Bacterial genes are not immutable in function or in chemical composition. By careful sub-pasteurization, the above-mentioned trivalent gene can be fractionally denatured. Thus partially inactivated, it functions as a strictly monovalent gene, capable of symbiotic proliferation with only one narrow bacterial strain. Grown in repeated symbiosis with this strain, however, its two heterologous, heat-inactivated valences are regenerated.

In the relatively stable bacterium-gene-complex, the bacterial cell apparently does not function as an inert "carrier" of the ingrafted colloid. An aqueous extract of the stable complex yields an apparently new colloidal factor,[23] a gene-inhibiting component, capable of preventing its potentially lethal action.

SUMMARY AND CONCLUSIONS

About the only conventional law of genetics and organic evolution that is not definitely challenged by current bacteriologists is the nineteenth century denial of the possibility of spontaneous generation of bacterial cells. Even this is questioned by certain recent theorists in their hypothetical transformation of certain normal enzymes into "pathogenic genes" or "filterable viruses,"[24] and in their apparently successful synthesis of "Twort genes" by the chemical oxidation of certain heat-sterilized organic products.[25]

Whether or not future refinements in immunochemical technique can or will bridge the gap between the apparent Lamarckian world of bacteriology and the presumptive Darwinian world of higher biological science is beyond current prophecy.

OBITUARY

GEORGE OWEN SQUIER

MAJOR GENERAL GEORGE O. SQUIER (retired), distinguished army officer, engineer, inventor and applied scientist, died at Washington, D. C., on March 24, 1934.

George O. Squier was born at Dryden, Michigan, on March 21, 1865. He early showed marked ambition for advancement. At 18 years of age he entered the West Point Military Academy, where he graduated in 1887. In later years, he used to tell fascinating stories of West Point cadet life that would have made interesting reading had they been published.

After leaving West Point, he was appointed a second lieutenant in the 3rd Artillery. Desiring originally to pursue scientific studies in the field of ballistics, he entered the Johns Hopkins University as a graduate student, and received a degree of doctor of philosophy in 1893. He then returned to the Artillery Corps and became instructor at the U. S. Artillery School at Fortress Monroe, Virginia, from 1895 to 1898.

At the outbreak of the war with Spain in 1898, Dr. Squier sought service in the Signal Officer Volunteers and entered with the grade of captain. In this service, he was sent to the Philippine Archipelago, in 1900, where he commanded the cable ship, *Burnside,* and laid a system of submarine cables between strategic points in the islands. After the war, he was appointed first a captain, later a major in the U. S. Signal Corps and became chief signal officer in the California district.

It was during this period that he took up the study of army cable and radio communication, and published several papers in this field. Major Squier discovered that a growing tree could serve as a receiving radio antenna if a nail was driven into it fairly high up and a wire brought down from the nail to the receiving instrument. As a corollary to this proposition that trees and their branches have sufficient conductance to serve as antennas, he showed that forests, shrubs and vegetation generally, act as partially absorbent media for radio waves passing over land areas. He also made a study of aviation, then in its early stages of development. In 1908, Major Squier had been the first passenger of the world aviation pioneer, Orville Wright, in the latter's early form of airplane at Fort Myer. Twenty years later, the two men met in Washington to compare their aviation experiences.

From 1912 to 1916, Lieutenant Colonel Squier was a military attaché to the U. S. Embassy at London, where he made a special study of European military aviation and where the British army authorities gave him special facilities for investigation. He was a close observer of the British technical radio and aviation preparations during the first two years of the world war. The U. S. Ambassador to Great Britain at that time, Walter H. Page, wrote a glowing account in his Memoirs of Colonel Squier's services in London. Recalled to America in May 1916, Brigadier General Squier was put in charge of the U. S. signal service as chief signal officer. He organized and administered the electrical communication service between the American Expeditionary Force in Europe and its bases in America, using for that purpose radio, cables and wires. This service continued until two years after the war. He was raised to the rank of major general in 1917, and later received the distinguished service medal (D. S. M.) for his services.

[23] Levine and Frisch, 1933.

[24] Vinson, 1931.

[25] LeMar and Myers, 1933.

