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Booklet On
**SANITATION
HISTORY**

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DR. ENRIQUE SALADRIGAS Y ZAYAS

Minister of Public Health and Social Welfare
of the Republic of Cuba.

A TRIBUTE TO FINLAY

PROLOGUE BY CESAR RODRIGUEZ EXPOSITO

Historian of the Ministry of Public Health.

Publications of
MINISTRY OF HEALTH AND SOCIAL ASSISTANCE





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H A V A N A
1952

MINISTRY OF HEALTH AND SOCIAL ASSISTANCE

MINISTER: Dr. Enrique Saladrigas Zayas.

SUB-SECRETARY: Dr. Félix Fernández Toriza.

CHIEF OF VARIOUS MATTERS: Dr. José Prats García.

PAMPHLETS ON SANITATION HISTORY

Directed by Sr. César Rodríguez Expósito, Historian of the Health and Social Assistance.

- No. 1.—“EL PROMEDICATO DE LA HABANA”, by Dr. Emeterio Santovenia.
- No. 2.—“CENTENARIO DEL NACIMIENTO DEL DR. JUAN GUITERAS GENER” (out of print). (Hundredth Anniversary of Dr. Juan Guiteras Gener's birth-.
- No. 3.—“EL PRIMER HOSPITAL DE LA HABANA” (Havana's First Hospital) by Dr. Guillermo Lage.
- No. 4.—“ORACION FINAL” (The Finlay Prayer), by Dr. Enrique Saladrigas Zayas.
- No. 5.—“EPIDEMIOLOGIA”, by Dr. José A. Martínez y Foyo.

COMING BOOKLETS

- “RESEÑA HISTORICA DE LA ORDEN NACIONAL DE MERITO CARLOS J. FINLAY”. (Historical Outline of the Order of Merit Carlos J. Finlay), by Dr. Carlos M. Piñero y del Cueto, Secretary of the Supreme Council of the Order and Legal Adviser of the Ministry of Health and Social Assistance.
- “HISTORIA DE LOS HOSPITALES Y ASILOS DE PUERTO PRINCIPE O CAMAGÜEY”. (History of Hospitals and Homes in Camagüey Province), by Sr. René Ibáñez Varona.
- “LA POLIOMIELITIS EN CUBA” (Poliomyelitis in Cuba), by doctor Alberto Recio Form.
- “DEL LABORATORIO DE LA ISLA DE CUBA AL INSTITUTO NACIONAL DE HIGIENE”. (From the Isla de Cuba Laboratory to the National Institute of Hygiene) (commemorating the fiftieth anniversary of its foundation), by Dr. Moisés Chediack.
- “CASETA HISTORICA”. Historical Hut at Camp Lazear, by Sr. César Rodríguez Expósito.
- “CONTRIBUCION DE LA ODONTOLOGIA A LA REVOLUCION EMANCIPADORA”. (Odontology's contribution to the Emancipating Revolution), by Dr. Esteban de Varona.
- “LA REAL JUNTA SUPERIOR GUBERNATIVA DE LA FACULTAD DE FARMACIA”. (The Royal Superior Governing Board of the Faculty of Pharmacy), by Dr. Héctor Zayas-Bazán y Perdomo.
- “CADUCEOS DE LAS CIENCIAS MEDICAS”. (Changes in Medical Sciences). (Origin, evolution and present state).
- “HISTORIA DE LA PESTE BUBONICA EN CUBA”. (History of Bubonic Plague in Cuba), by Dr. Alberto Recio.

OTHER PUBLICATIONS

- Complete Works of Dr. Carlos J. Finlay.
- Complete Works of Dr. Juan Guiteras Gener.
- Complete Works of Dr. Juan A. López del Valle.

Prologue

The main objectives of the First Interamerican Congress of Hygiene which convened in Havana from September 26th to October 1st, 1952, were the commemoration of the fiftieth anniversary of the Panamerican Sanitary Bureau and the rendering of a solemn continental homage to Carlos J. Finlay in the best possible way, i.e.: by working and placing before the Congress the topic of yellow fever as a principal theme. In an interesting symposium of deep scientific significance the chosen basis for discussion was the prevention angle, prophylaxis, immunization and the eradication of the disease in America, covering the following points: 1. "The Finlay Doctrine and his investigations, viewed from our present knowledge

of yellow fever", masterfully developed by Dr. Alberto Recio, Director General of Cuban Public Health and one of the few disciples of Finlay and Guiteras whom we still have left. 2. "Epidemiology of yellow fever in Panamá (1949-1952) by Drs. Alberto E. Calvo and Pedro Galinde V. of Panamá. 3. "Yellow fever in Nicaragua" by Dr. German Castillo of Nicaragua. 4. "Yellow fever in Venezuela" by Drs. Carlos Luis González and R. Isaac Díaz of Venezuela. 5. "Eradication of the aedes aegypti in the Americas" by Dr. Octavio Pinto Severo of the Panamerican Sanitary Bureau. 6. "Methods followed in Brazil by the National Yellow Fever Service in the campaign for the eradication of the "aedes aegypti" by Dr. Pablo Luis Rouanet of Brazil. 7. "Campaign for the eradication of the aedes aegypti in Chile" by Drs. Amador Neghme, Hermán Albi and José Gutiérrez of Chile. 8. "Vaccine against yellow fever" (experience in Panamá) by Dr. E. O. Courtney of the Panamerican Sanitary Bureau at the V. zone of Rio Janeiro, Brazil. 9. "Technique followed in the Yellow Fever Laboratory of Rio Janeiro for the mass production of the 17.D vaccine, by Dr. H. A. Penna of Brazil. 10. "Considerations about vaccine against yellow fever in the country, practiced in Brazil from 1927 to 1952", by Dr. Caio Souza of Brazil.

