roew) goes in some detail into the problems of the "word," the interplay between dictionary and machine concepts of word, organization and size of machine memory and its connection with relative frequencies and other characteristics of language.

The sixth essay (Locke) deals with the possibility of spoken, rather than written input, the seventh (Booth) with storage (memory) devices, and the ninth (Reifler) with the mechanical determination of meaning. The emphasis is on German, for which somewhat detailed analysis is given. Grounds are shown to exist for hoping that human preediting (to match text to machine capabilities) or postediting (to make the raw output more palatable linguistically) can be eliminated. A simplified English suited to the machine is exhibited next (Dodd). It is readily comprehended and sufficiently close to conventional English that a trained typist could simultaneously translate and type the input with little loss of speed. It may well be less expensive to take this approach initially than to handle the raw natural language with a machine capable of dispensing with preediting. Some practical development problems (Perry) of the general field are then treated; these are followed by a discussion of idioms (Bar-Hillel). The notion that idioms might foredoom mechanical translation to failure was dispelled for this reviewer, for an enlarged dictionary and more complicated searching are most of what idioms entail. Logical concepts for syntax (Wundheiler) and a discussion of syntax and the problem of multiple meaning (Yngve) close the book.

The problem of technical translation alone is so pressing that development of mechanical methods is more than welcome. This book should be valuable not only as an excellent introduction to the field and a stimulus to further research; it may well help generate support for large-scale attack on the problem. It does not seem rash to assert that mechanical translation is not only possible but feasible and that it is fraught with profound implications for the future.

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The Technology of Solvents and Plasticizers. Arthur K. Doolittle. Wiley, New York; Chapman and Hall, London, 1954. xv + 1056 pp. Illus. $18.50.

This book covers an astoundingly wide field of phenomena with a remarkable degree of detailed information and fundamental approach to all individual cases. For the scientific research worker, it is very valuable because it contains much factual and numerical data on a large number of important substances; for the chemist in industry, it is of equal importance because it provides him with simple and lucid explanations of such fundamental phenomena as solubility, compatibility, viscosity, and rheology. It is a real bridge between scientific approach and practical attitude; only a man like Doolittle, who is thoroughly and fully familiar with both fields and has contributed substantially to each of them, could successfully tackle this task and come out with a book of this scientific level and of this eminent practical usefulness.

First comes a general survey on solvent and plasticizer utilization and on the technology of resinous materials; there follows an enumeration of individual high polymers, such as cellulose nitrate, vinyl-type polymers, phenolics, urea- and melamine formaldehyde condensates, and other coatings and finishes.

The next chapters are devoted to the description of special adhesives and solvents, their physical properties, physiological action, and commercial handling.

Then three chapters that are more theoretical in character are added: viscosity of liquids, theory of solvent action, and principles of plasticization. A very complete and detailed description of the essential properties of all important plasticizers is given.

The text is presented in an attractive and pedagogic fashion; it contains many instructive tables and well-selected figures, which add a great deal to the educational character of this volume. Everybody who is interested in the field of solvents, resins, and plastics will profit greatly from this book and offer his thanks and appreciation to its author.

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Electroplating Engineering Handbook. A. Kenneth Graham and H. L. Pinkerton, Eds. Reinhold, New York, 1955. xix + 650 pp. $10.

This very complete compilation of engineering data has been assembled by a staff of associate editors and more than 40 experts in various phases of the electroplating industry. The authors of the chapters are identified and are all well-known experts. Each chapter is provided with a short list of references to the technical literature. A 10-page glossary follows the table of contents, and an adequate 24-page index is placed at the end.

The subject matter has been selected to assist a manufacturer to set up and equip a plant that will utilize electroplating procedures, starting with the selection of the plant location and layout, and including the specification of plating equipment, low-voltage d-c generators or rectifiers, materials to line tanks, ventilation systems, and finishing equipment. Part I, "General processing data," provides instruction in the methods of preparing the surface to be plated, compositions of plating baths and methods to analyze them, methods of testing the adhesion and quality of the electrodeposited metal; it discusses industrial hygiene and safety, and finally, reviews current practice in the important problem of waste disposal. Part II, "Engineering fundamentals and practice," is concerned more with plant design and operation, based on the extensive industrial experience of the editors and their collaborators.

This handbook, thus, is thoroughly practical, yet includes enough theory to support the recommendations. For example, in the chapter on "Rinsing," the applicable equations are developed to establish the most efficient rinsing cycles that utilize a minimum quantity of rinse water. A comparison is made of multiple countercurrent rinsing, spray rinsing, and spray and dip rinsing. The chapter even includes a discussion of ion-exchange resins to demineralize the effluent. Each phase of the electroplating industry is treated equally exhaustively.

This handbook will undoubtedly remain the standard reference work on commercial electroplating for a long time and will be used extensively in college courses in industrial chemistry and chemical engineering. In making it available, the editors and publishers have performed a useful service.

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New Books

Glossary of Selected Geologic Terms. With special reference to their use in engineering. Colorado Scientific Society Proceedings, vol. 16. The Society, Denver, 1955. 165 pp. Paper, $2.75; cloth, $3.50.

My Hobby Is Collecting Rocks and Minerals. David E. Jensen. Hart, New York, 1955. 122 pp. $2.95.

Science and the Course of History. Pascual Jordan. Trans. by Ralph Manheim. Yale Univ. Press, New Haven, Conn.; Oxford Univ. Press, London, 1955. 139 pp. $2.50.

The Contriving Brain and the Skillful Hand in the United States. Something about history and philosophy of history. James C. Malin. The author, Lawrence, Kan., 1955. 436 pp. $3.50.

Problems and Control of Air Pollution. Proceedings of the First International Congress on Air Pollution held in New York City, 1–2 Mar. 1955, under the sponsorship of the Committee on Air-Pollution Controls of the American Society of Mechanical Engineers. Frederick S. Mallette, Ed. Reinhold, New York; Chapman & Hall, London, 1955. 272 pp. $7.50.