If we consider the less spectacular but no less real danger which lurks in an impure water supply or a mosquito-infested swamp or a polluted stream, again we find that it is the engineer who is protecting the public from danger.

(To be concluded)

OBITUARY

FREDERICK VERNON COVILLE

DR. FREDERICK V. COVILLE, principal botanist in the U. S. Department of Agriculture, honorary curator of the U. S. National Herbarium under the Smithsonian Institution, and acting director of the National Arboretum, died at his home in Washington, D. C., on January 9, of coronary thrombosis sustained a week earlier. He was born in Preston, N. Y., on March 23, 1867, and was married in 1890 to Miss Elizabeth Harwood Boynton, who with three sons and one daughter survives him. He is best known for his achievements in botanical and agricultural research, but his interests were many and his contributions in widely different fields, particularly that of public welfare, were noteworthy.

After graduation at Cornell University (A.B., 1887), Dr. Coville taught there a short time, served as botanical assistant on the Arkansas Geological Survey, and in July, 1888, was appointed assistant botanist in the Department of Agriculture. In 1893 he succeeded Dr. George Vasey as botanist and as curator of the National Herbarium, then in the custody of that department. Upon the reorganization of scientific work within the Department of Agriculture in 1901 he was placed in charge of botanical investigation and experiment in the newly created Bureau of Plant Industry and, under varying titles, continued in that capacity during the remainder of his life.

Dr. Coville's most important field work was that as botanist of the famous Death Valley Expedition in 1891, the results of which were published two years later as "Botany of the Death Valley Expedition." This volume, one of the earliest critical studies of desert vegetation, is classic. It is a characteristically thorough piece of work, composed in the simple lucid style that distinguished all his writing, and aside from its precise identification of species is notable for the introductory chapters on ecological plant geography, based on personal observation and study, which present a searching analysis of the climatic and edaphic features of the region in their relation to its vegetation. Dr. Coville's keen interest in desert plants never waned. Later, as adviser to the Carnegie Institution of Washington, he procured the foundation of the Desert Botanical Laboratory near Tucson, Ariz., and at the time of his death was engaged in writing a popular but detailed flora of Death Valley, which should take account of much new material, including specimens collected by himself on three recent trips (1931–32).

In purely taxonomic work Dr. Coville devoted himself especially to the rushes (Juncaceae), in which he was long the acknowledged American authority, and to our native currants and gooseberries (Grossulariaceae), of which, jointly with Dr. N. L. Britton, he published a systematic treatment in "North American Flora." Many papers in his list of nearly 175 titles include descriptions of new species in other families, as well as discussions of nomenclature and matters of bibliography; others trace in detail the routes of early botanical exploration in the West; still others relate to ethnology and to the plants used by the American aborigines; and more than a few, based on personal studies in the western United States, deal with practical problems of grazing and forestry. Assisted by Mr. W. F. Wight and others he prepared the botanical definitions for the revised edition of the Century Dictionary. The final establishment of a National Arboretum was due largely to his perseverance and his unflagging devotion to the project. For many years also he served as chairman of the Research Committee of the National Geographic Society and thus was influential in determining its policy of exploration.

On the score of public service there may here be quoted an expression of opinion received from Gifford Pinchot, first forester of the United States:

> Until the Forest Service developed a body of experts of its own, Frederick V. Coville was the first and the earliest authority on the effect of grazing on the forest.
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> In February, 1898, the old Division of Forestry published a bold and masterly discussion by Dr. Coville on forest growth and sheep-grazing in the Cascade Mountains of Oregon, which went straight to the root of a very bitter controversy. In this study Dr. Coville laid down the essentials of a sound and far-sighted grazing policy.
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> When a vital issue arose, in 1902, between the irrigation farmers of the Salt River Valley in Arizona and the woolgrowers who ran their sheep on the irrigators' watershed, Dr. Coville's unequalled experience of grazing and plant life was called in. He and I made an extensive study on the ground, accompanied by representatives of the contending sides, and settled that and other questions. Our report rested on Dr. Coville's profound field knowledge of his subject, indefatigable thoroughness, and conspicuous fairness and common sense. He was already my friend, but that trip laid more deeply the foundations of a friendship which lasted throughout his life.
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> In 1905 the Public Lands Commission published Dr. Coville's proposals for the regulation of grazing on the public lands. Then and later his advice was in demand. His part in formulating a national grazing policy was that

of the pioneer. If Dr. Coville's advice had been taken, the West would have escaped vast losses which have since fallen upon it.