Yellow fever was therefore clearly one of the main themes under consideration in this Congress. There could be no homage more in keeping with Finlay's gigantic work than the discussion of the fundamental problems surrounding this terrible scourge, which continues to be a menace to the American Continent in this uncivilized unpopulated zones, where forestal yellow fever still exists.

In the forests of the bountiful Amazon lurks the aedes aegypti, obstructing the progress of civilization and the economic conquest of the unlimited potential resources of those vast territories. What happened in Panama is being repeated in Brazil. Sanitation must blaze the trail through the wilderness, in order to control it and exploit its treasures with the techniques of modern scientific culture. And there lies the eternal greatness of Finlay's work. In the first place, humanity must be protected against the terrible scourge within the cities and then the economic path must be opened to reach fabulous riches. The is why, in view of the scientific history of deeds accomplished, a whole Continent has sent its Delegates to Finlay's native land to offer the supreme homage from the summit of such great conquests, which were only made possible thanks to the genius of this great cuban.

I order to make it more productive, the activities of the First Interamerican Congress of Hygiene were not restricted to topics on yellow fever, but also approached other problems of great sanitary importance, such as the control of transmissible diseases, sanitary education, rural sanitation, rabies, brucellosis and so many other questions which are the constant worry of the modern sanitary worker.

As an epilogue to the activities of this gathering of the most prominent hygienists of the Americas a solemn closing session was held in which a votive homage was rendered to the memory of Carlos J. Finlay, the great Cuban genius, who has immortalized his name together with those of the greatest scientists of all time and whose work shines with increasing brilliancy every year in the scientific skies, confirming his findings, without the new tendencies or the advances and progress of investigations altering any of the basic elements of his discovery. And that is precisely the scientific quality which proves that Finlay's discovery could never have been due to chance nor to a fortuitous hazard, but the product of time and labor, experiments and investigations, besides profound studies, to reach the absolute identification of the mosquito as the transmitting agent of yellow fever.

In this solemn session the "Finlay Prayer" was offered by the distinguished physician, professor of the Medical Faculty of Havana University and present Minister of Health and Social Assistance, Dr. Enrique Saladrigas y Zayas, who divided his speech into three parts: He first explained Cuba's position in the interamerican sanitary picture. He then made a resume of the important work developed at this Interamerican Congress of Hygiene and, finally, rendered homage to Finlay.

In this aspect, Dr. Saladrigas' "Finlay Prayer" emphasized, without censure to anyone and avoiding problematic and controversial topics, but merely stating historical facts, that the glory of Finlay's discovery, no longer belongs to him nor to the land of his birth, but to all America which was freed of the terrible scourge.

The BOOKLET ON SANITATION HISTORY which the Ministry of Health issues periodically, has included the "Finlay Prayer" delivered by Dr. Enrique Saladrigas at the First Interamerican Congress of Hygiene in our collection of historical monographs, considering that it constitutes a valuable contribution to the History

of Cuban Sanitation, as well as a fair and sincere homage to the memory of our great genius, besides providing greater knowledge and divulgation thereof.

CESAR RODRIGUEZ EXPOSITO,
Historian of the Ministry of Public Health.

(Trad. Frank Finlay
Novbre. 10, 1952)

A Tribute to Finlay

A Tribune to Finland

Mr. President of Cuba

Delegates to the First Inter-American Congress of Public Health

Gentlemen of the Diplomatic Corps

Delegates of Scientific and Professional Institutions

Gentlemen of the Press

Ladies and Gentlemen:

Today we bring to a close the work of the public health officials of the Americas assembled at the First Inter-American Congress of Public Health, which commemorates the 50th anniversary of the Pan American Sanitary Bureau and which pays continental tribute to our great scientist Carlos J. Finlay, the discoverer of the mosquito

vector of yellow fever. We are here today to bring to a close this Assembly, where the basic problems of public health have been discussed on a continental scale, where we sought to coordinate the work of each and every country of the Western Hemisphere and to reach definitive conclusions that will safeguard our lands and free them from the epidemic diseases that might threaten "our America".

We are here, then, at this final session of the First Inter-American Congress of Public Health to render tribute to the scientist Finlay, that genius who belongs not only to Cuba, his beloved native country, but to the whole world, because of the magnitude of his work and the transcendental importance of the scientific discovery that freed humanity from one of its most terrible scourges.

Although scientists do have a native country, as the great Pasteur stated, their work and scientific contributions belong to all mankind. For the fruits of public health genius there are no frontiers, there is no other sovereignty than that of public welfare, as expressed so nobly in the immortal phrase, "Public health, the supreme law".

