TABLE 6
NATIONAL SELF-SUFFICIENCY IN MAJOR MINERALS

	Br. Emp.	U.S.A.	U.S. S.R.	France and Dep.	Germany	Italy	Japan
Coal	1*	1	1	1	1	2	2
Iron	1	1	1	1	2	3	3
Copper ...	1	1	2	3	3	3	2
Lead	1	1	3	3	1	2	3
Zinc	1	1	2	2	2	3	2
Nickel	1	3	3	2	3	3	3
Tin	2	3	3	3	3	3	3
Asbestos .	1	3	1	3	3	3	3
Petroleum	3	1	1	3	3	3	3

* Numerical order represents decreasing abundance in relation to national requirements.

stantially complete self-sufficiency, "2" partial or temporary self-sufficiency, and "3" definite lack of self-sufficiency.

From this it is evident that not a single one of the seven great powers is completely self-sufficient in supplies of the major minerals. The British Empire and the United States are, without question, in the happiest position in this respect. The U.S.S.R. is, I think, in a better relative position than that indicated by the table, since so large a part of her vast area is virtually unprospected. The other nations are very dependent upon international trade in minerals.

Nature has been generous in providing for man an abundant supply of the things he most needs, and will continue to provide for him, even though his wants be still further increased. Individual nations, on the other hand, are laboring under serious handicaps, largely self-imposed, and are suffering severely as a consequence. Let us hope they may eventually realize that the highest standards of living for their people can be attained only through international cooperation and world peace.

OBITUARY

EARL BALDWIN McKINLEY

THE disappearance of the Hawaii Clipper at sea on July 29 with its crew and passengers was a vital loss to medical education and medical research, for a passenger on this ship was a man who at the age of forty-three had risen to prominence and leadership in these fields. It was a great loss as well to various scientific societies in whose development this man had played a significant role. Every organization with which this leader came in contact felt the impact of his personality and was carried to higher levels of accomplishment. He was a man of the highest ideals, absolutely fearless in adhering to them. Original and ingenious in his ideas, he excelled in all these activities as well as in his research, to which he was devoted. Inspired by Novy and Vaughan while a medical student at the University of Michigan, his activity in research never faltered throughout all the administrative and organization work which engaged his attention. With apparently many years ahead of him for further outstanding accomplishments, it was a tragedy to have him disappear from our midst at such an early age; yet there is the satisfaction that Earl Baldwin McKinley was lost in the line of duty, seeking new knowledge, pioneering as was his wont.

Dr. McKinley was a passenger on the Clipper with Fred Campbell Meier, of the Department of Agriculture, for the purpose of making studies in aerobiology. These workers had become interested in the question of the transmission of various bacteria and pollens through the upper atmosphere over the high seas. McKinley also intended to continue his leprosy studies at Manila while awaiting the return of the Hawaii Clipper from its hop to China, and had made detailed arrangements for the skin testing of 500 lepers.

McKinley was born in Emporia, Kansas, on September 28, 1894, the son of Joseph Baldwin McKinley and Mary Elizabeth (Griffith). He left Emporia to enter the University of Michigan in 1912 and received his A.B. degree at that institution. His formal education was interrupted by the world war and soon after graduation he entered the service. Before leaving for overseas he married on June 23, 1917, Leola Edna Royce, a classmate of his at the University of Michigan. He served in the front-line trenches as an intelligence officer, and at the close of the war returned to this country, serving for a short time in the Medical Corps. In 1919 he re-entered the University of Michigan for his medical studies and became an assistant of Professor Novy. He accepted in 1922 the post of assistant professor in pathology and bacteriology in the College of Medicine of Baylor University. The next year he was made professor of hygiene and bacteriology and chairman of the department.

While at Baylor he continued his researches but, desiring further training, he resigned his professorship to become a fellow of the National Research Council and spent a year working under Jules Bordet at the Pasteur Institute of the University of Brussels. Upon his return to this country he accepted an assistant professorship of bacteriology at the College of Physicians and Surgeons, Columbia University. The following year he was made an associate professor, which post he held for only one year, resigning to become affiliated with the Rockefeller Foundation. During the year 1927–28 he served as field director of the International Health Board at Manila in the Philippines, and was a member of the Advisory Committee to the Governor General for the Control of Leprosy. At the completion of this work he again became a member of the staff

of Columbia University, being appointed professor of bacteriology of the College of Physicians and Surgeons and director of the School of Tropical Medicine at the University of Puerto Rico. In 1931 he was invited to the deanship of the School of Medicine, The George Washington University, a post which he held at the time of the flight of the Clipper. He also held the post of professor of bacteriology and executive officer of the department of bacteriology, hygiene and preventive medicine.

