research quite as attractive as that in academic research. Thus came about the rapid expansion of industrial research of the last few years. This is a movement which we can expect to see repeated in many parts of the world where industrial research is still at an earlier phase of evolution.

This influence of the availability of scientists is interestingly illustrated in the chemical industry in Germany. In the early nineteen-hundreds the German universities turned out many more trained chemists than could find employment in teaching. These sought employment in industry, where great numbers were put to work in organized industrial research. The results of their efforts contributed to the tremendous technical advantage of Germany prior to the first World War, particularly in the field of organic chemistry. Since then the tables have turned, and the advantage in industrial research even in this special line is no longer with Germany. Nazi domination has stultified her science and has diverted its aims to the destruction of man rather than to his welfare. She has forced the rest of us to divert our aims in industrial research to her own destruction.

To-day, our great laboratories are engaged almost wholly in devising tools to destroy the anti-social, anti-scientific forces that threaten to stop the progress of scientific endeavor throughout the world.

When that task is done, industrial research will revert to its peaceful pursuits. As education in science expands, more workers in more lands will join the ranks of explorers who are widening the bounds of human knowledge. A new and larger crop of young scientists will bring forth the products on which new industries will be built. The welfare of all will be advanced to the detriment of none. Science demands a free world, and the workers in science will win it.

OBITUARY

FRANCIS RAMALEY

FRANCIS RAMALEY came to the University of Colorado in January, 1898. In his death on June 10, 1942, his adopted university, community and state lost one who had for forty-four years given unselfish service and loyalty. He left a permanent impression for good on the organizations with which he was associated, and his fine personal qualities will always be remembered by those who knew him.

Francis Ramaley was born at St. Paul, Minnesota, on November 16, 1870. He received his bachelor's and master's degrees from the University of Minnesota in 1895 and 1896. From 1895 until 1898, when called to the University of Colorado as assistant professor of biology, he was instructor in botany at the University of Minnesota. He received his Ph.D. degree from the University of Minnesota in 1899. In April, 1900, following the resignation through ill health of Professor John Gardiner, his predecessor at the University of Colorado, he was appointed professor of biology. From that time until his retirement in 1939 he was responsible for the administration of the department of biology.

Among other responsibilities which Professor Ramaley assumed during this period were those of acting president of the university in 1902, acting dean of the College of Pharmacy from 1917 to 1919, and acting dean of the Graduate School in 1929 and again from 1932 to 1934. He was editor of the University of Colorado Studies from its establishment in 1902 until his final illness this year, this appointment having been continued after his retirement from regular teaching duties. He was secretary of the Arts and Sciences Faculty for twenty years, and was a member of many important committees, some of which were extremely important factors in shaping the development of the university. In large part through his influence, chapters of Phi Beta Kappa and Sigma Xi were organized at Colorado at a time when the institution was still relatively small, the years of establishment of these chapters being 1904 and 1905, respectively. His good judgment was valued by his colleagues in both administration and teaching. Through a natural reserve he was averse to giving advice and help when it was not requested, but those who knew him best did not hesitate to ask for it. His advice was valued not only for its inherent worth but for the spirit of generosity with which it was invariably accompanied. Professor Ramaley never made one feel that he begrudged the time devoted to helping others.

In the classroom Professor Ramaley's lectures were marked by careful organization and perfect clarity. He maintained high standards of achievement and thoroughness, but presented the subject-matter in such a way that the most difficult aspects seemed simple. In spite of other responsibilities, he always assigned himself an average or above average teaching load. Nor was this delegated to others. He even graded his own quiz and examination papers. This was but part of his effort to treat students with complete justice. A few of his advanced students and colleagues have had the rare opportunity of extended field trips with Professor Ramaley. It was on such occasions that his qualities of good humor, patience and friendliness were much in evidence. I shall always look back with pleasure to a week in the San Luis Valley with Pro-

fessor Ramaley in the summer of 1931, my introduction to southern Colorado. It could not have been with a better guide.