Today Cuba is proud and happy. It has been hostess to an important meeting of American public health experts. You, the men who represent and promote public health in all the Americas, inspired as you are with eagerness to serve and help one another, have faced basic problems and have agreed to coordinate plans for effective collaboration to protect the health of all peoples of the Americas, who are the hope of the world. You, their public health representatives—great men of science—had no other thought than to improve the techniques for preventing epidemic diseases, to achieve the solution of those problems of pathology for which there is a satisfactory solution. You have worked for agreement on the establishment of measures to coordinate all common efforts for public health control, so as to prevent the spread of infection, by individuals or vectors, to other people.

Each of the countries represented at the Congress has made its valuable contribution to the great work of continental public health, which is directed with singular and unusual ability by the Pan American Sanitary Bureau, the Regional Office of the World Health Organization, whose 50th anniversary has been commemorated at this First Inter-American Congress of Public Health.

Health is a fundamental factor for the stability and progress of peoples. The great economic, social and political plans of the United Americas must be based, primarily on public health. From this fact springs the primary duty of maintaining sanitary environment that every piece of land needs to sustain life. For this reason, public health has as its mission the great responsibility of contributing to human progress through the collective organization of the peoples, since without public health there can be no progress, no advance in civilization.

Because of all this, as Dr. Carlos Enrique Paz Soldán, the great Peruvian hygienist, has said, the course of continental public health in the immediate future will flow with greater or less force, but without ceasing, between two banks: one, the authority of the State placed at the disposal of public health, in the broadest sense of the word; the other, the desire of the people to have the benefits of modern medicine, in its three phases—preventive, public health, and social.

Cuba, (and here I speak as the Minister of Public Health and Social Welfare), interpreting the guiding principles of the Honorable President of the Republic, Major General Fulgencio Batista y Zaldivar, will march as always in the van of this necessary continental public health crusade, to watch over the health of our people and that of our sister nations; to honor Finlay's memory; to carry out the teachings of the great hygienists from whom we inherited this public health organization, which has been the pride of the continent throughout its history, with the ups and downs natural to any human undertaking. We and all the countries of the Americas are closely linked; we have coordinated our efforts, so that the necessary plans will be developed and the Hemisphere will continue to be a land of promise because of its healthful conditions; an example to the world because of the health of its sons, the cleanliness of its towns, the sanitation of its rural areas, the strength of its race, just as it has been and continues to be because of the unity of its aims and organizations for the achievement of peace: social peace, political peace, economic peace.

Dr. Aristides A. Moll truly said in his book "Medio Siglo de Adelanto en Medicina y Salud Pública", published by the Pan American Union, that Cuba, in 1909, was the first country in the

world to establish a National Ministry of Public Health. That fact is proof that we Cubans were in the past and are in the present always active in public health matters; we are trying to keep flying the public health banner raised by Finlay, Guiteras, Enrique Núñez, López del Valle, the outstanding leaders in public health in Cuba, the great pioneers who showed us the path to follow.

They, with their clear vision, led the way down the right road leading to the preservation of domestic public health, but they always watched foreign developments to ensure that their success would be fruitful, through the necessary American and international co-operation, which is indispensable if public health action in each country is to be effective.

True to these principles, Cuba will always fulfill its continental and international public health obligations. It will not stint its resources because it recognizes the human importance of this basic work for the future of all peoples. People of wealth, but without health, are poor people. A man without health, although intelligent, is an inferior being as far as benefit to himself and to the community is concerned. Therefore, we who are now responsible for the public health administration of Cuba, can assure the delegates to the First Inter-American Congress of Public Health, which has met in the fatherland of Martí and Finlay, that Cuba will be in the van of any campaign on the united public health front to work for the health of the whole American continent and in the universal service of all mankind.

We know that isolation should not exist under present world conditions. We know that international solidarity requires an affirmation on fundamental points, which matters pertaining to the health of human beings and nations unquestionably are. We know that it is our duty as administrators to protect the greatest and most valuable capital the individual and hence the community has, namely, the health of each citizen and the health of all, taken together, make what we call public health: national, regional, and universal public health.

As the illustrious Mexican thinker, Dr. Jaime Torres Bodet, Director of the UNESCO, said to the Fourth World Health Assembly last May in Geneva: "We need to adapt ourselves to one another on a planet that the speed of communications has been reducing in size. However, in most cases, we continue to measure our problems with a gauge that is out of scale with present times. When we think,

for example, of disease, of poverty, and of ignorance, we still usually do so in the limited terms of one locality, namely, the one we know personally, the one in which we live, the human scene in which we work."

"To establish a desirable equilibrium," added Dr. Torres Bodet, "international collaboration is necessary. But, to conceive this collaboration, it is not enough to cross the geographic boundaries of a country. The pressure of immediate interests must also be overcome. He who desires to mold the future should begin by foreseeing it. No one can direct events without looking forward and without confronting the future with firmness. Under penalty of destroying itself, progress can no longer be anything but collective."

For this reason, we place our trust in the results of this First Inter-American Congress of Public Health, as far as public health is concerned. The aims of the hygienists of today are being coordinated first by regions, and extraordinary work in this respect is being done by the Pan American Sanitary Bureau throughout the Americas, supplemented by that of the other Regional Offices, then incorporated functionally into the World Health Organization which represents the axis around which all international public health work revolves.

