destruction on a wholesale basis. It marks, therefore, a turning point in the broad history of civilization.''

On 27 June 1940, the National Defense Research Committee, the parent organization of OSRD, was created by President Roosevelt, with Vannevar Bush, president of the Carnegie Institution of Washington, as its chairman. The other initial members of the Committee were Frank B. Jewett, president of the National Academy of Sciences, and Conway P. Coe, Commissioner of Patents, both *ex officio*; President James B. Conant, of Harvard; President Karl T. Compton, of the Massachusetts Institute of Technology; Dr. R. C. Tolman, of the California Institute of Technology; and an official representative each of the Army and the Navy.

From the first, Bush delegated responsibility to division heads, named from among the members of the Committee. He also early set the plan of operation of OSRD by directing that, instead of starting vast new Federal research organizations, the pattern rather was to be that of granting research contracts to universities, colleges, and industrial research laboratories for the study of specific problems.

Every American scientist now knows of the success of this policy. England, with a much simpler problem of the mobilization of scientific work, was also successful, but our enemies failed in their effort to bring civilian scientific brains effectively to the service of their nations at war. Prof. William Osenberg, who attempted the mobilization of German civilian scientists, said just before the surrender of his nation: ''Germany lost the war because of incomplete mobilization and utilization of scientific brains.'' A similar unfavorable statement can be made in regard to the use of civilian scientists in Japan.

The present volume is divided into six parts, as follows: 1, ''The Race for Superiority in New Weapons in the Second World War''; 2, ''New Weapons and Devices''; 3, ''Chemistry and the War''; 4, ''Military Medicine''; 5, ''Men and Machines''; and 6, ''The Atomic Bomb.''

The space allotted to this review does not allow a summary or critique of these sections. It may be pointed out, however, that the CMR (Committee on Medical Research) of OSRD, under the chairmanship of Dr. A. N. Richards, of the University of Pennsylvania, developed many procedures which were not only basic to war but are also of very great importance in peace. Similarly, many of the other scientific advances described in each section of the book have an important bearing upon the problems of our peacetime economy. This is especially true of some of the work done by psychologists under OSRD contracts in the development of new techniques of selection and training.

The final climactic section of the book summarizes in brief compass the great adventure of the utilization of atomic energy in warfare. In thinking of this achievement one must never forget that no one has yet successfully challenged the estimate that the atomic bomb, by forcing the surrender of Japan while its armies were still intact, may well have saved the lives of 1,000,000 American and 250,000 British fighting men.

This review can best close by quoting some of Baxter's wise observations upon the implication for the future of this development of atomic energy as an instrument of warfare:

''At the close of earlier wars, sensible men and women have demanded that international anarchy be supplanted by international organization and that swords be turned into plowshares. But the good resolutions of the morning after have not yet become the basis of durable peace. . . .

''Until the world creates an international organization strong enough to control the genie who escaped from his bottle at Alamogordo, we must keep our powder dry. . . .

''What we need is military strength without militarism and realistic advancement of the structure of world peace without the self-deception to which pacifists are liable.''

It will be difficult for anyone to read this book and not become an advocate of a strong, federally supported science organization to continue the research necessary for our future military preparedness and for the solution of basic peacetime problems as well.

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Encyclopedia of hydrocarbon compounds, C_1 to C_8. **Joseph E. Faraday. (Compiler.) Brooklyn, N. Y.: Chemical Publishing Co., 1946. $15.00.**

In the foreword of this book the author writes as follows:

''In the literature of Organic Chemistry there are two comprehensive works that detail every compound known, identified and analyzed up to a certain date. These are 'Richter's Lexicon der Kohlenstaff Verbindungen' and 'Beilstein's Handbuch der Organischen Chemie.' They suffer from the great disadvantage that they are decades out-of-date, from the minor drawback that they are in German, and in the case of Beilstein, from a very complicated system of arrangement.

''The Encyclopedia of Hydrocarbon Compounds overcomes these disadvantages. The arrangement as a loose leaf system allows it to be kept permanently up-to-date by the issue of regular supplements of sheets to be inserted in their appropriate places. The system of arrangement of the compounds is the formula index system of Richter, one of the simplest possible.

''The source of all information up to January 1, 1919, has been Beilstein's Handbuch der Organischen Chemie, the main work and the first supplement. . . . The sources of information from January 1, 1919, to the present day have been the three great abstract journals of Chemistry, namely British Chemical Abstracts, Chemical Abstracts and Chemisches Zentralblatt. . . .''

The following information is presented in the case of each compound, where available: molecular formula, expanded structural formula, names, occurrence, known methods of preparation (with references), melting and freezing point, boiling point, density, and solubility in organic solvents.

Supplements are planned to be issued yearly, on two types of sheets, one for new compounds and one for additions.

