The anti-leprosy campaign in Colombia: the rhetoric of hygiene and science, 1920-1940

A campanha contra a lepra na Colômbia: a retórica da higiene e da ciência, 1920-1940

This article is part of a larger project on the history of leprosy in Latin America. An earlier version was published in Obregón (2002b).

Diana Obregón

Departamento de Historia
Facultad de Ciencias Humanas
Universidad Nacional de Colombia, Bogotá
Edificio Manuel Ancízar
Of. 3.014
Bogotá, Colombia
dobregon@colomsat.net.co

OBREGÓN, D.: 'The anti-leprosy campaign in Colombia: the rhetoric of hygiene and science, 1920-1940'.
História, Ciências, Saúde — Manguinhos. vol. 10 (supplement 1): 179-207, 2003.

Since the 1920s, the medical community realized that the strategy of leprosy control based on segregation and persecution of patients was inefficient and expensive. In the 1930s the new liberal government incorporated leprosy within the general sanitary institutions, by merging the Bureau of Lazarettos and the National Department of Hygiene. The disease-apart approach started to be replaced by a more general public health strategy, which involved controlling other illnesses. Prevention and research played a more influential role, and the new sanitary officials saw leprosy in the light of the economic rationality of expenditures, placing more emphasis on therapies and making them mandatory for all patients. Improvements in leprosy treatment became widely known and available. However, the image of leprosy as a special condition and the practice of segregation were deeply entrenched within the Colombian culture and institutions. The rhetoric changed, but to break with several decades of persecution was a difficult task.

KEYWORDS: leprosy, Colombia, hygiene, public health, medicine, twentieth century.

OBREGÓN, D.: 'A campanha contra a lepra na Colômbia: a retórica da higiene e da ciência, 1920-1940'.
História, Ciências, Saúde — Manguinhos. vol. 10 (suplemento 1): 179-207, 2003.

Desde a década de 1920, a comunidade médica percebeu que o controle da hanseníase baseada na segregação dos pacientes era ineficaz e dispendiosa. Na década de 1930, o novo governo, mais liberal, incorporou a hanseníase às instituições sanitárias gerais, ao fundir o Serviço de Leprosários ao Departamento Nacional de Higiene. O isolamento começou a ser substituído por uma estratégia geral de saúde pública, que envolvia outras doenças. Prevenção e pesquisa foram valorizados , e as autoridades passaram a ver a hanseníase à luz da racionalidade econômica, enfatizando as terapias e tornando-as obrigatórias. Os avanços no tratamento tornaram-se largamente disponíveis. Entretanto, a imagem da hanseníase como doença especial e a segregação de seus doentes estavam profundamente arraigados na cultura e nas instituições colombianas. A retórica mudou, mas acabar com várias décadas de perseguição não foi tarefa fácil.

PALAVRAS-CHAVE: lepra, hanseníase, higiene, saúde pública, medicina, século XX.

Introduction: leprosy in the late nineteenth and early twentieth centuries

Leprosy has generated its own traditions of historical work, while professional historians of medicine have remained uninterested in the subject. Chapters on the history of medieval and antique leprosy were usually part of leprosy handbooks written by 'leprologists' in the first decades of the twentieth century (Sauton, 1901; Rogers *et al.*, 1925; Jeanselme, 1934). Often these doctors were more interested in proving that the disease had disappeared from Europe thanks to medieval procedures of isolation, than to deal with the social and cultural phenomenon of leprosy. Until recently, scholars have neglected the study of the modern history of the disease, that is, since the definition of its etiological agent in the late nineteenth century. Leprosy workers, doctors, nurses, and religious missionaries have produced most of the historical literature on modern leprosy, usually published in their specialized medical journals (Skinsnes, 1973). The history of leprosy in Latin America, and particularly in Colombia, follows the same patterns — it has been the domain of physicians and leprosy workers in general (Souza Araújo, 1956; Montoya y Flórez, 1910). This article is part of a recent scholarly interest in the history of leprosy and places the disease, its sufferers, and the doctors and officials who tried to control its expansion within a larger social, cultural and political context.

Leprosy, understood as God's retribution, has been present in Colombian society since the colonial times. The practice of isolating patients, which was based on old religious traditions, served the purpose of keeping leprosy sufferers apart, out of sight. By the 1870s, leprosy patients themselves, in search for a place to survive without being harassed, founded town-lazarettos. The government and philanthropy provided for leprosy sufferers, but their exclusion was only partial, since they lived with their families, and the town-lazarettos developed commercial and social relations with their neighbors. At the end of the nineteenth century, in light of bacterial theories and of the international panic about leprosy, Colombian physicians reconstructed leprosy as an extremely contagious and alarming disease. Within the context of professionalization of medicine, and since leprosaria were in the hands of philanthropic institutions, physicians initiated a battle to take over Colombian lazarettos, through provoking fears about the rapid expansion of the disease, exaggerating its incidence. As a result, the Colombian government approved the first laws of compulsory segregation of leprosy sufferers by the end of the nineteenth century, and leprosy patients became a social calamity and a danger to be fought (Obregón, 2002a; 2002b).

The early twentieth century saw the consolidation of the Colombian State, the formation of a national bourgeoisie and the inclusion of the nation within the world economy through the expansion of coffee

exports. Modernization of the country became a national priority, for which leprosy was an obstacle. According to nineteenth century publications on the geography of leprosy, Colombia competed with India for primacy in terms of incidence of the disease — a contest that the Colombian elites refused to win. As to the civilizing and modernizing project, Colombia needed foreign capital, investments and white immigration. The country also needed to increase its exports within the international market, particularly to the United States. The image of the nation as ravaged by leprosy became a significant barrier to the advancement of these projects. The Colombian government, with the expert assistance of the medical community, adopted a two-fold strategy. At the international level, physicians advertised new and, according to them, more accurate statistics of leprosy incidence in Colombia. They portrayed previous figures as exaggerated, mainly accusing religious orders of overstatement. They also maintained that the policy of leprosy control was successful, since most of the patients were already isolated. At the local level, the government nationalized the lazarettos, taking them away from charity institutions, enacted severe laws in order to control them and began to medicalize leprosy. Their main purpose was to block the extensive social and economic links of the town-lazarettos with the external world. The rationale for this position was to arrest the spread of the disease. Leprosy sufferers were confined within leprosaria. The government also attempted to expel from the lazarettos a large population free of leprosy, mainly composed of relatives of leprosy sufferers. As a professional group, doctors dealt with the disease with the same aversion as Western colonists demonstrated in their handling of leprosy in their colonies. In Colombia, sufferers of leprosy, mainly mestizo peasants and artisans, were treated as 'inferior' races and they were persecuted and excluded in the name of protecting society from contagion. A disease-apart approach was institutionalized by establishing two distinct domains of public hygiene: a special official agency was set up for leprosy, while all other diseases were handled through a different department. However, in spite of the efforts of physicians and the government, leprosy was not thoroughly medicalized. Patients actively opposed compulsory segregation with attempts at converting lazarettos into prison-asylums, and their relatives remained within them. On the other hand, the medicalization of leprosy was only partially accomplished because of its demarcation as a disease-apart. Since leprosaria were not hospitals, physicians were unable to order treatments, and scientific medicine competed with popular healers, herbalists, and charlatans within the lazarettos (Obregón, 2003; 2002b).

Challenging the disease-apart approach

The medical optimism of the first years of the twentieth century about leprosy control soon decreased. Numerous physicians began to criticize the leprosy policy as inadequate and brutal (*Repertorio de Medicina y Cirugía*, 1915). By the 1920s more doctors started to regard the policy of segregation as a failure. An editorial of the May 1920's issue of *Repertorio de Medicina y Cirugía* contended that after fifteen years of compulsory segregation, the results were unsatisfactory. The number of leprosy sufferers was in fact increasing, and the ones segregated in leprosaria left the institutions when they pleased. According to the editorial, lazarettos expanded, the appointed physicians diminished and the government failed to promote medical careers of doctors who worked at leprosaria. Consequently, young practitioners had no motivation to devote their lives to the study of the disease. The author suggested exploring other avenues for controlling leprosy, such as the abolition of the enormous colonies, and the founding of hospitals close to urban centers (*Repertorio de Medicina y Cirugía*, 1920). The numerous articles published by the patient Adolfo León Gómez from 1920, denouncing the appalling conditions of Agua de Dios, made some effect. Agua de Dios was the largest Colombian lazaretto built in the late nineteenth century and located about sixty-eight miles from Bogotá, the capital city. The government appointed a commission composed by doctors and congressmen to study the lazarettos (León Gómez, 1927, p. 180; Gutiérrez Pérez, 1925, pp. 103-6).

An increasing number of physicians began to view leprosy within the context of the general health conditions of the population, challenging the disease-apart approach. The *Repertorio* stressed the importance of allocating resources to organize campaigns against not only leprosy, but also against hookworm, malaria, syphilis, yaws, and tuberculosis (*Repertorio de Medicina y Cirugía*, 1926a). The government initiated some public hygiene work to control the spread of these diseases. For instance, in 1918-19 it created a national board to coordinate the struggle against tuberculosis, to provide information and to diffuse knowledge about the disease (Abel, 1994, pp. 28-9). Coffee and sugar cane zones, significant for the export economy, were infested by hookworm infection. The government contracted with the Rockefeller Foundation to survey yellow fever in 1916, and in 1920 to appraise the extension of hookworm contamination in Cundinamarca. After 1920, the Foundation continued health work in Colombia up until 1945 (Abel, 1995, p. 351). The campaign against hookworm was taken as a model to teach the Colombian population the benefits of hygiene and sanitation (García *et al.*, 1998) These events illustrate that the government had begun to allocate resources for other public hygiene conditions than leprosy.

