

## SOME PAN AMERICAN PIONEERS IN PUBLIC HEALTH

DANIEL A. CARRIÓN (1858-1885), Peruvian medical student, who, in order to demonstrate the identity of Oroya fever and verruga peruana, did not hesitate to have blood from a verruga patient inoculated in himself. As the disease progressed into a fatal attack of Oroya fever, he carefully observed his symptoms, so that by his sacrifice he proved not only his theory, but the inoculability, transmissibility, and incubation period of the disease now named for him.

HENRY ROSE CARTER (1852-1925), born in Virginia and educated in the United States. He early entered the Marine Hospital (now Public Health) Service and in 1888 was sent to Ship Island in the Gulf of Mexico, where he began his study of yellow fever. Among his important observations were that the incubation period of the disease did not exceed six days; and that despite this, 15 to 20 days elapsed before a house became "infected" with yellow fever after a patient had occupied it—suggesting some intermediary host. During the last part of the 19th century, Carter combated yellow fever in several Southern States, himself contracting the disease. He was later stationed in Cuba and Panama, instituting quarantine services in both places. In 1913 he made the first successful malaria control campaign in the United States, and was active in that work until 1919. From 1920 to 1921 he was sanitary advisor to the Government of Peru; and from 1915 to 1925 he was a member of the yellow fever commission of the Rockefeller Foundation. He published nearly 40 papers on yellow fever, and was also the author of "Yellow Fever: An Epidemiological and Historical Study of its Place of Origin," which appeared after his death. He was honorary president of the National Malaria Committee and a member of several renowned medical societies, including, it may be mentioned, the Academy of Medicine of Caracas. He died in Washington, D. C., September 14, 1925.

CARLOS CHAGAS (1879-1934), born in Minas Gerais and educated in Brazil. He spent many years in field campaigns against plague, influenza, malaria, leprosy, leishmaniasis and other diseases. He was early connected with the Oswaldo Cruz Institute, becoming its head on the death of Cruz, and finishing the installation of the Library, the Museum, and the Tropical Diseases Hospital and creating sections of physical chemistry, physiology and mycology. As Director of Public Health he succeeded in making the service into a truly national Department, coordinated with the state health services; he founded the Anna Nery Nursing School and courses in Hygiene and Public Health. He was Director of the International Leprosy Center, a member of the Health Committee of the League of Nations, and representative of Brazil to the International Office of Public Hygiene in Paris. He was Professor of Tropical Medicine in the Medical School. In the course of his career he identified several new species of mosquitoes and trypanosomes, but he is best known for his discovery, announced in 1909, of the disease which he called American trypanosomiasis, but which his former teacher, Miguel Couto, christened "Chagas' Disease". Chagas described the disease, its causative agent (*Schizotrypanosomeum cruzi*), and its vector (a *triatoma*). He died in Rio de Janeiro, November 8, 1934, while studying projects for the creation of a career service in public health.

OSWALDO GONÇALVES CRUZ (1872-1917), born in Sao Paulo State, and educated in Brazil, and later taking a post-graduate course at the Pasteur Institute in Paris. He was named Director of the National Serumtherapy Institute at Manginhos, later to bear his name, in 1900; and shortly thereafter was made National Director of Health. With the strong support of President Rodrigues Alves and in the face of considerable political and journalistic opposition, Oswaldo Cruz

not only proposed to eradicate yellow fever from Rio de Janeiro within three years, by combating the mosquito: he did eradicate it well within his time-limit. Under his administration the duality of health authority in the Capital was done away with; the public health service was strengthened; isolation hospitals were built; a legal department and a sanitary engineering section were established in the health service; disinfecting stations were set up at the chief Brazilian ports; plague was energetically combated, and smallpox vaccination intensified. The Serumtherapy Institute was transformed into an Institute for the study of infectious and tropical diseases, which has become world-famous under the name of Oswaldo Cruz Institute. In 1910 Cruz outlined a sanitation project for the zone of the Madeira-Mamore Railway, that malarious area between those two tributaries of the Amazon. A yellow fever control campaign was carried out in Belem, Para, under his direction. As Brazil's representative at the III Pan American Sanitary Conference in 1908, he brought word of her adherence to the Washington Convention. In 1911 he represented Brazil at the International Exposition of Hygiene in Dresden, visiting Italy, France, and Germany. He died in February, 1917, at Petropolis, State of Rio, leaving a number of disciples well-fitted to carry on his work.