Cuba will never turn its back on the renovating action of science or on the principles of modern public health. History shows that. We subscribe to them. A fundamental point in the program of the Government that is guiding the destinies of this Republic is to attend to essential public health needs, because it believes that the attainment of health is a primary duty of those who govern and those who are governed. It also believes in favoring, in the international sphere, the closest possible cooperation with all countries in accordance with the plans that are agreed upon to protect our countries from possible epidemic diseases. This includes the strict fulfillment, not only of the precepts of the International Sanitary Regulations, but also of the quarantine laws necessary for mutual protection.

We believe in the public health principle maintained by one of our great former public health experts, Dr. Juan Guiteras Gener, namely, to keep all governments informed of the course of diseases in our country, without any concealment whatever, through the Pan American Sanitary Bureau, and to request the other countries to do the same so as to be ready at all times for any possible threat of epidemics.

With regard to public health, as we already said, it is a fundamental point in the plans of the present Government of the Republic, as palpably demonstrated by the words of our illustrious President, General Batista, when he said: "My first and unquestionably my greatest concern, when I assumed the responsibilities of governing the country, after the revolution of 4 September 1933, was to deal with the three fundamental matters that as I have always firmly believed, were the basis of progress in all social groups of a country, namely health, education, and economy. These are the three main bases and the triple cornerstone on which a country's fortress must rest. These are the only things that make for permanent progress and ensure liberty and the sovereignty of a nation, so that it may be kept strong and proud at all times."

The fundamental point, the crucial one, we might say, of the true and real public health policy is prevention. I believe that the function of the States, and the role of the hygienist, is to watch over the health of each and every citizen with care and to carry out unceasingly the precepts of preventive medicine. As Dr. Diego Tamayo, distinguished former professor at the University of Havana and one of the greatest men of our country, very aptly said: "According to our present scientific criteria, the problem consists of preventing disease, and not of enduring it for the sake of immunity in so a dangerous manner. This ideal of medical science cannot be realized unless we know exactly how contagious diseases are transmitted, and it was this secret that the genius of Dr. Finlay was able to reveal by throwing light on the mechanism of the propagation of yellow fever. By telling the story of infected *Stegomyia* he aroused the consciences that had been lulled to sleep by established ideas, and set them on the new path of prophylaxis that has brought health, prosperity, and wealth to regions that formerly seemed to be uninhabitable".

One of the topics dealt with at this Congress, on which interesting and valuable contributions were unquestionably made, was that of public health education. To intensify the education of the public is one measure indispensable for the success of public health. The collaboration of the people, on all social levels, is essential. "Health conditions", said Henry Sigerist, "are determined by the educational level. Ignorance is one of the main causes of disease."

"Education," he added, "is something more than the knowledge of reading and writing and having some ideas of disease. A correct concept of health should be imparted, as should the acceptance of

individual responsibility toward society. Customs and prejudices, approved by tradition, seriously endanger healthful living and should be overcome. It is a difficult task, which requires psychological understanding and tact, but —general and public health— education is the basis of all public health work."

Another topic of undisputable value discussed at the Congress was undoubtedly that of rural sanitation, which had been entrusted to the Cuban delegation. We considered, in all its scope, the need for greater emphasis on rural public health through adequate legislation, so that the urgent problem of the rural housing might be solved. Rural housing should have three basic facilities; potable water, an impermeable floor, and a means for final disposal of excreta. In addition, there should be an insect-control program and continuing educational work, imparting the basic knowledge of hygiene.

The report of the Cuban delegation summarized Cuban work in rural public health, begun by General Batista in 1933 and continued at present in all its phases, that is, we deal not only with the public health problem on which the program is based, but also with education and the economic problem, so as to banish from our country illiteracy and "starvation wages."

But we do not stand here before you to summarize the fruitful work of the First Inter-American Congress of Public Health. Tonight the session that concludes the activities of this meeting of public health experts is rendering a continental tribute to a great man of science, one of the great figures of history, the illustrious Carlos J. Finlay, whose name is inscribed in the hearts of the citizens of the world next to the names of Pasteur, Jenner, Koch and other great men who contributed so much to what we enjoy today; the progress of science for the improvement of the health of men of all races and all nations.

We should look to Finlay's great work with reverence, with humility, and with faith. We should recall Finlay's great efforts that culminated in the scientific discovery of the vector of a terrible disease and that gave us the means to dominate it completely. We express a nobler gratitude when we honor the memory of this man who, though humble and modest, was clearly talented enough to perceive how impotent man was in the face of the yellow fever epidemic responsible for thousands and thousands of deaths. With extraordinary patience he investigated all possibilities, used every

system, tested the most far-fetched ideas, and finally, after constant investigation, hundreds of experiments and thousands of observations, succeeded in proving scientifically that the mosquito was the vector of yellow fever.

Finlay was one of the great scientists who made it possible to control absolutely a relentless disease that decimated whole populations, spread terror and fear, and attacked rich and poor alike. The modest Cuban doctor succeeded in discovering the means of transmission and in determining and classifying the type of insect that was the sinister vector that carried the infection from the patient to the healthy person. Therein lies the extraordinary importance of Finlay's discovery, because even now, in the middle of the 20th century, science has not yet determined the virus or microbe that produces yellow fever. Simultaneously with Finlay, Pasteur made efforts to discover the cause of the yellow scourge, as is shown in the letter he wrote to his wife in 1876. He said: "May God permit that I find some specific microorganism in the unfortunate victims of medical ignorance! Then it would be truly wonderful to be able to transform the agent of the disease into its own vaccine. Yellow fever, cholera, and the plague are the most serious diseases known. You should know too, that it is already an achievement to be able to state the problem in these words."