It is not clear why, in 1921, the government hired the German military doctor and entomologist Erich Martini to assess the campaign against leprosy. Perhaps because he had been an assistant to Robert Koch and from 1914 worked at the Hamburg Institute for Maritime and Tropical Diseases as a malaria expert. During the First and the Second World Wars he was also involved with fighting lice and typhus, considered a plague of inferior people like Jewish and Eastern European people. By 1933 he joined the Nazi Party and in 1946 he, as well as the German bacteriological elite, was brought to trial by the Allies for the connection between the campaigns of typhus control and the 'final cleansing' that resulted in 'scientific butchery' (Weindling, 2000, p. 411). As to his work in Colombia, Martini declared after a few months that leprosy was 'absolutely contagious' to justify extreme measures of isolation like the ones the Prussian government imposed on leprosy sufferers since 1893 (Herrera *et al.*, 1921, pp. 149-50) The physician Carlos Esguerra responded that most of Martini's conclusions were wrong and the others simply trivial. Esguerra claimed that leprosy was less contagious and less dangerous than syphilis or tuberculosis, and that segregation as it was practiced in Colombia was an old tradition, which had its origin in the idea that infections were transmitted by miasmas. He argued that those practices were not justified after scientific research had discovered the mode of transmission of infectious diseases. Esguerra maintained that leprosy patients were treated with excessive rigor, depriving them of their civil and political rights, and subjecting them to tortures reminiscent of the medieval ages. He asserted that modern science permitted the isolation of patients with infectious diseases in general hospitals. Esguerra thus suggested the abolition of mandatory segregation, the revival of home isolation, and a shift in the campaign against leprosy from defense of society to protection of leprosy sufferers. Since leprosy increased with impoverishment and decreased with civilization, the best safeguard for society was to improve the general hygienic conditions, including those of the diseased themselves. Esguerra proposed providing leprosaria with resources similar to those of modern hospitals and organizing asylums and schools for sick children. He maintained that non-leprous children should be taken to regular institutions outside the leprosaria. He also advocated the creation of Saint Lazarus societies to support the lazarettos, in conjunction with national, departmental, and municipal powers (Esguerra, 1922).

Between 1926 and 1927, several editorials of the *Repertorio* were devoted to the problem of leprosy. The idea that leprosy was a disease of poverty, and that leprosy sufferers were just sick people in need of hospitals and treatments became more frequent in the medical literature. However, citizens horrified by their prejudices objected strongly to the idea of establishing hospitals for leprosy near urban settlements (*Repertorio de Medicina y Cirugía*, 1926b). A common theme at the

time, voiced in an editorial of the *Repertorio* in 1927, was to argue against obligatory isolation and to portray the anti-leprosy campaign as an expensive failure. Indeed, the crusade against leprosy was described as a forty-year persecution performed by the police, mayors, and the municipal public hygiene authorities. Leprosaria were called 'perpetual prisons', as in fact they were. One of the suggestions of the editorial's author was to suspend the anti-leprosy campaign altogether. Instead, insightful persons would study the endemic regions to propose the means to change the living and hygienic conditions of common people. Leprosy would disappear once civilization arrived: "Wherever civilization penetrates, wherever water and soap, essential companions of abundance, enter to form an inescapable part of the habits of citizenship, wherever changing clothes becomes frequent, and dwellings improve, leprosy vanishes..." (*Repertorio de Medicina y Cirugía*, 1927, p. 338).

The medical community, always ready to defend its cultural authority, was forced to respond to critiques by the general press, which maintained that there was no plan to protect the country against the scourge of leprosy. The media also accused doctors of ignoring the methods employed abroad, since treatments adopted by them at leprosaria bore no scientific basis. The press suggested that Colombian physicians should be sent to Hawaii and to India to investigate remedies employed there. The medical journal reacted by reaffirming national technical expertise and dismissing foreign advice as unnecessary (*Repertorio de Medicina y Cirugía*, 1926c). This was probably one of the reasons why the Rockefeller Foundation never got involved in leprosy work in Colombia, as it did in the Philippines at this time (Chapman, 1982, p. 74).

In 1927, the government responded to public criticism by giving more power to the General Bureau of Lazarettos in terms of organization of leprosaria, isolation and treatments. However, segregation remained the main strategy to control the spread of the disease. The parliament enacted a law in 1927 defining lazarettos as asylums for individuals afflicted with leprosy. According to the law, the organization of leprosaria should aim at obtaining isolation and scientific treatments for all patients regardless of the stage of their illness and of their social class; it also established penalties for transgressors of leprosaria's rules such as deportation to a different lazaretto. This law aspired to modify the previous procedure of selecting specific groups of patients for treatment, preferring those in earlier stages of the disease in which therapy was most effective. The law probably also tried to correct fraudulent practices which tended to choose patients for treatment according to their social status (García Medina, 1932, pp. 363-6).

The problem of leprosy challenged Colombian doctors for many decades. Their actual inability to solve it as quickly and efficiently as they hoped became a source of permanent frustration (Esguerra, 1922; *Repertorio de Medicina y Cirugía*, 1926b). The mingling of healthy

people with the sick in the lazarettos after more than twenty years of unsuccessful attempts of isolation, as well as the apparent increase of the number of people afflicted with leprosy, were visible symbols of inefficiency. As the patient León Gómez (1927, p. 310) noted: "physicians who don't believe in miracles, believe however in the miracle of 'spontaneous healing,' and they praised it as the only resource, maybe to conceal the absolute ignorance of science in these matters."

The frustration of physicians was evident in the late 1920s. The physician Eliseo Montaña maintained in 1929 that, although leprosy had occupied Colombian doctors more than any other public hygiene matter in the country, the problem was getting increasingly complicated. The campaign against leprosy employed no method, except for those left by ancestral prejudices, and lacked the essential basis to arrest the disease: there were no accurate statistics available, no knowledge of the causes or agents of the disease, and no understanding of its chances of cure. Colombian leprosy patients had been the victims of an army of charlatans from abroad that arrived in the country to earn money by abusing the sick. This was the case of the Cuban impostor Angel García who advertised his miraculous cure for leprosy defrauding numerous patients not only in Agua de Dios, but also in the Fontilles leprosarium in Spain (Montaña, 1929, pp. 172-3; Bernabeu Mestre *et al.*, 1991, pp. 306-8). In many ways, foreign physicians, both professionals and charlatans, tried to colonize Colombian leprosy sufferers.

Etienne Burnet, Secretary of the Leprosy Commission of the League of Nations, visited Colombia in 1929 to assess the dimensions of the problem. He examined Agua de Dios and Caño de Loro, and gave a lecture on leprosy at the Faculty of Medicine. He contended that the disease was less contagious than previously thought and that it was curable. Therefore, the strategy to control leprosy needed to be based on the new knowledge. Burnet recommended the practice of isolation of contagious cases, the rigorous separation of children from their leprous parents, and the creation of leprogical societies to study the etiology, pathogeny, and bacteriology of the disease. Referring to Burnet's visit, Montaña (1929, pp. 176-9) declared that his advice was no different from what some Colombian physicians had long recommended — without being heard.

Introducing economic rationality

The dissatisfaction of physicians with the leprosy control policy in the 1920s was probably related to a more general malaise about social issues, which permeated the period. Indeed, Colombian society had undergone substantial demographic and socioeconomic changes within the last half a century. By 1870, 5% of the population lived in towns; by 1938 the urban population had expanded to 30%. In the 1920s the country became the most important Latin American commercial partner

of the United States and a first-order coffee exporting country. There were also great expectations about North American oil investments. Moreover, coffee created a national bourgeoisie — producing new alliances that made the nineteenth century regional rivalries no longer relevant (Palacios, 1980, pp. 25-54; Ocampo, 1984, pp. 125-8). Several laws enacted in 1922 stimulated foreign immigration — until then, minimal in Colombia. Colonization of public lands was encouraged. Colombian international involvement in the 1920s can also be indicated by the numerous international commissions that visited the country to advise the government: the North American Kemmerer Commission for the Economy, in 1923 and in 1924 both the German Pedagogic Commission and the Swiss Military Commission (Helg, 1986, pp. 19-20). The world crisis of 1929-30 provoked the decline of coffee prices in the international market by 50%, and inflation and unemployment increased. Political conflict divided the government party. Thus the Liberals, representing a new bourgeoisie, won the presidential election of 1930, defeating the Conservative regime, which had been in power for almost 45 years. In Colombia, unlike most Latin American countries, the world depression did not generate a revolutionary change, and the country recovered rapidly from its negative impact (Palacios, 1980, pp. 209-16). During the 1930s, Colombia experienced economic expansion; the middle classes grew, and the profits of the upper classes were augmented. Although there was some industrial development, the economy was more dependent than ever on the coffee export sector and on the United States market (Ocampo *et al.*, 1984, pp. 43-50). This was the prevalent climate in the 1930s, which brought about a notable variation within the leprosy policy.