As an inventor, Major Squier won fame in discovering the method of communicating messages over wires by modulating inaudible frequencies—the so-called "wired wireless." He also invented the "quick-aid" kit for Army and Red Cross first-aid work. He greatly developed radio and telegraph service in the U. S. Signal Corps.

General Squier was notable for his swiftness of judgment and earnestness of purpose. His wiry erect bearing and purposeful demeanor marked him at once as a military officer. He was punctual and precise in all engagements, while cheerfully putting late arrivals at their ease. He used to say that one of the many gifts of radio to the world was the radio announcer's habit of broadcast punctuality. General Squier was a hard worker and faced every task with cheerfulness and courage. He was never married, but he was a family friend in numerous homes. With the aid of his sister, Mrs. Mary Squier Parker, who survives him, he built a "country club for country people" at his birthplace, Dryden, where he succeeded in giving summer country associations to many of his friends and fellow townspeople. After his retirement from the army in 1924, he frequently spent his winters in Florida and the other seasons in Washington and Dryden. Wherever he went, General Squier brought brightness and enjoyed popularity. His staff was enthusiastic in its praise and esteem for him.

Numerous honors were bestowed on General Squier both in this country and abroad. Only an abbreviated list can be given here. He was Commander of the French Legion of Honor, a Knight Commander of St. Michael and St. George in Great Britain, a Commander of the Order of the Crown of Italy and a member of the Royal Institution of Great Britain. General Squier held membership in the National Academy of Sciences, the American Philosophical Society and was a fellow of Johns Hopkins University. He also received an honorary degree from Dartmouth College. General Squier was a life member and fellow of the American Institute of Electrical Engineers. He received from the Franklin Institute, the John Scott Medal in 1896, the Elliott Cresson Medal in 1912, and the Franklin Medal in 1919. A number of electrical papers were communicated to the *Journal of the Franklin Institute* as well as to the *Proceedings* of the American Institute of Electrical Engineers by General Squier.

General Squier served on various international commissions relating to military and radio affairs.

He was given a military funeral and laid to rest in Arlington National Cemetery, Virginia.

A. E. KENNELLY

RECENT DEATHS

DR. EDWARD WILLIAM NELSON, chief of the Federal Bureau of Biological Survey from 1916 to 1927, died on May 19. He was seventy-nine years old.

DR. ULYSSES GRANT HOUCK, for thirty-eight years associated with the Bureau of Animal Industry of the U. S. Department of Agriculture, and since 1928 its associate chief, died on April 25 at the age of sixty-eight years.

THE death is announced of Dr. Andrew M. Soule, until last year president of the Georgia State College of Agriculture. In 1904 he became dean of the college of agriculture and director of the Agricultural Experiment Station at Virginia Polytechnic Institute and held that position until 1907, when he went to Georgia State College of Agriculture.

CECIL HOBART PEABODY, since 1920 professor emeritus of naval architecture at the Massachusetts Institute of Technology, died on May 4 at the age of seventy-nine years.

DR. GEORGE PAUL LAROQUE, professor of surgery at the Medical College of Virginia, at Richmond, died suddenly on May 16. He was fifty-five years old.

DR. LOUIS DE LOTBINIERE HARWOOD, professor of gynecology and dean of the faculty of medicine of the University of Montreal, died suddenly on May 15.

DR. ROBERT CHODAT, since 1889 professor of botany at the University of Geneva, director of the Botanical Institute, has died at the age of sixty-nine years.

SCIENTIFIC EVENTS

THE ABERDEEN MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE annual meeting of the British Association for the Advancement of Science will be held at Aberdeen from September 5 to 12, under the presidency of Sir James H. Jeans.

The first visit of the British Association to Aberdeen took place in 1859, when H. R. H. the Prince Consort was president and delivered an inaugural address. The association again met in Aberdeen in 1885, under the presidency of Sir Lyon Playfair.

The inaugural general meeting will take place on the evening of September 5, when Sir James H. Jeans will deliver his presidential address on "The New World-Picture of Modern Physics." Sir James Jeans was appointed by the general committee on March 2 as president of the association for the current year, in