From 1910 onward, however, experiments in blueberry culture took precedence of his other interests, and it was this investigation in cultivating, hybridizing and selecting improved strains of the blueberry plant that gave full play to Dr. Coville's special abilities—his keenness of observation and fine technique of workmanship, and an almost infinite patience in following out details. Many collateral problems had also to be solved—in particular, the effect of soil acidity upon plant growth and the stimulating rôle of cold—with the final result that large-fruited "domesticated" blueberries, in many fine varieties, are now securely established as a profitable commercial crop in the acid sandy soils of our eastern coastal plain. Largely through his work and writing the artificial acidulation of soils and the basic requirements in the culture of acid soil plants are matters of general knowledge at present.

Notwithstanding this record of accomplishment, Dr. Coville's time seemed never his own. Of unusually broad interests and possessed of sound judgment in practical matters, he was constantly besought for advice upon all sorts of questions and projects by many who knew his never-failing spirit of helpfulness. His friendly cooperation was proverbial; equally his comment, based on quick perceptions and a wide experience, was penetrating and apposite. As the necessary starting-point and background for economic work with plants he always emphasized the importance of sound taxonomic studies. Himself a clear thinker, he was imbued with almost a passion for accuracy and precision. Thus his influence over a long period of years was uncommonly helpful and inspiring to younger men within the department and it was effective also in a far wider scientific and educational field, where it will be sorely missed. He will long be missed also in other walks of life, for he had in high degree that quick unaffected and sympathetic interest in people that is the genius for friendship.

Erect and well over six feet in height, Dr. Coville was of distinguished bearing; in college he had been an outstanding athlete. He was conservative and of great natural dignity; but coupled with this there were boyish enthusiasms that had to be shared with his friends, and those who had the privilege of out-of-door association with him will cherish their recollections of his comradeship. A field trip, even a walk through familiar woods, took on new possibilities of enjoyment from his awareness of the surroundings and his keen interest in every living thing therein, and was bound to yield new information or help to satisfy some question to which his inquisitive spirit seemed always to lead. He had moreover a profound appreciation of beauty in nature —a depth of feeling that often enough is smothered by matter-of-fact scientific accomplishment. His mind was stored with a lifetime's recollections of field incidents, of plants in a particular setting, and of other natural phenomena, and on occasion these memories would be brought forth as vividly as if the happenings or scenes were of yesterday, and, one may add, with astonishing detail as to essentials. Out of an active mind so equipped, trained and stored, the new "Death Valley Flora" would have been a fitting sequel to his earliest and most important botanical work. That he could not complete this upon retirement from government service, which would have followed shortly, will be a matter of general regret. But to those who knew Dr. Coville well a sense of personal loss will prevail, in the passing of a friend in whom steadfast loyalty and consideration were never wanting.

WILLIAM R. MAXON

SMITHSONIAN INSTITUTION

RECENT DEATHS AND MEMORIALS

DR. ELIHU THOMSON, of the Thomson-Houston and General Electric Companies, director of the Thomson Research Laboratory at Lynn, Mass., died on March 13 at the age of eighty-three years.

DR. WILLIAM HARDING LONGLEY, professor of biology at Goucher College since 1919, in administrative charge of the Marine Laboratory in Tortugas of the Carnegie Institution of Washington, died on March 10 at the age of fifty-six years.

DR. RANDOLPH WINSLOW, emeritus professor of surgery at the school of medicine of the University of Maryland, died on February 27 at the age of eighty-four years.

DR. ARTHUR RUDOLPH MANDEL, professor of clinical pathology at New York University Medical School, died suddenly on March 7. He was fifty-nine years old.

DR. ALFRED DOUGLAS FLINN, since 1922 director of the Engineering Foundation, formerly deputy chief engineer of the Board of Water Supply of the City of New York, died on March 14 at the age of sixty-seven years.

WILLIAM TAYLOR, inventor and maker of improvements in scientific apparatus, especially lenses, governing director of Taylor, Taylor and Hobson's, Leicester, England, died on February 28 in his seventy-second year. He was elected a fellow of the Royal Society in 1934, and was a member of the Council of the National Physical Laboratory and past president of the Institution of Mechanical Engineers.

Nature states that to commemorate the services of