On the grounds of the 1927 law, which aimed at giving more power to physicians within the lazarettos, the first group of patients was freed from Agua de Dios in 1930. Alejandro Herrera Restrepo, Director of the General Bureau of Lazarettos, felt compelled to explain the decision to the medical community and to the general public: clinical and bacteriological tests proved that these patients were not infective. After forty years or so frightening the Colombian society with the high infectiousness of leprosy, physicians were required to explain this action. Herrera demonstrated that the determination was based on scientific theories and practices accepted in the United States and Europe almost a decade before (Herrera Restrepo, 1930). Indeed, the knowledge that leprosy was not equally infectious in all stages of the disease was available long time before 1930, but Colombian doctors were stuck with the old disease-apart approach. The measure of discharging non-infective patients also revealed a distinct rationale, which later became the main criterion in the handling of the disease during the 1930s. By releasing leprosy patients from leprosaria, the government attempted to introduce principles of economic rationality.

Probably for economic and administrative reasons, in 1931, the government consolidated the Bureau of Lazarettos and the National Department of Hygiene into one single entity. For the first time, leprosy was considered a disease to be controlled like other diseases, and the budget for leprosy became part of the general budget for public hygiene. This was one of the first steps the government took in order to eliminate the disease-apart approach. Enrique Enciso, the first Colombian physician to receive a grant from the Rockefeller Foundation to study public hygiene in the United States, was appointed Technical Director of the National Department of Hygiene in 1932. Thanks to the new political climate, Enciso was able to put into practice a vision of leprosy control that other doctors before him had been advocating without result. He contended that the policy of sequestration was responsible for the aggravation of the problem, since such tactics promoted the concealment of recently infected persons who were afraid of being isolated for the rest of their lives. These were the most dangerous cases, since they were permanent sources of infection. Enciso also suggested abolishing the 'prison-lazarettos' and treating non-infective patients at home or in special dispensaries. Isolation in the hospitals of the lazarettos would be mandatory only for 'open' or infective cases and for invalids. The system of regional dispensaries was, according to the new director of Hygiene, more effective than the most rigid segregation, and such establishments needed not be a menace for the neighboring region. On the contrary, well-organized clinics secured treatment for newly infected people who benefited the most from therapies and prevented the spread of the infection (Enciso, 1932).

The strategy suggested by Enciso relied on international experiences. As the British leprologists Leonard Rogers and Ernest Muir claimed in 1925, where there were drastic measures of compulsory segregation, usually in prison-like asylums, people inevitably hide cases which would cause new infections (Rogers *et al.*, 1925, pp. 101-2, 126). Additionally, therapeutic improvements altered the view of leprosy as an incurable disease. Rogers and Muir obtained satisfactory results treating patients in India and elsewhere with innovations they made in the application of chaulmoogra and hydnocarpus oil. Indeed, in a pamphlet entitled 'Recent Advances in the Treatment of Leprosy', Rogers discussed the case of the island of Nauru with a population of 2.500. Leprosy spread rapidly there after an influenza epidemic and, due to the deficient diet of the population, no less that 30% were infected. A policy of early recognition, isolation of the infected, treatment of patients with chaulmoogra and hydnocarpus derivatives and frequent inspection of all contacts reduced the incidence of the disease. In 1924 there were 193 infective cases, and by the end of 1933 there were only 66 (Weymouth, 1938, pp. 231-2).

In another example, Leonard Wood, the Governor General of the Philippines (1921-27), improved the conditions at Culion Leper Colony.

The government appointed a total of 18 physicians and 27 nurses, for a total of about 5.000 inmates, stationed permanently at the leprosarium, and extended the treatment of chaulmoogra and hydnocarpus oil to most patients. Previously, because of its cost, the treatment was only applied to a limited number of patients (Chapman, 1982, pp. 83-90). Thus, physicians H. Windsor Wade and Casimero B. Lara at the Culion Leprosarium were able to present cures from 15% to 20% of advanced cases. By 1930 the journal of the Philippine Islands Medical Association reported that 1.600 patients were rendered bacteriologically negative in a period of seven years, so they were allowed to leave leprosaria (Feeny, 1964, p. 111). Enciso (1932) also reported that in Agua de Dios 24,7% of patients treated with the new chaulmoogra and hydnocarpus derivatives healed within a four-year period. With the new control program of supervision of bacteriologically-negative patients, possible relapses which normally occurred in leprosy, as in tuberculosis, would be immediately detected. Enciso presented a forceful economic argument to prove that the rigorous-isolation policy was also a failure from an economic point of view: the cost of isolating a person for seven days in a Colombian leprosarium was equivalent to the cost of medicines to treat a leprosy patient for a year. Moreover, the Colombian government consumed a full 75% of its national budget for hygiene and public assistance in supporting leprosaria. The other 25% paid for hospitals, sanitation of city ports, the expenses of the recently created National Institute of Hygiene, infant protection, and the campaigns against hookworm, tuberculosis, venereal diseases, malaria, and smallpox, which were responsible, Enciso declared, for one third of the total annual mortality. Furthermore, the infant mortality was one of the most elevated in Latin America. The public hygiene budget clearly did not reflect these priorities. The campaign against leprosy was expensive, irrational, and its results were contrary to its purposes:

> What is the reason to distribute the money in this way and to continue clinging to a system which in more than a century of experience has not given satisfactory results? It is as urgent to attack leprosy as tuberculosis, syphilis and malaria. These are more prevalent and cause a larger number of victims. If we isolate lepers, why not to do the same with tuberculous patients? This disease is one hundred times more contagious than leprosy and it's responsible for ten per cent of the general mortality. Is it because society is more frightened by leprosy, and wants to avoid the displeasure of seeing its fellows disfigured or mutilated? (Enciso, 1932, p. 277).

Responding to Enciso's argument, the Colombian congress passed a law in 1932 enacting his recommendations. With this law the concept of leprosy as a 'public calamity' disappeared (*Revista de Higiene*, 1933,

pp. 50-4). The 1932 law and previous legislation suggest that leprosy played a leading role in advancing the cause of public hygiene in Colombia. To justify the approval of the 1932 law, Enciso proposed that since leprosy was the disease that Colombians feared the most while ignoring other ailments, the local dispensaries created for controlling leprosy be used to expand the action of sanitary authorities to the whole nation. Eventually, according to Enciso (1932, pp. 287-9), these dispensaries would be transformed into clinics to treat other diseases. This phenomenon was no different than what occurred in other countries where the construction of public health systems was induced by the need to control specific diseases. For example, in the United States yellow fever and cholera prompted public health reforms in the nineteenth century, while in England typhus and typhoid fevers motivated the hygienic movement. In France, however, which had been the mecca for Colombian physicians, no particular disease encouraged the development of the public health movement, but a social and political concern with poverty (La Berge, 1992, p. 284).

However, independently of the 1930 law, the government took some actions to improve public hygiene. After 1929, the National Institute of Hygiene produced bacteriological analysis of food and its nutritional composition. During the 1930s, Carlos Lleras Restrepo, as Controller-General, published indices of the cost of living and promoted studies on workers' nutrition (Abel, 1994, p. 44). At the same time, the social and economic roots of leprosy within the highly stratified Colombian society became more evident for Colombian physicians. Julio Manrique, the doctor who had visited Norwegian leprosy hospitals in 1905, claimed that starvation and malnutrition were the actual causes of leprosy. He asserted that until the end of the nineteenth century leprosy was common even among the elite, but by the early 1930s cases of leprosy among wealthy people were infrequent. Manrique (1932) attributed this epidemiological shift to the general transformation of customs in urban Colombian areas. In the late nineteenth century, consumption of fruits and vegetables and hygienic habits, like daily bathing, were rare even among the elite in cities like Bogotá. Poor people in regions where leprosy was endemic consumed almost exclusively corn, wheat, and yucca. For Manrique, economic deprivation was thus an undeniable antecedent of leprosy.

The second president of the Liberal republic, Alfonso López Pumarejo (1934-38), gave a new impulse to the anti-leprosy campaign. During his administration, social and labor questions became the heart of political contention. López was a banker, who had been engaged in the import-export coffee business. For López and his collaborators it was clear, after the social uproars of the 1920s and early 1930s, that it was dangerous for the social order to continue neglecting the needs of the poor. The sanitary conditions of the population could prevent economic development. The administration

labeled itself "the Revolution on the March". However, López's government was not a revolution. The regime adopted a mixture of revolutionary language with socialist symbols inspired by the Mexican revolution, but some aspects of López's Liberal republic were influenced by the New Deal of Franklin D. Roosevelt. Nevertheless, the rupture with the tradition was far from complete, and popular demands were not always attended to (Abel, 1987, pp. 121-2, 211-2). Although 'the Revolution on the March' granted more importance to education, public hygiene also played some role in the social policy of the regime (Abel, 1987, p. 40).

