fifty products have been isolated from cultures of many more different moulds: they appear to be relatively simple compounds, for the molecular structure of many of them has been established, and in some cases they have also been synthesized. Raistrick and others have now described the isolation and properties of two of these compounds. Citrinin is formed by *Penicillium citrinum,* and penicillic acid—a quite different substance from penicillin—was first detected many years ago in *Penicillium puberulum,* found in mouldy maize, but has been obtained for this work in larger quantities from *Penicillium cyclopium.* When a suitable culture medium is used the yield of these substances is as large as 2 grammes per liter, and the processes of extraction and purification are simple; it appears also that the resulting products are stable. The investigation of citrinin and penicillic acid for biological activity has so far only reached the stage of simple *in vitro* tests of power to inhibit bacterial growth in broth. This power is possessed by both to a degree which ranks them below penicillin in activity against certain bacteria, a degree, nevertheless, which ought to be effective therapeutically should their application prove feasible. Citrinin acts almost exclusively on Gram-positive species; penicillic acid has also the power to inhibit the growth of the Gram-negative intestinal bacteria.

It was shown by Florey and his colleagues in various ways that penicillin exerts its bacteriostatic action not only in plain broth but in the presence of high concentrations of serum protein. Whether this is also true of citrinin and penicillic acid remains to be seen; from their similar derivation and behavior an affirmative answer is to be expected. It is an even more important point in favor of penicillin that it can be shown in many ways to be singularly harmless to the living cells of the body; this is another character which awaits investigation in these two new compounds, and unfortunately it is not one which can confidently be predicted, because some antiseptics of microbic origin are highly toxic. Raistrick and his colleagues are careful to point out that until the necessary biological tests have been made it should not be concluded that citrinin and penicillic acid will take their places as chemotherapeutic agents. They emphasize, nevertheless, that if such tests should prove favorable these compounds have an immense advantage over penicillin in that their large-scale production would be a comparatively simple matter. Their yield per liter of medium is actually two hundred times greater, and extraction is by a simple process. It is also noteworthy that their molecular structure is known, and although neither has yet been synthesized a study of the biological properties of related synthetic compounds might well yield interesting results.—*The British Medical Journal,* March 14, 1942.

SCIENTIFIC BOOKS

CHEMISTRY

This Chemical Age. By WILLIAM HAYNES. xxxii + 385 pp. Illustrated. New York: Alfred A. Knopf. 1942. $3.50.

THIS is a fascinating historical narrative of the miracle of man-made materials, by an author whose previous writings of this nature are well known. Sixteen full-page plates in stunning colors immediately set the layman in a receptive mood for this family album of familiar faces, of facts and figures, of historical anecdotes and of bits of characterizations.

The story of dyes (three chapters) starts with Perkin and leads through synthetic mauve, alizarin and indigo to the breaking of the great German Dye Trust and the birth of industrial organic chemistry in America.

Drugs (two chapters) relate the stories of quinine and of salvarsan, with an especially up-to-date family history of sulfanilamide in which we see Domagk and the I.G., Colebrook in London, and Long and Crossley in America.

Rubber (three chapters) shows Macintosh and his cheap solvent for rubber, Goodyear's vulcanization process, Oenslager's compounding of rubber, closing with a résumé of modern rubber substitutes, neoprene, Thiokol and butadiene rubbers.

Petroleum (one chapter) flows from Titusville to iso-octane; but Houdry and alkalation are too young to be included in the album.

Textile fibers (three chapters) stretch from Chardonnet rayon to Carothers' nylon polymers and include lanital and Aralac from milk.

Plastics begin with Hyatt's celluloid and end in the next chapter with Bakelite. Unfortunately, the newer polymerization plastics, such as the methacrylates, are scarcely mentioned. Separate chapters review the history and chemistry of perfumes, the Hercules Powder Company's program for naval stores and Creighton's electrolytic processes.

A final interesting chapter on "Our Chemical Armory"—potash, nitrogenous explosives, chemical war gases and incendiary bombs—is included for enthusiastic air-raid wardens.

A simple glossary and a splendid index conclude the book.