But Pasteur did not succeed in his investigations on yellow fever. It was a Cuban doctor, Dr. Finlay, who struggled unceasingly to uncover the mystery of this disease, and who finally succeeded in 1881.

On 3 December 1833, a child was born in the city of Puerto Principe, now Camagüey, and baptized with the name of Juan Carlos Finlay. He was a good student. Although he was interested in the sciences, literature also attracted him, but in the end his father's desire, that his son should follow in his footsteps as a physician, won out and Carlos J. Finlay became a doctor, winning glory for himself and his native land and bringing incalculable benefits to humanity. It meant progress in science and the economic development of the unhealthy regions of America.

The life of Finlay was not easy, and he had to overcome great obstacles. His *Via Crucis* began when he arrived in Havana from Jefferson Medical College. However, at the beginning of his career, he had the encouragement of his father, Dr. Eduardo Finlay, a man

of character who knew how to guide, temper, and direct the thoughts of his young son—who was making his first attempts and encountering the difficulties of a beginner who was faced with countless obstacles. His father kept him from being overwhelmed by discouragement and pessimism.

Finlay began to exercise his profession by specializing in the same field as his father, namely ophthalmology, but he also practiced general medicine. He was a model husband and a model father. He was very kind and humane, a man who was above all passions and creeds. "Charity," said his son, Carlos Finlay, "was his cardinal virtue, and not only was he prodigal with it in the broad field offered by his profession, but he also applied it in his judgement of the weaknesses and foibles of his fellow men."

We worked intensively at the Academy of Sciences and submitted interesting papers that were based on his professional experiences, but when he aspired to become a member of the learned body, the young doctor was to have a new disappointment.

The best biographer of Finlay, the brilliant journalist César Rodríguez Expósito, Historian of the Ministry of Public Health, drew a masterful picture of these aspects of Finlay's life when he said: "The life of Finlay was a continuous struggle to overcome obstacles and he had to make great efforts in the face of his environment, his fellow men, and the lack of understanding. Finally he triumphed, but at the expense of great efforts, inhuman anguish, and deep disappointments. He did not pass the examination he took to validate his degree at the School of Medicine of the University of Havana, had to wait the time period prescribed, and then present himself again so that he could exercise his profession in his native country. He desired to become an associate member of the Academy of Sciences, but was thwarted in his first attempt. He renewed his application, this time for a corresponding membership, but the conclusions of the Committee were not in his favor. Although, when his application was reviewed, there were those who took his side, the matter was again referred to a rapporteur who never submitted a report".

In the end he was finally accepted as a regular member of the Academy, but not without protest and arguments. But he triumphed, as he also triumphed later with his great discovery, in spite of the lack of understanding on the part of his contemporaries. As César Rodríguez Expósito so aptly said: "The truth won out

and Finlay waged and won his first battle in the Academy. With this began a long contest against his environment from which he also emerged triumphantly. The motto of Napoleon was to be confirmed in Finlay: "Without enemies there is no battle; without a battle there is no glory".

Yellow fever was one of the unrelenting scourges of the Cuban people. In spite of the study and work devoted to the problem, medical science of that time was powerless to contain the advance of the epidemic, which was such a cruel scourge for those not immune to it. As Dr. Guillermo Lage has said, Finlay, almost from the moment of receiving his medical degree (1856) and of practicing in his native country (1857) as being "qualified to do so", longed to discover the mysterious secrets that implacably governed the morbid law of yellow typhus (1858). As a man of his time, Finlay could not escape the concept of medicine that prevailed in the small medical world of Havana, which mirrored the concepts imported from France, for the influence of the French school on Cuban medicine was exclusive and decisive. Finlay could not free himself, in his investigations, from the ideas considered basic and essential in his time.

Finlay tried everything and studied the factors that might be possible causes of this sinister disease, which kept the population in constant fear of a virulent scourge that was a real and unmistakable plague.

In his study of yellow fever, Finlay followed the theory that medicine is a science of observation, according to the maxim of Claude Bernard. That is why he was able to arrive at definitive conclusions, when all other investigators were swimming in a sea of confusion and passing from one hypothesis to another without ever approaching the true theory. No credit whatever was given the correct theory when Finlay submitted it to the Academy of Sciences with clear scientific proof.

He worked with the first American Commission headed by Dr. Chaille, which included among its members an illustrious Cuban physician living in Philadelphia, Dr. Juan Guiteras, who later became his collaborator both in developing the yellow fever immunization and in his public health work.

His work with this Commission showed him new courses of action in his research and experimentation, and he began again along firm lines. He did not act with unwise haste, but rather experimented.

He confided in his faithful and good friend, Dr. Claudio Delgado, an eminent Spanish physician, regarding the results of his research. They discussed fully the basic points in this work and, without a doubt, Delgado was the only collaborator Finlay had in this phase of his work. So great a friend was Delgado that it was he who obtained Finlay's appointment, from the Governor of Cuba, to attend the International Sanitary Conference held in the capital of the United States of America in February 1881, as delegate of Cuba and Puerto Rico, along with Dr. Cervera.