López asked the Academy of Medicine, as a consultative body, to suggest sanitary priorities for the new administration. The Academy listed leprosy in the sixth place in terms of urgency, conferring more importance to infant welfare, alcoholism, syphilis, tuberculosis, tropical diseases and rural hygiene (Quevedo Vélez *et alii*, 1993, p. 229). Leprosy was not included among the 'tropical diseases'. The earlier obsession of the medical community with leprosy was giving way to a different view of the needs of the country. Leprosy was certainly serious, but it was not the principal threat to public hygiene. In 1935, President López Pumarejo (1936, p. 145) claimed:

> ...the Republic of Colombia votes 80% — eighty per cent — of its public health budget of $2,000,000, to meet the expenses of leprosy institutions alone. The remaining 20% — twenty per cent — goes for salaries of officials, public dispensaries, port medical authorities, infant welfare, anti-venereal, anti-anaemic, anti-alcoholic, anti-tubercular campaigns, for the Samper and Martínez Laboratory, and for the general expenses of the Public Health Department. The Public Health Department is nothing more than a very expensive administrative department for leprosy institutions...

The disparity in public hygiene expenditures is made even clearer by a comparison with the Philippines, where the government spent 33% of its total appropriation for health work on leprosy control, and it was considered a high proportion of the total health expenditure (Burgess, 1934, p. 396). Although most physicians challenged the disease-apart approach in the 1920s, it was only in the 1930s that the government started to put into practice the new point of view thanks to the needs of a new economic rationality. López's governmental strategy to control leprosy basically continued and expanded the policy devised after 1931 of granting more importance to scientific research. The government increased to six the number of physicians of Agua de Dios, and some doctors created a Scientific Society in Contratación to discuss scientific as well as social and organizational issues related to that lazaretto. At the same time, physicians, instead of military officers or other professionals, were charged with the direction of leprosaria (*Revista de Higiene*, 1933b).

One of the most important aspects of the new policy was the concern of sanitary authorities towards children. In fact, the 1931 law had created an office for infant welfare (Quevedo Vélez *et alii*, 1993, p. 193). While current knowledge indicated that leprosy, when compared to tuberculosis, could be described as only slightly contagious, it was easily transmitted to children. Therefore, a genuine sanitary campaign should pay special attention to preventive measures aimed at children. Ricardo R. Parra, physician at Agua de Dios, advocated immediate separation of healthy children from their diseased parents, periodical physical examinations, and proper education in state institutions (Parra, 1935). F. Gómez Pinzón (1935a), Chief of the section of lazarettos at the National Bureau of Hygiene, explained that the protection of infants should be a state rather than a charitable concern. Criticizing the model of asylums for children within the lazarettos, he claimed that those children were ostracized while young, which made them unproductive for society. Physicians referred to the question of leprosy in a modern economic and political language.

The innovations suggested by Enciso, Manrique, and others implied radical modifications of the Colombia's leprosy policy that were not easily accomplished. For example, 1,094 healthy children under the age of fifteen were still living in Agua de Dios in 1935 (Gómez Pinzón, 1935a, p. 16). Doctor F. Gómez Pinzón (1935b) presented a report in that same year claiming that the Colombian government was still using most of its anti-leprosy campaign's budget for the administration of leprosaria. Gómez proposed instead employing a considerable part of the resources for the treatment of the sick and for a preventive campaign throughout the country. According to his report, at this time there was still a considerable population free from leprosy living within the lazarettos, the total of escapes was significant and control over sanitary cordons was limited. Hygienic conditions at leprosaria were unsatisfactory and death rates were high.

Gómez acknowledged the lack of reliable statistics and thus the need to organize a census of leprosy covering the entire nation. As to the actual figures of patients within the lazarettos, he commented that those numbers expressed the total of people currently receiving official rations. Although they were listed as leprosy patients, the data did not indicate whether or not they were actually afflicted with the disease. Within the lazarettos, many leprosy sufferers had never been examined by a doctor, and the authorities suspected that the total number of individuals receiving support from the government far exceeded the number of actual leprosy sufferers. These cases were the result of mistaken diagnoses or they were children of diseased poor parents reported as infected with leprosy so that they would obtain official allowances and would avoid starvation. In consequence, hygienic authorities started clinical and bacteriological examinations of those registered as leprosy sufferers. From 1930 to 1935, 754 leprosy patients

were discharged as non-infective and therefore able to live in society. However, only two hundread of them were subsequently controlled, of which 62 (31%) returned to the lazarettos because they suffered a relapse, because they were incapable of work, or because society rejected them, owing to their permanent disfigurements. A significant aspect of the present strategy of leprosy control was to reinforce the medicalization of leprosy by establishing mandatory treatment for all patients. This measure aimed at eradicating not only popular medicine in the lazarettos, but more importantly, at eliminating troublesome competitors of the medical establishment. Indeed, the officials uncovered several past abuses in connection with the treatment of patients. In the last few years, some doctors, such as the Spanish physician Aaron Benchetrit, had made costly arrangements with the government so that they could apply their treatments in the lazarettos. Their therapies were based on chaulmoogra derivatives. The new sanitary authorities canceled those exorbitant contracts, ordered an official mandatory treatment for all patients based on hydnocarpus oil, and proscribed all other competing therapies (Gómez Pinzón, 1935b, pp. 64-6, 134-7). In order to make the medication inexpensive, chemists at the Instituto Nacional de Higiene Samper y Martínez (National Institute of Hygiene Samper & Martínez) prepared the hydnocarpus derivatives from seeds of the tree *Hydnocarpus wightiana*, imported from India (Barriga Villalba, 1939). It is interesting to note that the prohibition of these particular treatments originated in a section of a law which regulated the exercise of the profession of medicine and surgery (*Revista de Higiene*, 1935a, p. 154). This was another example of the leading role that leprosy played in the consolidation of the profession of medicine. The case of Benchetrit also paralleled the example of professional physicians in the late eighteenth century France who occasionally acted like charlatans (Ramsey, 1988, pp. 48-9). They, as Benchetrit (1960) did, exploited proprietary remedies and celebrated their efficacy in popular publications. This quack behavior certainly operated against professional interests and solidarity.

According to the new dispositions, local dispensaries to control leprosy were established in 1934 in Cundinamarca, Norte de Santander, Valle, and Boyacá. The physician Darío Hernández, Director of the Anti-Leprosy Dispensary of Norte de Santander, one of the departments where the disease was most prevalent, reported in 1935 that a sanitary commission composed of a physician and three assistants traveled throughout the department for a period of twenty two months looking for new cases of infection. They had previously dispatched questionnaires and information on leprosy to mayors, local doctors, merchants, school teachers, and parish priests. The commission claimed to have examined every person suspected of being infected with leprosy of the rural and urban population of each town. They expressed their amazement at the

accuracy of most popular diagnoses of leprosy, corroborating observations of eighteenth century physicians. The commission gave public lectures on the problem of leprosy, its infectiousness, curability, and the importance of early diagnosis. According to Hernández (1935), the sanitary conscience of the department started to change, so much so that patients from remote places began to arrive spontaneously at the dispensary. The dispensary also distributed among the population booklets prepared by the Board of Hygiene containing scientific information on leprosy. Although this report could be inflated, at least it is an indication of the ideal at which public hygiene officials aimed at this time. Between 1936 and 1939, the government created three more regional dispensaries, appointed twelve traveling physicians to search for new cases of infection and eleven traveling health assistants who attended to the treatment of patients discharged from the lazarettos as 'socially cured' or non-infective (Bernal Londoño, 1940).

The need to rationalize the expenses of leprosaria was so pressing that in 1935 sanitary authorities suggested consolidating the three leprosaria at Agua de Dios, the largest of them. The rationale for the unification was that Contratación and Caño de Loro's locations made it more difficult to organize them technically. The integration would bring together 7,500 inmates and would render Agua de Dios the biggest leprosarium in the world, since the current largest, Culion Leper Colony at the Philippines, had 6,500 inhabitants in 1934. A comment in the section 'Leprosy News' of the *International Journal of Leprosy*, the main international journal in the field, treated this announcement as contrary to a worldwide tendency. Indeed, the leprological community at the time recommended the arrangement of multiple regional stations as less offensive to those affected, and thus more effective for the anti-leprosy campaign (*International Journal of leprosy*, 1936, p. 384). The suggested consolidation never occurred, and the proposal remained as an example of the Colombian government's public hygiene strategy, which was rather to demand greater efficiency in the use of resources than to increase the total amount of funds assigned to sanitation (Abel, 1994, p. 41).

Searching for a vaccine: the mysteries of *Mycobacterium leprae*

In the 1930s, epidemiological and bacteriological research began to play a more important role in the new approach to eradicating leprosy. Although Colombian physicians had studied leprosy before this period, their investigations were mostly the result of their personal interest rather than a deliberate component of a public hygiene strategy. From the early twentieth century on, physicians undertook a limited amount of clinical, epidemiological, and bacteriological research within the lazarettos (Montoya y Flórez, 1910). However, the research budget was restricted, laboratory equipment was scarce and rudimentary and

the lazaretto's physicians hardly had time to carry out investigations. Therefore, most of the studies, such as clinical observations about prevalent types of leprosy, hypotheses on possible sites and manners of entrance of the leprosy bacillus, and conclusions on the value of applying diverse therapies, were completed without the use of sophisticated laboratory equipment (Cleves Vargas, 1917).

