 1952. 401 pp. $6.50.

To attempt a book on color that will appeal alike to the businessman, the scientist, and the industrialist is a bold undertaking. The interests of the businessman do not ordinarily extend beyond those aspects of color that can be evaluated in monetary units. The scientist is naturally curious concerning all color phenomena, and has a very real concern with the techniques of color measurement. The industrialist cannot be oblivious to either the constant pressure of competition in a free-enterprise system or the possibility that new techniques in color measurement will contribute to greater efficiency of mass-production methods.

That Dr. Judd has been able to pace a volume so as to appeal to three such diversified groups and to talk to each group in "the language of the trade" is no mere coincidence. Because of his long association with the Colorimetry Section of the National Bureau of Standards, he has probably had occasion to discuss color problems with more individuals than has any other person in history. He has drawn on this experience to keep the reader constantly reminded of the need for a more widespread understanding of color by combining the discussion of some of the more erudite concepts with reference to their practical

importance. He succeeds in reaching the reader because of his complete familiarity with the many languages of this polyglot subject, switching from one language to another often enough to enable any serious reader, regardless of background, to follow the trend of the argument.

It should not be inferred that all readers will find this an easy book to read. As a case in point, the author refers to the MacAdam limits of the color solid without further explanation. Readers who have been softened by the kind of systematic development of a subject that is found in most textbooks might be tempted to read no farther. In the opinion of this reviewer this would be a mistake, because the treatise is so broad in its scope as to preclude formal elucidation of all the details. In the particular instance cited above, the context makes clear that there are established limits to the size of the color solid in the case of nonluminescent reflecting surfaces, and a reference to MacAdam's original paper provides the reader with a ready means of supplementing his knowledge if he so desires.

The book is divided into three parts, the first of which reviews certain basic facts concerning the eye, the various aspects of color, the operations of color-matching in a physical sense, and the effect of these matches on both normal and abnormal observers. Part II is entitled "Tools and Technics" and deals principally with spectrophotometers, colorimeters, color atlases, and color languages. Part III, on the "Physics and Psychophysics of Colorant Layers," clarifies the concepts of gloss, opacity, hiding power, etc., and then poses the practical problem of color-matching, demonstrating the use of the Kubelka-Munk analysis in this connection.

This volume is remarkably free from errors of fact, the most serious error noted by this reviewer being the implication that six cameras instead of only three are required for correct color rendering in an idealized color television system.

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Mathematics: Its Magic and Mastery. 2nd ed. Aaron Bakst. New York: Van Nostrand, 1952. 790 pp. $6.00.

This book, originally published in 1941, now appears in a second and revised edition. The material covered is essentially high school mathematics and mechanics. Many entertaining facts and parlor tricks are included; but the assertion on the jacket that "Einstein's concept of relativity and the theory of the expanding universe are explained so simply that they can be readily appreciated by any layman" is amazing, for these matters actually receive no more than a mere mention—say, about 10 words.

The author states in the preface that "no proofs of any kind are used in the unfolding of the mathematical processes and properties." Fortunately this program is not strictly followed, for mathematics without reasoning is no longer mathematics. Its "magic" may remain, but its "mastery" is out of the question. Indeed, the author frequently does give reasons for his statements, although they are often diffuse and lacking in precision. Thus in "How to Make Money in the Box Business" (p. 568 *et seq.*), the author spends several pages in finding out which of the two positive quantities, $k^2/16$ or $(k^2/16) - a^2$, is the larger. Essentially the same question arises in the problem of sawing out the biggest beam from a given log of radius r. Three pages (574–76) are devoted to this problem without a really sharp proof. If x, y are the beam's dimensions and A its section area, we have

$$A^2 = x^2y^2 = x^2(4r^2 - x^2) = (2r^2)^2 - (x^2 - 2r^2)^2.$$

A is evidently a maximum when the subtracted quantity is zero; that is, when $x = r\sqrt{2}$. This clear-cut result involves no more algebra than that actually used in the book and occupies but one tenth the space.

In this revised edition some errors still remain. A very curious one appears on page 349 in connection with the value of a lottery ticket—computed as the price paid for the ticket times the probability of winning a prize. Again, on page 701, the foot-pound is regarded as the unit of force.

The book concludes with an appendix that gives a serviceable outline of elementary algebra, geometry, and trigonometry. Four-place tables of logarithms, squares, square roots, sines, cosines, and tangents are also included, as well as a comprehensive index.

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Structural Chemistry of Inorganic Compounds, Vol. II. Walter Hückel; trans. and rev. by L. H. Long. Amsterdam-Houston: Elsevier, 1951. 653 pp. $13.50.

The purpose of this treatise, as stated in Volume I (SCIENCE, **113**, 253 [1951]), is to provide inorganic chemistry with a basis for its systematization: "Namely, a structural and constitutional theory in one embracing representation." In this volume the author discusses the volatile inorganic molecules, crystal structure, silicate chemistry, metallic substances, and the chemical reaction in inorganic chemistry.

After studying the two volumes, the reader is still looking for the "one embracing representation." The closest approach to a basis for systematization is the emphasis on bond types and interatomic distances, but there is not even a table of bond energies, and the thermodynamics of inorganic chemistry is completely neglected.

As a summary of the literature on the structure of molecules and crystals, the volumes are to be commended. The discussion of ionic radii and lattice forces in Volume II is good, and the comparison of the values given by Goldschmidt, Pauling, and Zachariasen is useful. Unfortunately, the reference to the work of Zachariasen is to his 1931 paper and does not include his revised values.

In the treatment of the strength of acids and bases