Both the School of Tropical Medicine and The George Washington University profited by his vision and organizing ability. During his régime the School of Tropical Medicine prospered both materially and scientifically. What he accomplished at the School of Medicine of The George Washington University was truly amazing. He brought the school into national prominence. With his driving enthusiasm and love of research he inspired all those about him to greater accomplishments. Throughout his deanship of seven years, he held uncompromisingly to his high ideals of medicine. What he did for the school can be no better stated than by what Dr. H. H. Donnally, professor of pediatrics in the Medical School, wrote of him soon after his disappearance:

> His place can not be readily filled for a long time. The next few years will prove how much George Washington will miss the leaven of science worked up by Dr. McKinley. . . .
>
> He was an inspiring leader and did many things to advance the school, to enrich its student life and to stimulate accomplishment by men composing the faculty. He was enthusiastic and sympathetic for our scientific aspirations and ambitions.
>
> He lived the adventurous life, explicitly so, and lost his life a martyr to scientific endeavor.

Perhaps the most amazing aspect of the career of McKinley was the research he was able to accomplish under the exacting administrative load that he carried for the greater part of his professional life. Communications on a variety of subjects appeared throughout his fifteen years of scientific endeavor. Such subjects as bacteriophage, toxic and insulin-like substances in fruit, effect of fresh adrenal cortex on the white rat, toxicity of globulins, effect of ultra-violet light upon phage and viruses, microbial respiration, cerebral circulation, herpetic encephalitis, *Leptospira icterohaemorrhagiae* in wild rats of the Philippines, experimental measles in monkeys, salivary gland poison of *Aëdes aegypti*, acute filarial lymphangitis, cultivation of *Mycobacterium leprae*, epidemic encephalitis, effects of tropical climate under experimental conditions, etiology of leprosy, geography of disease and sulfanilamide in virus diseases, are some of the subjects which engaged his attention and attested to his wide interests and to his versatility. His strongest interests, however, fell definitely along certain lines. These are unquestionably the phage, encephalitis, leprosy and the geography of disease. These subjects attracted his greatest efforts, and in each of these fields he made noteworthy contributions. There is reason to believe that time and history may record some of his contributions as landmarks.

Of perhaps equal value to McKinley's actual experimental contributions were his contributions to the field through his efforts on the behalf of and in the organization of various societies and committees. He was a man who could accomplish things. His time and energy were repeatedly called upon. He gave unstintingly of these and devoted himself unselfishly to the furtherance of these organizations. Men learned to lean upon him.

The society to which he devoted perhaps the greatest amount of time was the American Association for the Advancement of Science. He was in full sympathy with the purposes of this society and what it was doing, and threw himself wholeheartedly into the solution of problems facing the association, as a member of the executive council. He devoted likewise much time and effort to the problems of the American Leprosy Foundation and was secretary and member of the Medical Advisory Board for a number of years.

At the time of his trip on the Clipper, McKinley was president of the American Association of Pathologists and Bacteriologists, and was on the Executive Committee, Division of Medical Sciences of the National Research Council. He served on the editorial boards of the Society of American Bacteriologists and of the American Association of Immunologists. He was also a member of numerous other medical and scientific societies here and abroad.

McKinley possessed a great capacity for friendship and created innumerable friends, not only in the national capital and through the nation, but also in many countries throughout the world. From the many letters written to his family following the disappearance of the Clipper it was evident how dearly he was held in the hearts of his friends, how deeply they appreciated his kindliness and generosity, how they had counted on his advice and counsel and how they treasured his friendship.

Lastly, a tribute should be accorded the loyal companion whom he had by his side throughout all his endeavors, for Mrs. McKinley has ever graciously and sympathetically assisted him. He also had the pleasure of having two charming and talented guests in his home for 17 years and 19 years, respectively, his son, Royce Baldwin, and his daughter, Elsbeth Janet, to whom he has left a fine heritage "to carry on."

VINCENT DU VIGNEAUD

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