In Colombia, bacteriology was a powerful vehicle for the ideology of science. The Academy of Medicine had held discussions on the germ theory and its implications for medicine since the 1880s (Pasteur, 1883). Although Colombian doctors were also acquainted with Koch's investigations, Pasteur's accomplishments were better known, as French academic influence was stronger (Esguerra *et al.*, 1891). Among the enthusiasts of bacteriology in Colombia, the veterinary doctor Federico Lleras Acosta was a truly devoted Pasteurian. He belonged to what the historian and philosopher of medicine Anne Marie Moulin has called a worldwide 'monastic order' which held a spiritual goal — to spread the gospel which they believed was the Pasteurian 'scientific revolution'. Indeed, Pasteurians acted like a religious order, for they had a 'saint' as their founder, and they obeyed a monastic rule, the Pasteurian methodology (Moulin, 1992, pp. 307-8). Since the early twentieth century, Lleras was involved, together with García Medina and others, in the limited Colombian 'hygienic movement'. As a veterinarian, he was unable to deal with leprosy patients, but as a bacteriologist he was aware of the potential significance of achieving the cultivation of Hansen's bacillus. The ultimate goal was to produce a vaccine. On the other hand, Lleras was convinced that the prophylaxis and therapeutics of leprosy should be determined by bacteriology. Consequently, he decided to focus his research efforts on culturing Hansen's bacillus (Jiménez López, 1938).

Cultivation of *Mycobacterium leprae* presented many difficulties. Since 1874, when Gerhard A. Hansen published his first observations of the bacillus and his theories about the causative agent of leprosy, many researchers cultivated acid-fast bacilli from leprosy nodules. The name 'acid-fast' came from a peculiarity of *Mycobacteria* discovered by Paul Ehrlich in 1882. Tubercle bacilli were difficult to stain, but once stained with gentian violet and saturated aniline solution in water, they resisted decolorization by mineral acids. Thus, this peculiarity became the principal method of differentiating them from other microorganisms (Yoshie, 1973, p. 363). The bacilli cultivated from leprosy nodules were considered as the cause of the disease, although attempts to replicate the work of other researchers always failed. Many bacteriologists, starting with Hansen himself, tried to cultivate the bacillus, but they were unable to maintain a viable culture outside the human organism (Rogers *et al.*, 1925, pp. 152-7). In 1933, in the first issue of the *International Journal of Leprosy*, E. Loewenstein, from the State Serotherapeutic Institute in Vienna,

claimed that acid-fast bacilli reported as true *M. leprae* were not. He obtained results similar to those obtained by researchers who claimed such cultivation, using bacilli from individuals not infected by leprosy. Acid-fast bacilli, Loewenstein argued, were extensively found in nature; indeed, they proliferated in milk and butter. What researchers took for the true Hansen's bacillus were just contaminations from laboratories or from human skin (*Smegma bacillus*). Loewenstein (1933) then suggested using blood from leprosy patients instead of skin tissue to make cultures. He also described improved methods for taking uncontaminated blood specimens and for preparing the media.

Following Loewenstein's suggestions, Lleras started his attempts to cultivate the microorganism. Because the hospital in Bogotá lacked a leprology service, due to the disease-apart approach, he worked in the private office of the physician José I. Uribe. Lleras presented his first results to the National Academy of Medicine in 1933, when he claimed that he had obtained an acid-fast bacillus in pure culture on Petragnani's medium from the blood of patients suffering from nodular leprosy. Since at this time there were no animals known to be receptive to the inoculation of Hansen's bacillus, the three Koch postulates (isolation-culture-inoculation) could not be fulfilled. However, according to Lleras Acosta (1933, p. 932), "this bacillus has the same morphology, grouping and staining reactions as the *Mycobacterium leprae* found in the lymph and nasal mucus in leprosy". Lleras Acosta prepared an antigen in order to find confirmation of the specificity of his bacillus in the 'complement fixation reaction', also called Bordet and Gengou's reaction. Jules Bordet and Octave Gengou had developed an antibody research technique in 1901 based on the ability of antigen-antibody complexes to fix complement non-specifically (Silverstein, 1989, p. 166; Moulin, 1991, p. 92). The better-known application of this technique was the Wassermann reaction, which some French call Bordet-Wassermann reaction, for diagnosis of syphilis, developed by August Wassermann, a disciple of Koch (Fleck, 1979). The causative agent of syphilis, *Treponema pallidum*, was, like *M. leprae*, non-culturable. Lleras used the analogy between syphilis and leprosy to make his antigen. Lleras also prepared an anti-virus using Alexandre Besredka's method, which he combined with the antigen to produce a specific treatment for leprosy.[1] However, Lleras Acosta (1933, p. 930) expressed his doubts: "I have read many journals, but between us [in Colombia] the bibliography is always insufficient, thus many times we believe we have made a discovery, but it proves to be a matter already solved somewhere else."

[1] 'Virus' was still used in the original sense of a toxic or poisonous microorganism.

Although isolation still played the main role, according to the new rhetoric by the new public hygiene leaders, scientific research was an important instrument for the success of the anti-leprosy campaign. In 1934, López's Liberal government created the Central Laboratory of Leprosy Research and appointed Lleras as its director. The purpose of the institution was to advance studies on the etiology, pathology,

epidemiology, serology, clinics and therapeutics of the disease (*Revista de Higiene*, 1934). At this laboratory, located in the recently created anti-leprosy dispensary of Cundinamarca, Lleras had access to a larger number of patients on whom to test his reaction. He also counted on the collaboration of physicians of the three Colombian leprosaria and the departmental dispensaries. Lleras's research programs obtained the approval of the National Board of Hygiene, and they were included as an important aspect of the anti-leprosy campaign. Previously, the government and physicians themselves considered scientific research a private vocation, but the new sanitary authorities conceived of the research and study of leprosy as part of the state responsibilities and a component of the struggle against leprosy (Lleras Acosta, 1936, p. 2). The Liberal government supported Lleras's bacteriological research for nationalistic reasons. Inspired by the example of Mexico, Peru and the Spanish republic of the 1930s, López's regime generated a strong rhetoric as to the necessity of creating a national culture through the study of the peculiarities of the country (Helg, 1987, pp. 138-44). However, the advance of scientific investigation of leprosy was not supported by an encompassing project of social reform to modify the conditions of poverty, which contributed to the expansion of the disease.

Lleras looked for legitimation of his investigations in research centers such as the Rockefeller Institute in New York and the Oswaldo Cruz Institute in Rio de Janeiro. In March of 1934, he visited the Rockefeller Institute, where some researchers studied his cultures and gave him valuable advice about research strategies. In 1935 Lleras started inoculating mice and applying some of the suggestions he procured at the Rockefeller Institute. Regarding Lleras's links with the Instituto Oswaldo Cruz, he maintained an ongoing relation with H. C. Souza Araújo, a renowned Brazilian leprosy researcher, who later visited Colombia to provide professional advice to the anti-leprosy campaign. Souza Araújo prepared antigens from several strains of bacilli isolated by various workers on leprosy in different parts of the world, among them, Lleras's acid-fast cultures. By injecting those antigens into leprosy patients, Souza Araújo (1938) concluded that those prepared from Lleras's cultures were the most active, that is, they provoked the strongest reaction on patients. Thus, Lleras's antigens were a potentially effective tool for diagnosis.

In 1936, three years after his first communication to the Academy of Medicine, Lleras announced new results. He had kept his bacilli in pure culture and made over forty subcultures. Lleras concluded that his complement fixation reaction was specific; thus it insured an early diagnosis because of its sensitivity. Lleras Acosta (1938) believed that his reaction would become the basis of the scientific prophylaxis of leprosy. With Lleras's reaction, the very definition of the disease changed. Early diagnosis of leprosy proved the existence of more leprosy sufferers than the statistics had previously showed by revealing infection in

individuals lacking clinical symptoms (Lleras Acosta, 1936, pp. 76-7). Bacteriology rather than clinical medicine started to demarcate the distinction between health and disease.

Nevertheless, the situation surrounding the cultivation of Hansen's bacillus was indeed confused in the 1930s. Several researchers claimed success in growing *M. leprae* in vitro using a variety of media cultures and diverse temperatures and techniques (McKinley *et al.*, 1933; Souza Araújo, 1933). However, when other leprosy workers replicated these methods, they hardly ever achieved the same conclusions. For example, Souza Araújo reported that the cultivation by Shiga's method was impossible, whereas cultivation by Loewenstein's method was successful. Other scientists, though, reported Loewenstein's method a failure. An endless list of researchers claimed success in culturing Hansen's bacillus using their own methods, while reporting qualified failure when replicating other workers' research (Eddy, 1937). Accordingly, Lleras's results generated a strong polemic in Colombian medical circles in which professional rivalries were not absent. Many doctors doubted Lleras's claims simply on the grounds that, after all, he was not even a physician. A commission from the National Academy of Science studied Lleras's results, and presented a sober report. They reviewed the status of the numerous attempts to cultivate *M. leprae* and to inoculate it in animals, followed by an extensive bibliography. Finally, they concluded that Lleras's research was extremely valuable, that his results were not definitive, and that the most important part of his work was the serological reaction. They also proposed that he continue his investigation (Franco *et alii*, 1938, p. 574).