Although at this conference Finlay did not name the mosquito, specifically, as the vector, he did establish clearly and decisively the bases of his scientific discovery; the presence of a previous case of yellow fever, the presence of a person apt to contract the disease, and the presence of an agent entirely independent for its existence both of the disease and of the sick man but that would act as the means of transmitting the disease.

February 1881 was the month when Carlos J. Finlay presented to the world the first fruits of his discovery, upon of the occasion of the International Sanitary Conference held in Washington. The main topic on the agenda was yellow fever, which all the scientists were investigating in an attempt to find its origin and treatment. Finlay already had the illuminating inspiration of his theory, but he was timid in expounding it and, although he asserted categorically the existence of an intermediary agent, he did not specify that it was the mosquito, despite the research he had carried out to substantiate this theory.

"I did not name the mosquito on that occasion", Dr. Finlay said referring to his speech; "waiting to complete the entire experiment I had planned, namely to place one of those insects with no previous contamination in contact with a person suffering from yellow fever and, a few days later, I will place the same insect in contact with a subject susceptible to the disease."

I carried out my project when I returned to Havana, using a species of mosquito I considered different from those that had been generally described, owing to the special way they laid their eggs. In this, I benefited by the effective help of my friend and constant collaborator, Dr. Claudio Delgado, without whose support I perhaps would not have persisted of so many years in the defense of a theory that had only produced boudts and sarcasm among my colleagues".

The statement made at the 1881 conference did not attract wide attention, but on 14 August of that year, after completing additional research, Finlay presented his masterly paper at the Academy of Medical, Physical, and Natural Sciences of Havana, entitled "The Mosquito Hypothetically Considered as the Vector of Yellow Fever". This paper did not attract unusual attention either; indeed, it was received with incredulity, but it proved to be the fundamental basis, twenty years later, for the eradication of yellow fever and for the establishment of the theory of insects as vectors of disease.

For twenty years this scientific discovery received no recognition from men of science. Only when all other resources were exhausted and all other hypotheses of physicians had failed to prevent the havoc among the United States troops fighting in Cuba against Spain —only then did General Leonardo Wood, a physician and exceptionally able statesman, order the American Commission headed by Dr. Walter Reed, who never believed in Finlay's discovery, to investigate the theory of the Cuban scientist. And here Finlay triumphed. His discovery was fully confirmed, as General Wood himself stated categorically in his official report to the Government of the United States of America. In this report General Wood declared that "In the summer of 1900, the Commission of the United States Army and its physicians headed by Dr. Walter Reed, were sent to Cuba to investigate and study yellow fever. Thanks to the cooperation given this Commission by the Military Government, it was possible to carry out experiments on human subjects. The Commissioners took into consideration the theory expounded by Dr. Carlos J. Finlay in 1881, in which he declared that the mosquito was the sole vector of yellow fever.

"Dr. Finlay", General Wood's report went on to say, "had upheld this theory for twenty years and had also done considerable

experimental work to substantiate it. Through careful experimentation, the Commission has proved the accuracy of this theory". (Retranslation from the Spanish).

In this continental tribute we are paying Finlay, let us not forget that great and noble Spanish physician Claudio Delgado a faithful collaborator in Finlay's work and his loyal friend and companion, who knew how to offer advice, encouragement, and inspiration during Finlay's moments of trial when he faced lack of understanding, blindness, and even ridicule from his colleagues.

With the authority of one who had witnessed the anguish, the struggle, the discouragement, the indifference, and the injustices that Finlay had encountered throughout his experimental works, Claudio Delgado said, in a letter to his friend, upon the confirmation of his theory by the American Commission: "You have really been the Savior of the theory of redemption from yellow fever, having endured the slander of doctors and Pharisees, persecution and envy, sneers and jibes of vain and pretentious charlatans, the scourges and thorns of harsh criticism, the gall and vinegar of angry controversies that went beyond the field of science; in short, you have endured a calvary with philosophical resignation, even evangelical humility. And, by your side, I have the honor to be upon occasion, your Simon of Cyrene, and always your faithful disciple devoted to the doctrine and to the Master".

The attitude of Claudio Delgado, Finlay's collaborator, was generous and noble. He put his hand to the magnificent task of the discovery. He contributed to it with his efforts. And, with extraordinary loyalty to Finlay and to his work, he enjoyed to the fullest the hour of triumph, doing himself credit with words like the ones just quoted, taken from a personal letter to Finlay.

In yellow fever, Finlay was everything. He studied this disease in all its aspects, to such an extent that Dr. Antonio Díaz Albertini declared:

"Finlay's work in yellow fever was the pinnacle of his achievement. In this field he was historian, pathologist, clinic, entomologist, therapist, bacteriologist; he wrote the entire chapter on this disease, and I, who knew him personally (there are few of us left), believe, as do many others, that in the clinical investigation of the disease he was the outstanding specialist of his time, the person who studied and understood it best".

But why go on? You all know the course of yellow fever in Cuba and the rest of the world. How it was eradicated in the tropics; how, thanks to Finlay's work, it was possible for Gorgas to carry out the sanitation program in Panama and for the construction of the Canal to be completed, thus uniting two oceans. These events have been traced by His Excellency, General Fulgencio Batista, the President of Cuba, in his book "Shadows of America". In the brilliant chapter entitled "The Canal, Yellow Fever, and Dr. Finlay" he says: "The Government of the United States encountered a more serious obstacle than it had expected. There were no men to carry out the work. There was a shortage of laborers, who fled in terror from the threat of mass extermination. Yellow fever, whose vector was unknown as well as, therefore, the means of combating it, took a heavy toll. Workers returned to their homes as soon as they came to know the sinister truth".