FRANCISCO EUGENIO DE LA CRUZ Y ESPEJO (1740-96), a public health pioneer, an enemy of quackery, the most articulate, if not the first, enemy of Spanish rule, a most effective polemist; he was also the first public librarian and the first journalist in Ecuador, and died in jail for his convictions, after pleading, even before Bolívar, whom he anticipated, for inter-American union.

CARLOS FINLAY (1833-1915), educated in France and the United States, where he graduated in medicine; practiced in Peru and Cuba; began his study of yellow fever in 1878; represented the Spanish Government at the International Sanitary Conference in Washington (1881) where he first presented his views on the transmission of yellow fever by an intermediary agent, amplified the following year to incriminate directly the mosquito; in 1898 he submitted his views to the U. S. Army commission in Habana, offered a control program based on the mosquito theory and furnished the eggs used by the commission to rear their first mosquitoes; president of the American Public Health Association (1903); director of Public Health in Cuba; honorary president of the National Board of Health and Welfare from 1909 to his death; author of many papers on medical and other scientific subjects.

JOSÉ FLORES (1751-1814), of Guatemala. He wrote the first medical books issued in Central America (1782), designed a Montgolfier balloon, invented lenses, had wax mannikins made to teach anatomy, stressed anatomy and physics as the basis of medicine, taught for years in the Guatemala Medical School; championed smallpox inoculation (1780), fought epidemics almost single-handed, and was one of the first to study electricity scientifically. He went to Europe in 1796 to give lectures on his specific remedy (lizards) for leprosy and epithelioma, and remained there until his death, having attended Galvani's experiments in Bologna and made demonstrations in electricity before the University of Paris.

EDUARDO LICÉAGA (1839-1920), educated in Mexico, professor of surgery and director of the Medical School in Mexico City; superintendent of the Maternity Hospital in Mexico City; one of the founders of the National Academy of Medicine, president for many years of the National Board of Health of Mexico; pioneer in public health, to whom a number of notable advances must be credited; including eradication of plague and preparation of the first National Sanitary Code; president of the American Public Health Association (1895); member of the directing council of the Pan American Sanitary Bureau from its foundation (1902) to his death; among the first to advocate inter-American cooperation for the pre-

vention of the international spread of disease; author of numerous papers on medical and health subjects.

LUIS MORQUIO (1867-1935), educated in Uruguay and Europe. On returning to Montevideo in 1894 he made pediatrics his specialty. He entered the Faculty of Medicine, and in 1899 became head of the Department of Pediatrics, and was also head of the University Institute of Pediatrics which later bore his name. He introduced more efficient and humane methods of care for orphans and abandoned children, and was physician and director of orphan asylums at different times; he also had a clinic in the Pereyra Rossell hospital. In 1905, with Olinto de Oliveira and Fernandes Figueira of Brasil and Gregorio Araoz Alfaro of Argentina, he founded the *Archivos Latino-Americanos de Pediatría*, first journal of its kind in Latin America. In 1915 he founded the Society of Pediatrics of Montevideo. He was instrumental in the creation of the International American Institute of Child Welfare (Instituto Internacional Americano de Protección a la Infancia), of which he was director until his death; active in arranging for the Pan American Child Congresses; and founded a cardiology center because of his interest in rheumatic heart disease. He became president, in 1930, of the International Union of Child Welfare (Union Internationale de Secours aux Enfants). Through his efforts, Uruguay was the first country to have, even for a time, a Ministry of Child Welfare and the first in America to adopt a Children's Code, and to have a Children's Council. He was the author of hundreds of scientific articles in his field. But possibly his greatest influence was exerted through his work as a teacher in the Medical School. He died in 1935 while preparing for the representation of his country in a coming Child Congress.

JOSÉ PENNA (1859-1921), educated in Argentina, a country he never left; Director of the Buenos Aires Public Assistance Bureau, and President of the National Department of Health of Argentina; professor of epidemiology at the Buenos Aires Medical School, active in making public health a national rather than a local enterprise, and in initiating the first field work against malaria and plague and in the campaign against smallpox which succeeded in eliminating the disease from Argentina; organizer of the National Bacteriological Institute; founder of hospitals, dispensaries and sanitary stations; organizer of the quarantine service on a national basis.