In 1938, an editorial in the *International Journal of Leprosy* (1938b, p. 98) stated that Lleras's results were 'especially interesting' and recommended further investigation. The Liberal Colombian government, Lleras's permanent sponsor, acted on Souza Araújo's recommendation that Lleras be sent to Cairo, for the Fourth International Leprosy Congress. The Colombian press portrayed Lleras as a hero and the headlines announced: "Brazilian leprologists demand Lleras's presence" at the Cairo conference (*El Tiempo*, 1937). However, Lleras never arrived at Cairo. He died in Marseille on March 18, 1938, on his way to the conference. The Colombian government re-named the Central Laboratory of Leprosy Research the Institute of Leprosy Research Federico Lleras Acosta. The International Leprosy Congress, in its official conclusions, lamented the death of the official Colombian representative (*Revista de Higiene*, 1938, p. 8).

The organizers of the Egyptian conference had initially arranged three subcommittees on the issues of classification, treatment, and epidemiology and control of leprosy. However, a fourth subcommittee on in vitro cultivation of *M. leprae* was appointed during the course of the meeting, no doubt because of the relevance that the problem of cultivation of Hansen's bacillus had acquired within the last decade.

The official report of the fourth subcommittee consisted of a brief statement, signed by researchers who had themselves maintained that they cultured Hansen's bacillus. According to the report, claims of successful cultivation of *M. leprae* were impossible to duplicate; therefore, the problems of growing Hansen's bacillus in vitro were not yet solved. The committee also encouraged researchers to continue working along this line.[2] Brazilian scientist P. C. R. Pereira (1939) reviewed various reactions proposed for diagnosing leprosy, among them, Lleras's reaction. He found a large discrepancy between his observations and those of Lleras. In 1941, U.S. scientists S.H. Black and H. Ross reported a comprehensive trial of Lleras's complement fixation reaction. They observed a small proportion of positive reactions among the bacteriologically negative cases of leprosy and the occurrence of positive results in cases of persons not afflicted with the disease. Thus, they concluded that the reaction was of no practical value for the diagnosis of leprosy (Black *et al.*, 1941).

That was the final scientific judgment on Lleras's work. Regarding the cultivation of *M. leprae*, Lleras failed as all others had failed. Growing Hansen's bacillus in vitro and producing a vaccine for leprosy proved to be an impossible task. Despite the claims, scientists never acknowledged that the organism had been cultured. The field of bacteriological research on leprosy was dispersed during Lleras's lifetime: researchers in diverse institutional settings in Europe, the United States, South America, Japan, and India tried to solve the mysteries of *M. leprae*. This dispersion/diversion made it difficult to find homogeneous conditions of replicability. Thus, it was impossible for leprologists to accept the claim that the culture of Hansen's bacillus was achieved by a member of their community. Lleras's investigations played an influential role in developing a bacteriological research tradition on leprosy which colleagues and disciples carried on after his death (Tovar Daza, 1936). However, as part of the leprosy control program, Lleras's studies were not as influential. The Liberal regime relied excessively on the chances of producing a vaccine rather than promoting social and sanitary reform to eradicate poverty and malnutrition. Although the exact mode of transmission of *M. leprae* was still unknown at this time, the example of Norway showed that it was possible to arrest the spread of leprosy through improving the living conditions of the population. Furthermore, as Lleras advanced his studies, the leaders of the campaign against leprosy in Colombia increasingly took part in the new international crusade against leprosy. In the late 1930s this participation became more visible and institutionalized.

[2] A dissenting member of the committee, the Swedish leprologist John Reenstierna, who visited Colombia in 1936 and studied Lleras's cultures, contradicted the statement. He presented instead another claim: that the Soviet pathologist and bacteriologist Wassily Ivanovitch Kedrowsky and a few other researchers had actually succeeded cultivating *M. leprae* (*International Journal of Leprosy*, 1938b, pp. 408-9).

The anti-leprosy campaign becomes international

After the first international leprosy congress in Berlin in 1897, subsequent congresses were held in Bergen in 1909, in Strasbourg in 1923, and in

Cairo in 1938. From the first conference, leprologists aspired to establish a permanent international organization to arrange successive meetings and to gather epidemiological and statistical information about the disease. This ambition was partially accomplished with the creation of a journal called *Lepra, Bibliotheca Internationalis*, which had a brief existence, 1900-15 (Jeanselme, 1934, p. 558). In the late 1920s the Philippine government created the Leonard Wood Memorial for the Eradication of Leprosy in the Philippines, as a memorial to the Governor who took so much interest in improving the conditions of leprosy patients at Culion. Some of the funds for this organization were contributions made by U.S. citizens. The purpose of the new institution was to advance scientific research on leprosy and to find adequate treatments for the disease. The Memorial funded the construction of several research laboratories at the islands' principal leprosarium, in Culion, and at the island of Cebu, which had the highest prevalence of leprosy in the Philippines at the time. In 1931, the Memorial, together with the Leprosy Commission of the League of Nations, organized an international conference on leprosy in Manila. Many of the world's leading leprologists attended, including Robert G. Cochrane from the British Empire Leprosy Relief Association, Etienne Burnet, from the Leprosy Commission of the League of Nations, Ernest Muir from the Calcutta School of Tropical Medicine, and others. The main purposes of the conference were to study methods of leprosy control, including diagnosis and treatment, prevention and research, and to coordinate the scattered research on leprosy. This meeting was the origin of the International Leprosy Association and of its publication, the *International Journal of Leprosy*, whose first issue was published in 1933. The journal is still being published, with the addition in 1966 of the subtitle 'And Other Mycobacterial Diseases' (Long, 1967, pp. 239-47; Burgess, 1951, pp. 78-80).

Although no Colombian physicians participated in the Manila conference, they became familiarized with the new developments in leprosy research. In 1935 Arturo Robledo, director of the Board of Hygiene, sent letters to internationally renowned leprologists, with a questionnaire about contagion, isolation, modern therapies and other relevant aspects of a leprosy control program. Etienne Burnet's answer was published by the *Revista de Higiene* (1935b), but his main points were analogous to Enciso's approach suggested three years earlier. In addition, Colombian leprosy officials began publishing information about the anti-leprosy campaign in the *International Journal of Leprosy*. In 1938, the Colombian government created the National Ministry of Work, Hygiene and Social Welfare, one of the nine departments of which was the Departamento de Lucha Antileprosa (Department for the Anti-Leprosy Campaign). The news about this event appeared in the *International Journal of Leprosy* (1939) under the title 'A new era in Colombia'.

In the same vein, the resolutions of the 1938 Cairo conference were widely diffused in the Colombian medical press. The Colombian government had already put into practice some of the main conclusions of this congress (*Revista de Higiene*, 1938, pp. 4-5). For example, the international convention determined that the struggle against leprosy was essentially an official responsibility and that governments should encourage leprosy research. Colombian hygienic authorities had already made both decisions. These determinations were important to end the disease-apart approach to leprosy:

> the Congress, while appreciating to the full the work of voluntary organizations in antileprosy work, wishes to emphasize strongly its opinion that the control of leprosy is essentially the responsibility of the governments of the countries where the disease is common, and that antileprosy work should form an important integral part of the public health programmes of such countries. It is also urged that governments should do everything possible to initiate and encourage research with a view to improving methods of leprosy control (*International Journal of Leprosy*, 1938, p. 386).

The conference also enhanced the role of the state by recommending the use of pure hydnocarpus oil and esters prepared in official institutions, as opposed to proprietary preparations available on the market. Physicians had practiced this procedure in Colombia since 1935, when the government prohibited the application of expensive treatments by private doctors within the lazarettos. The recommendations of the Cairo leprosy congress aimed at lessening the role of religious mission societies. Since the great alarm about leprosy in the late nineteenth century, these societies had played a considerable role worldwide at caring for leprosy sufferers, raising funds for their support and spreading the stigma of leprosy as a unique and loathsome disease. However, leprologists, gathered on international conferences of leprosy and within the International Leprosy Association, did not possess the political power to generate these changes. The actual incorporation of leprosy within the public health systems of the nations where it was endemic was a result of the post second world war. As the historian Zachary Gussow has pointed out, three series of circumstances brought about the end of treating leprosy as a disease apart in the 1940s: the development of the sulfonamides, the termination of colonial empires, and the creation of the World Health Organization (Gussow, 1989, pp. 218-24). This was the approach that the Colombian government and physicians had been trying to implement since the 1930s, battling against prejudices the medical community itself had helped to create.

In one more instance of the internationalization of the anti-leprosy campaign, in 1939, the Colombian government invited the Brazilian doctor H. C. Souza Araújo to assess the country's control program against the disease. The leprologist, together with some of the lazarettos'

physicians, carried on several studies of the leprosy problem, among them a study on healthy children who were still living in the lazarettos and an epidemiological inquiry of leprosy in Caño de Loro (Souza Araújo *et al*., 1939). Souza Araújo also gave a course on the disease, which was attended by 32 physicians, 24 of them members of the leprosy staff of the Ministry of Hygiene (Souza Araújo, 1939). One of the results of his visit was the creation of the Colombian Leprological Society, a move which Etienne Burnet had also recommended in his 1929 visit to Colombia. Indeed, a group of physicians founded a leprological society with forty members to advance research on leprosy and to provide scientific bases for the campaign against the disease. Ten of these members joined the International Leprosy Association. With governmental sponsorship, the Leprological Society started publishing a quarterly journal, the *Revista Colombiana de Leprología*. The journal contained a section with varied information from the main research sites on leprosy and about leprosy control programs of other nations (*Revista Colombiana de Leprología*, 1939). Colombia was effectively entering a new international network of institutions dealing with epidemiological, clinical, and bacteriological research on the disease.