Professor Ramaley's research, in which he persisted in spite of the demands of his position, was primarily in the field of plant ecology. Instruction in plant ecology was introduced by him at the University of Colorado as early as 1899. He was a pioneer in montane plant ecology. During his first years at Boulder he spent much time in the mountains, publishing many papers on the results of his studies on plant distribution in the Colorado Rockies. This interest was a factor in his establishment in 1909 of the University of Colorado Mountain Laboratory, at Tolland, Colorado, one of the first inland biological stations in America, which he directed until 1919. For many years he was interested in sandhill vegetation, one of his most extensive recent papers being "Sandhill Vegetation of Northeastern Colorado," published in 1939 in Ecological Monographs. His last published work was an extensive report on the "Vegetation of the San Luis Valley in Southern Colorado," which appeared in the University of Colorado Studies while he was confined to the hospital in his last illness. This was based on observations made during many trips to the valley during the past twelve to fourteen years. It was characteristic of his personal generosity that this paper was published "without expense to the University."

In addition to some seventy papers, primarily in the field of plant ecology, he was the author of several books, the best known being his "Colorado Plant Life" and (with W. W. Robbins) "Plants Useful to Man." His interest in economic botany seems to have been stimulated by his travels in the Orient in 1904. As a result of this trip semi-popular accounts of his observations in Java, Ceylon and Japan appeared in the *Popular Science Monthly*.

From the time of its organization, Professor Ramaley was active in the Ecological Society of America. In 1931 he was vice-president, and in 1940 president. During the last two years of his life he was botanical editor of *Ecology*. He was an active member of several other scientific organizations as well, including the American Association for the Advancement of Science (president of the Southwestern Division, 1930), American Society of Naturalists, Botanical Society of America, Limnological Society, Society for Experimental Biology and Medicine and the Colorado-Wyoming Academy of Science.

Associates in the community, while not always aware of Professor Ramaley's scientific or academic achievements, knew him in other connections, for he was active in community affairs. For many years he was a member of the Boulder school board. He attended services regularly at the First Congregational Church, Boulder, and served many years as a member of its board of trustees. He gave both time and financial support to all enterprises that made for a better community, for his family, his colleagues and his students.

Professor Ramaley is survived by his wife, Ethel Jackson Ramaley, and four sons.

GORDON ALEXANDER
UNIVERSITY OF COLORADO

LAURENCE S. MOYER

ON June 8 of this year, Dr. Laurence S. Moyer, professor of botany at the University of Minnesota, was killed while serving his country. The accident which caused his death was the collision of two blimps off the coast of New Jersey.

Dr. Moyer was a native of Norristown, Pennsylvania, and a graduate of the University of Pennsylvania. He was but thirty-five years of age. When brilliant men are taken early in life, one wonders where plan or purpose enters into this world of ours. Dr. Moyer was endowed with a strong character, a keen and analytical mind and a reserved but gracious manner.

While a student in a course on methods of research on protoplasm, he selected electrophoresis as a technique which promised much. His first work in this field proved the wisdom of his decision. He made use of the rate of electrophoretic migration as a means of classifying species. By analyzing mobility curves and grouping isoelectric points of latex particles from Euphorbias, Moyer was able to taxonomically classify the species of this genus. He thus had the pleasure of being the first to show that plant relationships when determined by a single physical property of the plant proteins fully agree with the morphological, chromosomal and geographical characters of the species.

Dr. Moyer soon turned his attention to the electrophoretic properties of proteins in general. In collaboration with his wife and Dr. Harold A. Abramson, he made many noteworthy contributions to protein chemistry. At the time of his death he had completed a volume on the properties of proteins ascertained by electrophoresis. The work was done jointly with Drs. Abramson and Gorin. For some time to come this book will remain the final authority on the subject.

Dr. Moyer is not to be judged solely by his research ability and his experimental findings. Equally great were his powers of interpretation, and equally fine his relationships with his fellow men. These adjuncts are as necessary to a complete fulfilment of a scientist's place in society as are his experiments. The mere collecting of data is futile if the findings are not applied, correlated and given thought; in short,