And this dreadful situation, which retarded the construction of the Panama Canal, pictured so well by the author of "Shadows of America", was remedied, thanks to Finlay's discovery. It was Dr. Gorgas, taking the measures recommended by Finlay himself for the eradication of the mosquito in Cuba and the elimination of the yellow scourge, who achieved the sanitation of the Isthmus.

Finlay was a visionary, but he was also a stoic. He had the courage to withstand the incomprehension of his contemporaries. He accepted the sneers and jests with which the scientific investigations of the "mosquito man" were satirized. He knew the truth and was convinced of the value of the experiments he had carried out, and yet he was never blinded by anger nor did he allow violence to be his counsel. He endured the arrows of abuse and the humiliation of sarcastic attacks. He was sure of his work and confident of its final success. He trusted that one day his discovery would be accepted and put into the service of mankind. As Dr. Octavio Montoro said: "He had the clairvoyance of a genius to see what his contemporaries could not see, and this must have caused him some of his greatest suffering. To see reality clearly and find oneself isolated in one's thoughts is one of the tortures of the spirit".

All this ennobled Finlay; it made him stand out as a great man, as a savant, which, in a word, is what he was —one predestined by the gods to fulfill the mission of redeeming men, women, and children from one of their most merciless scourges.

At a lecture given recently in Buenos Aires, Dr. Carlos Alberto Castro said: "This fact is a stirring one, and serves to measure his moral stature. This clinging to an idea that had been publicly and scientifically scorned endows Finlay with a super-human quality, setting him apart in the history of scientific controversies and placing him above the average men of science, especially if we compare him to the men of his generation".

At this very Congress, which has paid such great respect and tribute to the memory of Finlay, a symposium was held in which Dr. Alberto Recio presented a brilliant paper on "The Doctrine of Finlay and His Research in the Light of Present Day Knowledge of Yellow Fever". We heard the Director General of Public Health make the categorical statement:

"Since 1908, no case of yellow fever has been observed in Cuba". We followed his concise outline of the entire history of Finlay's discovery, and heard him point out that "Fifty years later, except for the application of new and powerful insecticides, nothing new has been invented for yellow fever prophylaxis, because Finlay took into account even the modern antiyellow fever immunization, since that was the aim of his experiments, as he stated and repeated in almost everything he wrote after 1882".

Dr. Carlos J. Finlay was the sole discoverer of the mosquito as the vector of yellow fever, as has been amply demonstrated by the papers presented at the symposium, in which the distinguished representatives of our sister countries unanimously recognized Finlay's glory. Their statements represent the continental tribute paid by the First Inter-American Congress of Public Health, whose work comes to a close tonight. And this latest tribute of the Americas to Carlos J. Finlay is a reassertion of what has been happening for many years in all scientific meetings. The VI International Conference of American States, held in Havana, unanimously approved the following declaration:

"That, as a tribute of admiration, recognition be given to the discovery made by Dr. Carlos J. Finlay of Havana, on the means of transmission of yellow fever, and the merit he deserves for his genial discovery he proclaimed; for having laid the foundations for the prophylaxis of yellow fever and having been the first to make the announcement supported by experimental proofs, of the scientific theory of the transmission of disease from man to man by means of an intermediary agent".

A similar resolution was adopted by the International Congress of History, held in Madrid, at the proposal of the Cuban delegation composed of Drs. Sergio García Marruz and Rafael Menocal. Then too, the Pan American Medical Association, at its meeting in Dallas, accepted the proposal of Dr. Horacio Abascal of Cuba, to the effect that 3 December, the birthday of Carlos J. Finlay, be observed as "The Day of American Medicine", in tribute to all the great leaders of American medicine.

And, as if the declarations of other congresses of medicine and medical gatherings were not enough, Mr. Sol Bloom, Chairman of the House Foreign Affairs Committee of the United States Congress, delivered a speech that appears in the Congressional Record, in which he made the following statement: "The man whose discovery resulted in the eradication of yellow fever in the New World, whose genius permitted the United States to build the Panama Canal after the French had failed in their attempt because of the yellow fever menace, lived to see his theory confirmed, but not long enough to enjoy all the fruits of his labor. Even today, forty years later, it is hardly known in the United States that Carlos J. Finlay was the true conqueror of yellow fever. The glory went to others, not because they wanted it to be so, but mostly because the spectacular confirmation that was made of Finlay's theory, followed by the eradication of the disease in Havana and Panama, attracted more attention in the United States than Finlay's discovery when he extracted nature's secret. Another reason why Finlay's fame was not spread throughout this country is the fact that his writings were published mainly in Spanish, thus becoming practically inaccessible to most North Americans". (Retranslation from the Spanish).

In his speech, Sol Bloom affirmed categorically that Dr. Reed himself had written: "We all knew Dr. Finlay well, but the truth is that we tended to take his ideas very lightly, especially I..."

