Book Reviews

Cottrell—Samaritan of Science. Frank Cameron. New York: Doubleday, 1952. 403 pp.; index. $4.50.

Frederick Gardner Cottrell was an accomplished scientist, a catalyzer of scientists, and a benefactor of science. But above all he was a man of integrity who steadfastly refused to compromise his ideals and whose vision for mankind was frequently ahead of his times. This is a clear account of his life and work which practically all scientists—and many in other fields—may read with interest and profit.

Cottrell was born in Oakland, California, on January 10, 1877. After a boyhood in which he exhibited much ingenuity and a flair for things scientific, he entered the Chemistry Department of the University of California. Here, his dynamic and original approach to problems jolted many instructors out of the worn paths of the textbooks into the trackless jungle of original investigation, and his broad interest in many fields earned from one professor the caustic comment, "Cottrell wanders all over the lot."

After graduation, Cottrell set out for Germany for additional study, visiting most of the important university and industrial laboratories en route. At first, he studied with van't Hoff at the University of Berlin. Later he worked in the laboratory of Ostwald at Leipzig, receiving his Ph.D. degree there after solving a difficult problem which many of his fellow-researchers had refused to tackle, and one which had baffled even Ostwald himself. His Ph.D. examination was passed *summa cum laude,* and van't Hoff commended his thesis as remarkable for its "originality and vigor."

Back at the University of California as a member of the Chemistry Department staff, Cottrell threw himself into his own research program. Soon he had developed a method for the electrical precipitation of smoke, dust, and fumes which led him into industrial applications of his work. He later assigned the patents for this process to the Research Corporation, which he was instrumental in organizing as an agency for developing patents and making grants for basic research.

Cottrell also participated in the formation of the International Auxiliary Language Association, an organization that grew out of investigations undertaken after World War I by committees of the International Research Council, by the American, British, French, and Italian associations for the advancement of science, the American Council of Learned Societies, and other groups of specialists. Cottrell's interest in an international language dated back to 1902, when at a "student Sunday" social gathering at Ostwald's home a discussion of an international language had taken place.

After many years of industrial and governmental work, which took him many times to Europe and less frequently to Tokyo, Cottrell returned to California for his twilight years. Here he died on November 16, 1948, while attending a National Academy of Sciences meeting in Berkeley.

As Ernest O. Lawrence says in the foreword: "It is always an inspiration to oncoming generations to read about the lives of good men who, through their spirit as well as their works, make contributions of lasting importance."

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Range Management: Principles and Practices. Arthur W. Sampson. New York: Wiley; London: Chapman & Hall, 1952. 570 pp. $7.50.

The author has combined many years' experience in research, teaching, and observation to produce this comprehensive treatise. The book is written from both an academic and a practical viewpoint. The broad and inclusive subject of range management is covered under four subdivisions. In the first part, "Range Management in Perspective," the world's grazing practices and problems, physiological and ecological principles as applied to range management, characteristics of grazing lands, and the historical development of grazing in America are discussed.

"Native Range Forage Plants" consists of illustrations and descriptions of the more important range grasses, forbs, and shrubs. This subdivision includes a rather large amount of taxonomy and morphology and, although basically important to practical range management, may be considered by many to be out of place in a range management text. With the author's background of experience, the information presented here might well have been developed into a separate textbook on the taxonomic and morphologic characteristics and the grazing value of range plants.

"Improvement and Management of Range and Stock" includes those management practices—reseeding, noxious plant control, grazing systems, supplemental feeding, water developments—that are common to all livestock producers. Technical problems of range condition, forage utilization, range surveys, management plans, and the economic, physical, and social aspects of ranching are presented.

"The Protection of Range Resources and Range Livestock" is the subject of part four. Ways to avoid damage by livestock to timber reproduction, descriptions and pictures of poisonous plants, foraging and predatory wildlife of the range, soil erosion, and administration of the public grazing lands are included in this subdivision.

The objective of this book is to point out that care and management of the nation's range resources should be based on knowledge gained through years of observation, research, and scientific analysis. Broad principles, rather than specific applications, are outlined. Numerous illustrations, a bibliography at the end of each chapter, and definitions of terms