RAFAEL RANGEL (1877-1909), born in Betijoque de Trujillo, Venezuela. He went to Caracas penniless to seek an education, first at the University and then at the Pasteur Institute, where his devotion to work, disregard for rest, and insufficient meals, undermined his health so that he had to return to his native mountains to recover from tuberculosis. Once more in Caracas, he continued his work at the Pasteur Institute, and soon thereafter organized and directed the Laboratory of the Vargas Hospital. In 1903 he presented to the College of Medicine a paper on the *A. duodenale* as the cause of certain anemias, and is said therein to have founded modern Venezuelan parasitology. By March 1904 he had classified the hookworm as *Uncinaria americana*, describing in great detail its aspect, life cycle, and so on. He presented brilliant contributions on malaria; skin-invading larvae and particularly the myiasis caused by *Dermatobia cyaniventris*; actinomycosis; verminous bronchitis of cattle (Strongylosis); and on equine trypanosomiasis, and was collaborating in several other research projects when, just embarked on his promising scientific career, on August 20, 1909, he took his life in a moment of despondency.

WALTER REED (1851-1902), born in Virginia, and educated in the United States. In 1874 he joined the U. S. Army Medical Corps. In addition to his well-known work with yellow fever, he headed a committee which revealed a number of previously unknown facts about typhoid fever, and, with an associate, demonstrated that Sanerelli's theory of the cause of yellow fever (bacillus icteroides) was erroneous (1897). In 1899 Reed was made chairman of a commission

to investigate yellow fever in Cuba. Discarding the prevalent idea that the disease was transmitted by fomites in bedding, clothing and so on of patients, he revived the theory of Dr. Carlos Finlay that the yellow fever parasite was carried by mosquitoes, and by a series of experiments with human volunteers, proved that the vector was the *Stegomyia fasciata (aedes aegypti)* mosquito. This knowledge made possible the eradication of yellow fever from Cuba, Panama, Rio de Janeiro, and many other localities. Reed died in Washington, D. C., November 23, 1902, where is located the military hospital bearing his name.

EMILIO MARCONDES RIBAS (1862-1925), born in Sao Paulo State and educated in Brasil. In 1898 he became Director of Health of his native State, a post which he occupied for 17 years. His administration was outstanding for the campaigns against plague and yellow fever, with the eradication of the latter disease from cities, the founding of an institute for the manufacture of plague serum which eventually became the Butantan Institute, and a series of yellow fever experiments confirming the findings of the Cuban commission. Other achievements were the control of smallpox, the establishment of a tuberculosis sanitarium and the Santo Angelo leprosarium, and campaigns against typhoid, malaria, hookworm and trachoma, with a notable decrease in typhoid mortality. Ribas established a section of child welfare, a school medical service, and a trachoma division in the health department. He was the author of many publications on health and various diseases. He died in Sao Paulo, December 19, 1925.

HIPÓLITO UNANUE (1755-1833), educated in Peru, a physician whose versatile mind cultivated statesmanship, finance, philosophy, archeology and literature, a faithful collaborator of both Bolívar and San Martín; representative of his country in the Hall of Heroes of the Pan American Union; acting ruler of Peru; author of scholarly papers which have won for him the title of one of the fathers of American medicine.

JOSÉ MARÍA VARGAS (1786-1854), educated in Venezuela and Costa Rica; first and greatest of Venezuelan surgeons and researchers, his name is borne by one of the two divisions of the Federal District, the largest hospital in Caracas, and a square at La Guaira; statues to him have been raised at La Guaira and both at the hospital and the National University at Caracas; jailed in 1813 by the Spaniards because of his patriotic work, and exiled afterwards; a member of the Bogota Congress and the Valencia Constituent Assembly, was one of the makers of the first constitution of Venezuela. Elected President in 1835, his character never showed higher than on his being deposed and exiled by an armed mob. On being reinstated in 1836, he resigned rather than submit to military dictation. Afterwards he concentrated on his profession, but serving in the Senate and the National Governing Council. An appointment in 1840 as ambassador to the four most important powers in Europe was declined, as he felt he could serve his country best in the Medical School. Vargas, incidentally, died in New York.

WALTER WYMAN (1848-1911), born in St. Louis, Missouri; educated in the United States; he early entered the Marine Hospital (now Public Health) Service, and in 1888 came to Washington, where he was chief of the quarantine division. In 1891 he was appointed Surgeon General and occupied the post until his death, Nov. 21, 1911. He conceived and put into execution many measures of national authority to prevent the introduction of cholera, yellow fever, and other diseases; and he succeeded in establishing the first government tuberculosis sanatorium, at Fort Stanton, New Mexico (1879). He wrote many articles on quarantine and other sanitary subjects, and represented the United States in international conventions, including the medical congress in Washington in 1887, of which he was secretary, and the First International Sanitary Conference (Pan American Sanitary Conference) in 1902 in Washington, as well as later Conferences. One of the founders of the Pan American Sanitary Bureau, he was its Director from its foundation in 1902, to his death in 1911.