The freely flowing narrative is marred, at times, by inaccuracies of the most elementary chemistry—for instance, phosphorus is classed as a metal on page

368—but it is to be hoped that a reprinting will rectify these minor errors so that these well-told tales, and they are indeed well-told, of the rise of chemical industry may be passed on to the young people of America, and not lose scientific accuracy in their telling.

H. N. ALYEA

PRINCETON UNIVERSITY

Organic Chemistry (with applications to pharamacy and medicine). By ELDIN V. LYNN.

AN elementary text-book of organic chemistry. The treatment of the major classes is conventional and adequate for an elementary text. At the end of each chapter dealing with group properties reference is made to the properties and the uses of the more important medicinals and pharmaceuticals falling in that group. When important medicinals fall into a subordinate class they are placed in one of the major classes for discussion. Thus the chapter on aromatic acids contains references to alypin, saccharin, halazone, butesin, procaine, mandelic acid. The treatment of the major groups is adequate for an elementary text, but the treatment of the more complex groups—the sterols, heterocycles, alkaloids, dyes, etc.—becomes heavily weighted with a description of chemicals and very lightly weighted with group properties. The text should be of interest to colleges of pharmacy and teachers of premedical students. Review questions follow each chapter. The format and style are both very good.

GARFIELD POWELL

SOCIETIES AND MEETINGS

THE KANSAS ACADEMY OF SCIENCE

THE seventy-fourth annual meeting of the Kansas Academy of Science was held at Hays, Kansas, on March 26, 27 and 28, with Dr. F. C. Gates, Kansas State College, Manhattan, Kansas, presiding. The following other state societies held their meetings in cooperation with the academy: The Kansas Association of Teachers of Mathematics, the Kansas chapter of the Mathematical Association of America and the Kansas chapter of the American Association of University Professors. The Kansas Entomological Society, which is affiliated with the academy, held its eighteenth annual meeting on April 4, in Lincoln, Nebraska. The Weather-Crops Seminar, another affiliated society, held its meeting at Lawrence on December 6, 1941.

The academy program opened on Thursday evening with an illustrated lecture by Dr. A. C. Kinsey, of Indiana University, on "Bug Hunting in Mexico."

Section meetings were held during Friday by Botany, Chemistry, Geology, Junior Academy, Physics, Psychology and Zoology as well as a special program at 11 A.M., at which Dr. A. C. Kinsey, of Indiana University, presented a special paper entitled "Studies in Human Behavior." The Biology Teachers and the College Students held their section meetings on Saturday morning.

At the annual banquet on Friday evening, President Elect R. H. Wheeler presided as toastmaster. The address of welcome was given by Dr. L. D. Wooster, president of Fort Hays Kansas State College, and dealt with the challenge of the hour to science. Several of the older life members were present and they were introduced to the group.

Mrs. Otilla Reagan, donor of the Albert B. Reagan memorial fund, attended the meeting and spoke briefly of some pamphlets on the life and work of Dr. Reagan which she has for distribution.

The banquet was followed by the annual public meeting. The address for this meeting was the presidential address given by President Gates. He used as his subject "Plant Succession," accompanying the discussion with lantern slides, not only illustrating plant successions in various parts of the world but also exhibiting some economic applications involving the principles of succession.

The Saturday morning program consisted of a business meeting and a geological field trip to the Fossil Chalk Beds. At the business meeting Professor Agrelius, of Kansas State Teachers College, Emporia, reported the death of the following members: Malcolm J. Brumwell; Ellsworth Brownell Knerr, M.D.; Dr. Ulysses Grant Mitchell, Dr. Clarence Edmund Rarick and Dr. John Eric Welin. Dr. W. H. Mikesell, of the University of Wichita, chairman of the committee on educational trends, gave a report of an extended study of the psychology course as given in the high schools in the state, together with a statement of the type of textbook desired by high-school teachers of psychology. The winners of the awards in the Junior Academy meeting were announced by Dr. L. D. Wooster. Ernest Sellers and Dorothy Krey, both of Manhattan, were awarded the honorary junior memberships in the American Association for the Advancement of Science for the coming year.

The academy registration was 225. In addition, the Junior Academy had a registration of 60; the Kansas Entomological Society 45; the Mathematical Societies 75; and the University Professors 35.

The reports from the section chairmen on their sections is presented herewith in Table 1.

It was decided that a section for college students