Luis Patiño Camargo, director of the Research Institute Federico Lleras Acosta, described it as a modern institution with laboratories of serology and biological chemistry, microbiology, anatomy and pathology, medical offices, conference room, administrative offices, library, anatomy and pathology museum, pavilion for patients and an area for experimental animals. According to Patiño Camargo (1940), the institute gave special importance to the scientific study of the transmission of leprosy, since without the understanding of the mode of communication, the prophylaxis of leprosy was only empirical. A team of five full-time researchers set up a research program on diverse aspects of leprosy control. Again, a wave of optimism based on a renewed confidence in scientific methods permeated the medical community and the sanitary authorities.

Conclusion

During the 1920s and 1930's, it became clear for most Colombian physicians that the model of segregation to control leprosy had failed. Public expenditure on leprosaria was excessive, there was no actual isolation within the lazarettos and the disease was still propagating. Physicians started to suggest sanitary reform and economic development as more effective ways to check the spread of the disease. Some changes in the leprosy policy occurred in the late 1920s through expanding use of chaulmoogra oil to all patients segregated in leprosaria and through empowering the medical profession with therapeutic decisions and organization of the lazarettos. International innovations in the use of chaulmoogra and hydnocarpus oil and their derivatives made them

less repulsive and painful for patients. Although these oils needed to be applied for long periods of time in order to be effective, and did not always stop the advance of the infection, its use helped changing the belief that leprosy was an incurable disease.

More meaningful changes occurred when the Liberal governments of the 1930s began to put into practice new economic criteria and, within a wider frame of public hygiene, tried to reverse the disease-apart approach to leprosy. The earlier obsession of the medical community with leprosy gave way to a more realistic attitude towards other public hygiene needs of the Colombian population. The government created regional dispensaries in some of the departments to survey the propagation of leprosy. Early detection of new cases of infection, instead of rigid isolation for all patients, became the key to the new approach. In the same way that physicians of earlier periods had instructed the Colombian public on the high contagiousness of leprosy, now physicians tried to educate the community on the low infectiousness of the disease. They also eased the policy of strict segregation for all infected cases, replacing it by an approach of treating new infections earlier in dispensaries and isolating only advanced and contagious cases.

Besides prevention, research on leprosy was another relevant element of the new strategy. Federico Lleras Acosta, the leading bacteriologist researching on leprosy, focused on the cultivation of the etiological agent of the disease with the intention of producing a vaccine and a test for early detection of cases. Although he failed in this attempt, since *M. leprae* proved impossible to culture with the techniques available at the time, Lleras's work generated a tradition of leprosy research in Colombia. The changes in the official rhetoric were related to more complex social, political and economic transformations of the country. However, despite the public announcements of the Liberal regime in terms of its commitment to the lower classes, there was no radical transformation of the inequitable Colombian society. After decades of frightening the population about the dangers of the disease, to see leprosy as a common ailment, instead of a special condition colored with moral overtones, was not easy. Lazarettos remained places of confinement, and isolation was still the main strategy to deal with the disease. The complete insertion of leprosy within hospitals and medical institutions was not accomplished at this time in Colombia. On the hand, the dominant classes chose to relay on medical techology rather than to promote social and economic reform to eradicate leprosy. They preferred to count on the promise of a vaccine for leprosy rather than alleviating the harsh living conditions of the poor.

BIBLIOGRAPHIC REFERENCES

Abel, Christopher 1995 — 'External philanthropy and domestic change in colombian health care: the role of the Rockefeller Foundation, ca. 1920-1950'. *The Hispanic American Historical Review*. Durham NC, 75:3, pp. 339-76.

Abel, Christopher 1994 — *Health care in Colombia c.1920-c.1950: a preliminary analysis*. London, Institute of Latin American Studies.

Abel, Christopher 1987 — *Política, Iglesia y partidos en Colombia: 1886-1953*. Bogotá, FAES/Universidad Nacional de Colombia.

Barriga Villalba, A. M. 1939 — 'La nueva planta de fabricación y purificación de los ésteres etílicos de Chaulmoogra, del Instituto Nacional de Higiene Samper & Martínez'. *Revista Colombiana de Leprología*. Bogotá, 1:3, pp. 167-71.

Benchetrit, Aaron 1960 — *Datos para la historia de la lepra en Colombia durante la década de 1926 a 1936*. Bogotá, Minerva.

Bernabeu Mestre, Josep *et al*. 1991 — 'Lepra y sociedad en la España de la primera mitad del siglo XX: La Colonia Sanatorio de Fontilles (1908-1932) y su proceso de intervención por la Segunda República'. *Dynamis: Acta Hispanica ad Medicinae Scientiarumque Historiam Illustrandam*. Granada, 11, pp. 287-344.

Bernal Londoño, Mario 1940 — 'Anotaciones alrededor de la campaña de profilaxis antileprosa'. *Revista Colombiana de Leprología*. Bogotá, 1:4, pp. 257-60.

Black, S. H. *et al*. 1941 — 'The complement fixation reaction of Lleras in leprosy'. *International Journal of Leprosy*. Manila, 9:2, p. 270.

Burgess, Perry 1951 — *Born of those years*. New York, Henry Holt.

Burgess, Perry 1934 — 'The Leonard Wood Memorial: its origin, purposes and activities'. *International Journal of Leprosy*, Manila, 2:4, pp. 395-402.

Chapman, Ronald Fettes 1982 — *Leonard Wood and leprosy in the Philippines: the Culion Leper Colony, 1921-1927*. Honolulu, University Press of America.

Cleves Vargas, Carlos J. 1917 — 'Formas curables de lepra'. *Repertorio de Medicina y Cirugía*. Bogotá, 8-10:94, pp. 458-65.

Eddy, Bernice E. 1937 — 'Attempted cultivation of *Mycobacterium leprae*'. *International Journal of Leprosy*. Bogotá, 5:1, pp. 31-43.

El Tiempo 24 nov. 1937 — Bogotá, p. 1.

Enciso, Enrique 1932 — 'Breve historia de la campaña contra la lepra en Colombia: nuevo plan de lucha contra esta enfermedad'. *Revista de Higiene*. Bogotá, 13:8, pp. 257-95.

Esguerra, Carlos 1922 — 'El problema de la lepra en Colombia'. *Repertorio de Medicina y Cirugía*. Bogotá, 13-6:150, pp. 291-305.

Esguerra, Carlos *et al*. 1891 — 'Tratamiento de la tuberculosis por el profesor Robert Koch'. *Revista Médica*. Bogotá, 14:157, pp. 336-41.

Feeny, Patrick 1964 — *The fight against leprosy*. New York, American Leprosy Mission.

Fleck, Ludwik 1979 — *Genesis and development of a scientific fact*. Chicago, The University of Chicago Press.

Franco, Roberto *et alii* 1938 — 'Los trabajos del profesor Federico Lleras Acosta sobre lepra'. *Revista de la Facultad de Medicina*. Bogotá, 6:11, pp. 569-84.

García, Claudia M. *et al.* 1998 'Uncinariasis y café: los antecedentes de la intervención de la Fundación Rockefeller en Colombia, 1900-1920'. *Biomédica*. Bogotá, 18:1, pp. 5-21.

García Medina, Pablo 1932 'Ley 20 de 1927 sobre lazaretos'. *Compilación de leyes, decretos, acuerdos y resoluciones vigentes sobre higiene y sanidad en Colombia*. Bogotá, Imprenta Nacional, pp. 363-6.

Gómez Pinzón, F. 1935a 'Los hijos sanos de los enfermos de lepra'. *Revista de Higiene*, 16:1-4, pp. 15-7.

Gómez Pinzón, F. 1935b 'Informe sobre lepra que la Sección 5ª rinde al señor Director Nacional de Higiene'. *Revista de Higiene*, 16:7-10, pp. 53-149.

Gussow, Zachary 1989 *Leprosy, racism, and public health: social policy in chronic disease control*. Boulder, CO/Westview Press.

Gutiérrez Pérez, Antonio 1925 *Apuntamientos para la historia de Agua de Dios*. Bogotá, Imprenta Nacional.

Helg, Aline 1987 *La educación en Colombia 1918-1957*. Bogotá, CEREC.

Helg, Aline 1986 'El desarrollo de la instrucción militar en Colombia en los años 20: estudio del impacto de una misión militar suiza'. *Revista Colombiana de Educación*. Bogotá, 17, pp. 19-40.

Hernández B., Darío 1935 'Memorandum de las labores desarrolladas por la campaña anti-leprosa del norte de Santander'. *Revista de Higiene*. Bogotá, 16:7-10, pp. 149-52.

Herrera Restrepo, Alejandro 1930 'Sobre lepra'. *Repertorio de Medicina y Cirugía*. Bogotá, 21-9:249, pp. 422-6.

Herrera Restrepo, Alejandro and Martini, Erich 1921 'Cartas del 9 y 14 de mayo de 1921'. *Memoria del Ministro de Agricultura y Comercio al Congreso de 1921*. Bogotá, Imprenta Nacional, pp. 149-50.

International Journal of Leprosy 1939 'Leprosy news and notes'. Manila, 7:3, pp. 415-6.

International Journal of Leprosy 1938a 'Reports on meetings: The Cairo Congress'. Manila, 6:3, pp. 377-424.