The system of arrangement is that of "Richter's Lexicon der Kohlenstaff Verbindungen" in so far as it applies to compounds of carbon and hydrogen only. The elements are given in the order: C, H, D, T. The last two symbols represent the deuterium and tritium isotopes of hydrogen.

The compounds are arranged first into classes according to the number of carbon atoms in the molecule, and second into groups within each class according to the number of hydrogen atoms. Deuterium and tritium compounds are placed immediately before the corresponding all H^1 compound in order of the number of deuterium or tritium atoms, the largest coming first, e.g. CD_4, CHD_3, CH_2D_2, CH_3D, CH_4.

Compounds of the same molecular formula are arranged further according to the degree of unsaturation, with saturated compounds first. A double bond is one degree of unsaturation; a triple bond, two degrees. These compounds are then arranged according to the occurrence of double and triple bonds. Two double bonds precede a triple bond. The aromatic nucleus is regarded as saturated. Still further arrangements include those according to the longest straight chain or largest cyclic system of carbon atoms, the greatest coming first, and those according to the length of the largest substituent group, the smallest coming first, e.g. two methyl substituents precede an ethyl substituent.

The system of nomenclature follows very closely the "International rules for naming organic compounds" (*J. Amer. chem. Soc.*, 1933, 55, 3905).

A total of 554 references are given to the preparation of methane, 66 for n-pentane, 70 for isopentane, and 13 for neopentane. Similar relatively large numbers of references are given for the preparation of the other compounds.

The summaries of physical properties are only of very general value because of their incompleteness and noncritical selection of data.

The encyclopedia will be useful mainly to organic chemists interested in the synthesis of these hydrocarbons and to physical and petroleum chemists interested in reactions involving these compounds.

This book is recommended to those interested in finding recorded in one place references to substantially all the published methods of preparation of these hydrocarbons.

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Genera et species plantarum argentinarum. **(Vol. 1.) (Ed. by National University of Tucumán.) Buenos Aires: Fundacion Miguel Lillo, 1943. Pp. xxi + 331. (Illustrated.) 160 pesos.**

During recent years there has been an ever-increasing output of botanical studies from the city of Tucumán, situated near the base of the Andes in northwestern Argentina. This has been quickened by the foundation, a decade ago, of the Botanical Institute that bears the name of Tucumán's distinguished botanist, Miguel Lillo (1862–1931). The journal *Lilloa*, initiated in 1937, has shown a rapid development in the number and quality of its botanical papers and a corresponding excellence in the technique of its printing and illustrations. Now we welcome from the Instituto Botanico one of the most sumptuous volumes, as to format, printing, and illustrations, that has ever been produced in the New World; in these matters it compares with the royally supported expedition reports of a century ago rather than with the usual scientific papers of our time.

The work, bound in heavy, light green cloth, is a folio of 331 pages, its firm sheets measuring 34×50 cm. Its first pages give dedications to various persons, some of whom are public officers and others those in authority at the University and the Institute in Tucumán. The last page tells in some detail of the mechanical production of this volume, recording those in charge of each stage of the processes of printing and engraving and stating the size of the edition which has been both directly printed on special paper and reproduced by an offset method.

The actual text of the book, which employs both Spanish and Latin, contains accounts of three families of flowering plants. To these are added "Icones Plantarum Argentinarum," a series of 11 beautiful paintings of miscellaneous flowering plants, unaccompanied by descriptive text. The three families considered are illustrated by similar plates, except that only a small proportion of them are colored. Of these families the Zygophyllaceae, with text prepared by H. R. Descole, C. A. O'Donell, and A. Lourteig, contain 7 genera and 16 species, each specially treated and mapped; the Cactaceae, by A. Castellanos and H. Lelong, comprise 26 genera duly distinguished on an analytical key, but there is no consideration of individual species; while the Euphorbiaceae, by A. Lourteig and C. A. O'Donell, are elaborated with a key to the 25 genera as well as keys to the species of all except those of the large genera, *Croton, Julocroton,* and *Euphorbia.* Ninety-five such species are considered.

The current numbers of *Lilloa* carry papers of a more technical nature that supplement the accounts of special families under consideration. The above authors have thus treated the Zygophyllaceae (*Lilloa*, 1940, 5, 257–352) and the Euphorbiaceae (*Lilloa*, 1943, 9, 77–177), with special discussions, ample citation of specimens studied, etc. Perhaps a similar additional account of Cactaceae is forthcoming, or perhaps this family is to rest for the present on the classic work of Britton and Rose.

It is the merit of the plates, and especially the beauty of those in color, that will constitute the permanent value of this work. If the project should be carried to fulfillment, this is merely the first of many such volumes. The whole will constitute a magnificent presentation of the Argentine flora.

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