And we who listened to this brilliant speech by Mr. Bloom in the House of Representatives of the United States, on the occasion of our visit as officials of the Finlay Institute of Cuba at the founding of the Finlay Institute of the Americas, were filled with emotion and gratitude. The illustrious North American legislator paid justifiable homage to Carlos J. Finlay, having his remarks included in the Congressional Record so that present and future generations of Americans, historians, university professors and

men of science who wish to write on yellow fever may find in this official document a resounding statement like the one with which Mr. Bloom ended his speech:

"In pointing out the road to the conquest of yellow fever, Finlay achieved immortality. It would not be strange if in the future he were considered the greatest medical benefactor of this Hemisphere". (Retranslation from the Spanish).

Throughout the Americas the glory of Finlay has been recognized. Throughout the Americas homage has been paid the Cuban scientist. From one end of the continent to the other the noble elder who devoted his life to the preservation of mankind against the terrible scourge of yellow fever has been honored. It is inevitable that there be isolated groups and individuals who pretend to know nothing of Finlay's work, but this attitude and these prejudices against historical truth cannot prevail. They are combated by the truth upheld by inter-American congresses like the one we have just attended, where the outstanding representatives of American public health institution gathered to proclaim once more that Carlos J. Finlay was the discoverer of the mosquito as the vector of yellow fever.

This meeting that we are holding gives the lie to any self-interested campaign that would disregard the scientific contribution of Finlay, that would ignore his role as discoverer of the yellow fever vector, which provided the means for eradicating that disease all over the world, when he discovered even the type of mosquito that served as the agent of death and described the effective means for destroying it.

Therefore, I believe that the distinguished physician Dr. Ricardo Cappeletti was being just, accurate, and final when he said that the First Inter-American Congress of Public Health was putting and end to the controversy that had been begun for the purpose of discrediting this true glory of Latin America.

I wish to express in the name of the Government and people of Cuba our profound gratitude to the First Inter-American Congress of Public Health for paying this continental tribute to the memory of our great Carlos J. Finlay, in full recognition of his scientific work. The official delegates of the Governments of the 21 American Republics are gathered here. Here we have the

highest representatives of public health work in each and every one of the countries of the Western Hemisphere. The voice here unanimously raised to pay homage to the greatest of Cuban scientists is the voice of the Americas proclaiming to the world one more that it was Finlay who discovered the mosquito as the vector of yellow fever, so that those who were ignorant of the fact may take note, so that those who had not been informed may know of it, and so that the world of public health may not let itself be deceived by apostate writers, by those who deny or ignore Finlay and his work. . .

If Finlay's triumph was great, the triumph was also great for his ever-loyal collaborator, Dr. Claudio Delgado, for General Wood, and for the American Commission headed by Dr. Walter Reed, because they proved what had been suggested twenty years before, all of them together performing the immeasurable service of eradicating the terrible yellow scourge, by applying the Finlay theory.

But Finlay's work is also a triumph for all the Americas, which were its beneficiary, and for those of their illustrious sons who accepted the Finlay theory and eradicated yellow fever from their respective countries, even sacrificing their own lives by allowing themselves to be infected with the disease, as did Dr. Jess Lazear and the nurse Clara L. Maas, who were its victims in Cuba.

Cuba will be eternally grateful to all the Americas for this continental tribute to Carlos J. Finlay. It does not surprise us. It is a frequent occurrence. America understood Finlay, as it understood Martí.

"Martí and Finlay", as César Rodríguez Expósito states, "are the highest representatives of Cuban thought, one in the political sphere, the other in the scientific. Both doctrines, "*martiana*", and "*finlaísta*", will win recognition because of their transcendental significance in the progress of peoples: one forged freedom, in the highest meaning of that word to man; the other represented the absolute liberation of mankind from one of its most terrible scourges, which decimated whole populations and sowed terror and death as it passed".

And the Americas have understood the fullest significance of Finlay's work when the Governments and scientific institutions of all its peoples have spontaneously issued official statements glorifying Finlay. They have placed busts of the Cuban scientist in their main squares; they have named streets, avenues, and scientific institutions in his honor. The United States Congress, through Chairman Sol Bloom of the House Foreign Affairs Committee, recorded its recognition of Finlay's work and glory in the Congressional Record. And very recently the Argentine Government honored Finlay by placing a bust of him in the National Polyclinic, naming a broad avenue after him, issuing a set of postage stamps, and even more, passing a law calling for the erection of a statue of Finlay in the heart of Buenos Aires.

The Pan American Sanitary Bureau, an agency that knows the struggle for health in this continent, that has completed fifty years of Herculean labor in maintaining coordination of the continent's health work, likewise pays tribute to Finlay, not only through the work it performs, but also by dedicating this First Inter-American Congress of Public Health as a mark of an entire continent's recognition of Finlay as one of the most representative public health figures of the Americas.

For all this, the Cuban Government and people express to you their most profound gratitude. We feel indebted for the recognition of historic justice in thus honoring a man of science who belongs to Cuba, but who also belongs to "our America".

"Finlay", General Batista said, "was one of those scientists for whom humanity can never do enough to repay their tremendous services. Finlay opened a new path to relieve human suffering and cast new light on scientific truth with his assertion that "the transmission of disease by insects", is a scientific fact, as the generations that had been dazzled by Pasteur's microbe theory learned to their surprise".

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