International Journal of Leprosy 1938b 'The immunology problem'. Manila, 6:1, pp. 95-101.

International Journal of Leprosy 1936 'News items'. Manila, 4:3, p. 384.

Jeanselme, Édouard 1934 *La lèpre*. Paris, G. Doin.

Jiménez López, Miguel 1938 'Discurso pronunciado el 29 de marzo en la Academia Nacional de Medicina'. *Revista de la Facultad de Medicina*. Bogotá, 6:10, pp. 540-3.

La Berge, Ann F. 1992 *Mission and method: the early nineteenth-century french public health movement*. Cambridge, Cambridge University Press.

León Gómez, Adolfo 1927 *La ciudad del dolor*. 3rd, ed., Bogotá, Imprenta de Sur América.

Loewenstein, E. 1933 'Bacteriological diagnosis of leprosy by means of blood culture'. *International Journal of Leprosy*. Manila, 1:1, pp. 39-44.

Long, Esmond R. 1967 'Forty years of leprosy research: history of the Leonard Wood Memorial (American Leprosy Foundation) 1928 to 1967'. *International Journal of Leprosy*. Washington, 35:2, pp. 239-303.

López Pumarejo, Alfonso 1936 'Budgeting for leprosy'. *Leprosy Review*. London, 7, pp. 144-5.

Lleras Acosta, Federico 1938 'The specificity of a bacillus isolated from the blood of lepers (Summary)'. *International Journal of Leprosy*. Manila, 6:1, pp. 91-3.

Lleras Acosta, Federico 1936 *Pruebas de la especificidad de un bacilo aislado de la sangre de los leprosos*. Bogotá, Imprenta del Departamento.

Lleras Acosta, Federico 1933 'Algunas consideraciones sobre la biología del bacilo de Hansen'. *Revista de la Facultad de Medicina*, 1:12, pp. 929-35.

Manrique, Julio 1932 '¿Carate y lepra, enfermedades de carencia?'. *Repertorio de Medicina y Cirugía*. Bogotá, 23-3:267, pp. 99-102.

McKinley, Earl B. *et al*. 1933 'Cultivation of *Mycobacterium leprae*'. *International Journal of Leprosy*. Manila, 1:3, pp. 351-3.

Montaña Eliseo 1929 'Estado actual de la lucha contra la lepra en Colombia (La conferencia del profesor Burnet)'. *Repertorio de Medicina y Cirugía*. Bogotá, 20-4:232, pp. 172-79.

Montoya y Flórez, Juan Bautista 1910 *Contribución al estudio de la lepra en Colombia*. Medellín, Imprenta.

Moulin, Anne Marie 1992 'Patriarchal science: the network of the overseas Pasteur Institutes'. In P. Petitjean (org.), *Science and empires: historical studies about scientific development and European expansion*. Dordrecht, Kluwer Academic Press, pp. 307-22.

Moulin, Anne Marie 1991 *Le dernier langage de la médecine: histoire de l'immunologie de Pasteur au Sida*. Paris, Presses Universitaires de France.

Obregón, Diana 2002a 'Building national medicine: leprosy and power in Colombia, 1870-1910'. *Social History of Medicine*. Oxford, 15:1, pp. 89-108.

Obregón, Diana 2002b *Batallas contra la lepra: estado, medicina y ciencia en Colombia*. Medellín, Banco de la República/EAFIT.

Obregón, Diana 2003 'The state, physicians and leprosy in modern Colombia'. Em D. Armus (org.), *Disease in the history of modern Latin America: from malaria to AIDS*. Durham NC, Duke University Press.

Ocampo, José Antonio 1984 *Colombia y la economía mundial 1830-1910*. Bogotá, Siglo XXI.

Ocampo, José Antonio *et al*. 1984 *Crisis mundial, protección e industrialización: ensayos de historia económica colombiana*. Bogotá, CEREC.

Palacios, Marco 1980 *Coffee in Colombia, 1850-1970: an economic, social, and political history*. Cambridge, Cambridge University Press.

Parra, Ricardo F. 1935 'Lepra y niños' *Revista de Higiene*. Bogotá, 16:7-10, pp. 164-78.

Pasteur, Louis 1883 'Rabia: nuevos hechos que sirven para el conocimiento de esta enfermedad'. *Revista Médica*. Bogotá, 7:83, pp. 481-6.

Patiño Camargo, Luis 1940 — 'Instituto de investigación Federico Lleras: objeto de este centro de investigación-organización técnica y estudios que se adelantan'. *Revista Colombiana de Leprología*. Bogotá, 1:4, pp. 261-6.

Pereira, P. C. R. 1939 — 'Current literature: a reação de Lleras Acosta na leprose'. *International Journal of Leprosy*. Manila, 7:1, p. 123.

Quevedo Vélez, Emilio *et alii* 1993 — 'Ciencias médicas, estado y salud en Colombia: 1886-1957'. *Historia Social de la Ciencia en Colombia*. Bogotá, Tercer Mundo, vol. 8, pp. 161-289.

Ramsey, Matthew 1988 — *Professional and popular medicine in France, 1770-1830: the Social World of Medical Practice*. Cambridge, Cambridge University Press.

Repertorio de Medicina y Cirugía 1927 — 'Sobre la lepra'. Bogotá, 18-7:211, pp. 335-9.

Repertorio de Medicina y Cirugía 1926a — 'El problema de la lepra'. Bogotá, 17-5:197, pp. 245-9.

Repertorio de Medicina y Cirugía 1926b — 'La lepra: siempre la lepra'. Bogotá, 18-3:207, pp. 115-18.

Repertorio de Medicina y Cirugía 1926c — 'Progreso de la higiene nacional'. Bogotá, 17-10:202, pp. 545-7.

Repertorio de Medicina y Cirugía 1920 — 'Lucha antileprosa'. Bogotá, 11-8:128, pp. 393-5.

Repertorio de Medicina y Cirugía 1915 — 'Lepra'. Bogotá, 6-5:65, pp. 161-4.

Revista Colombiana de Leprología 1939 — 'Acta de instalación de la sociedad colombiana de leprología'. Bogotá, 1:1, pp. 54-6.

Revista de Higiene 1938 — 'Congreso internacional de lepra: conclusiones fundamentales'. Bogotá, 19-9:9, pp. 4-24.

Revista de Higiene 1935a — 'Campaña contra la lepra en 1935'. Bogotá, 16:7-10, pp. 153-5.

Revista de Higiene 1935b — 'Respuesta del profesor Burnet a una carta dirigida por el Departamento Nacional de Higiene a los más eminentes leprólogos del mundo'. Bogotá, 16:7-10, pp. 156-63.

Revista de Higiene 1934 — 'Decreto número 1649 de 1934'. Bogotá, 15:3-10, pp. 362-3.

Revista de Higiene 1933a — 'Ley número 32 de 1932 (noviembre 18) por la cual se dictan algunas medidas relativas a la lucha contra la lepra y se adoptan otras disposiciones en el ramo de la higiene'. Bogotá, 14-2:2, pp. 50-4.

Revista de Higiene 1933b — 'Sociedad científica del lazareto de Contratación'. Bogotá, 14-2:2, pp. 47-9.

Rogers, Leonard *et al.* 1925 — *Leprosy*. New York, William Wood and Co.

Sauton, Dom 1901 — *La léprose*. Paris, C. Naud.

Silverstein, Arthur M. 1989 — *A History of immunology*. San Diego, CA, Academic Press.

Skinsnes, Olaf K. 1973 — 'Notes from the history of leprosy'. *International Journal of Leprosy*. Washington, 41:2, pp. 220-48.

Souza Araújo, Heraclides César de 1956 — *História da lepra no Brasil*. Rio de Janeiro, Departamento de Impresa Nacional.

Souza Araújo, Heraclides César de 1939 — 'La lucha antileprosa en el Brasil'. *Revista Colombiana de Leprología*. Bogotá, 1:1, pp. 36-47.

Souza Araújo, Heraclides César de 1938 — 'Current literature: intradermo-reações em leprosos com antígenos de culturas de bacilos ácido-álcool resistentes'. *International Journal of Leprosy*. Manila, 6:4, p. 597.

Souza Araújo, Heraclides César de 1933 — 'Essais de culture du *Mycobacterium leprae* (*Coccothrix leprae*, Lutz 1886) par la méthode de Sumiyoshi-Shiga'. *International Journal of Leprosy*. Manila, 1:1, pp. 45-7.

Souza Araújo, Heraclides César de *et alii* 1939 — 'Encuesta epidemiológica sobre los niños considerados sanos en el lazareto de Agua de Dios'. *Revista Colombiana de Leprología*. Bogotá, 1:2, pp. 78-93.

Tovar Daza, Jacobo 1936 — *La reacción de la leprolina Lleras*. Bogotá, Editorial Santafé.

Weindling, Paul 2000 — *Epidemics and genocide in Eastern Europe, 1890-1945*. Oxford, Oxford University Press.

Weymouth, Anthony 1938 — *Through the leper-squint: a study of leprosy from pre-Christian times to the present day*. London, Selwyn and Blount/Paternoster House.

Yoshie, Yoshio 1973 — 'Advances in the microbiology of *M. leprae* in the past century'. *International Journal of Leprosy*, 41:3, pp. 361-71.

Submitted on October 2002.

Approved on March 2003.