PUBLIC HEALTH IN THE DOMINICAN REPUBLIC

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In considering public health in the Dominican Republic, we naturally take into account the program, the present status, and the outlook.

The practical cessation of constructive health activity early in 1921 and the uncertainty of resumption of the program, both of these matters being dependent upon political conditions in the Republic, prevent us from following this logical order of discussion. It seems inadvisable to introduce any reference to political conditions, although it is difficult to present the subject intelligently without so doing, even in a purely professional journal.

Dr. J. M. Swan, president of the American Society of Tropical Medicine, has communicated in No. 1, volume I, of this Journal (January, 1921) certain political, geographic, demographic and statistical information relating to Dominica and Haiti. This information was gathered in the field survey conducted by him for the American Red Cross, from December, 1919, to February, 1920. In 1920 the International Health Board of the Rockefeller Foundation, through its representative, Dr. John B. Grant, also made a survey and rendered a report containing further valuable data, collected in July and August of that year, particularly with reference to hookworm prevalence. It is neither necessary nor desirable to parallel or duplicate these observations in my paper.

The logic of events (politically) has deprived this accumulated data of much of its immediate value. It should be read, however, by all students of public health in the American tropics.
main, I find the observations accurate, although I cannot subscribe, after personal observations, to all of the deductions recorded by the reporters. It is inevitable that the personal equation must influence and likewise tint the views and opinions of the observers. Nor do I imagine that my own observations are entirely free from such influence.

In 1920 the writer went to Santo Domingo at the instance of the secretary of sanitation, military government of the Dominican Republic, under leave of absence from the state health department of Pennsylvania, to lend such aid as might be possible to the health authorities there, represented by the Department of Sanitation and Beneficence of the United States military government, now in force in Dominica. As most people know, Dominica occupies the eastern two-thirds of the island of Haiti, is entirely distinct from the republic of that name and has for its capital the ancient and historically important city of Santo Domingo. The Dominican Republic is also known by the name Santo Domingo—originally applied to the entire island. I returned in March, 1921, after five months service, further serious action being impossible at that time.

Of the American undertakings in the Dominican Republic, I mention only those projected for health and sanitation and offer my single criticism first.

It is this: The program adopted is too elaborate for the country, considering its population and its resources, and there is indicated by this program a lack of the sense of perspective and proportion. The exact population is unknown, but it certainly is less than one million persons and the total area of Dominica is about equal to one-third the extent of Pennsylvania; it is moreover very sparsely populated. In 1920 Dr. Swan (American Red Cross) estimated this population at 700,000, while Dr. Grant (Rockefeller Foundation) estimates it at 800,000. In my judgment the actual population is less than either of these estimates.

According to the official report of the governor’s medical aide on October 9, 1920 there had been spent in 1920 upon sanitation and public health $657,000 and the projected expenditures for
Fig. 1. National Laboratories, Santo Domingo, R. D.

Fig. 2. National Laboratories, Santo Domingo, R. D.
1921, as per budget estimation, were $1,000,000. Considering the fact that in 1916 the native government spent but $30,000 for health, it is hard to escape the conviction that such expansion of expenditure is beyond the bounds of reason and good government.

The sanitary and health undertakings included the promulgation of a sanitary law and a sanitary code. This code is a comprehensive one and covers nearly all of the numerous health necessities of a modern and civilized state. It is hard to predict what will happen to it when the Dominican Republic resumes operations; just as it is hard to predict the fate of other laws, however beneficent, promulgated by executive order during military occupation. My criticism of this code is that it is rather too elaborate for a country as primitive as the Dominican Republic.

It must be admitted that, to a large degree, the sanitary and health organization exists principally on paper and that the code is enforced in a corresponding manner. This remark does not apply, however, to such basic matters as quarantine, vaccination and attempted control of communicable diseases.

A system of reporting of vital and morbidity statistics is also nominally in force as a result of our organization and while the bureau constantly gained efficiency up to January, 1921, it is far from being a dependable source of information as yet. Death reports are fairly complete, but in the absence of census statistics and with very incomplete reporting of disease, the rates of incidence of special diseases cannot be depended upon if based solely upon bureau reports. As in most Catholic countries, the collection of vital statistics is aided considerably through the performances and records of the church.

There is great need for study of the incidence of certain diseases known to prevail extensively, particularly malaria, the intestinal infections, and parasitic infections and infestations. A demonstration hookworm survey has already been made by the International Health Board and the results indicate the usual variation of distribution according to aridity of soil and density of population (see discussion later in this paper).
FIG. 3. GROUP OF BUILDINGS, LEPER COLONY, NIGUA, R. D.

FIG. 4. CONCRETE DOUBLE COTTAGES FOR TWO LEPERS, LEPER COLONY, NIGUA, R. D.
The hygienic laboratories, which, as director of national laboratories, I undertook to develop in 1920 and bring to a fair stage of efficiency, could carry out these studies and its routine work perfectly well if the direction be wise and if adequate funds and personnel could be maintained. One of the first effects of the financial crisis of January, 1921, was to put an end, at least for the time being, to the extending of laboratory activities. As preventive medicine rests so completely upon the foundation of laboratory investigation, this setback to public health was a serious one. In a communication of May 15, word comes that both biological and chemical national laboratories and many of the schools are now closed. It is possible that one of the great American foundations might be induced to come to the rescue in operating some of these institutions temporarily.

Other undertakings of undoubted merit and desirability, already accomplished in part, are the supervision of health in the schools, the erection and establishment of hospitals in Dominican towns and a system of sanitary inspection of towns and markets. The installation of a department of sanitary engineering and the supervision and examination of milk and water supplies at the national laboratory were also well launched undertakings at the beginning of 1921, but have since been abandoned in great part, for lack of funds.

The conquest of smallpox through widespread vaccination, quarantine, and the isolation of all detected cases, is already a practically accomplished fact and one which reflects credit upon the capable and conscientious secretary of the Department of Sanitation and Beneficence, Dr. Reynolds Hayden, Commander, United States Navy (see later remarks concerning smallpox). Evidence of the effective pioneer work of his predecessor in Santo Domingo, Dr. P. E. Garrison, U. S. N., were also noted in many directions.

Another achievement carried nearly to completion by Dr. Hayden was the erection of a national leper colony. The writer also had the honor of serving as medical director of leper hospitals and it was with great disappointment that plans for transferring all known lepers to the new colony were abandoned or
indefinitely postponed in February. Preparations were then well under way to begin on March 1st, the modern treatment of leprosy developed in the past few years in the Philippines, Hawaii and California and the cases suitable for such experimentation had been carefully studied and designated. At present the Santo Domingo lepers are quartered at San Lazaro Hospital, an ancient and most inadequate institution in the Dominican capital. Later in this paper I shall speak of leprosy more concretely.

A protective campaign against the introduction of plague from Gulf of Mexico ports and from Porto Rico (where the disease reappeared in February) and also an anti-rat campaign in Dominican ports were outlined by the director of laboratories at the request of the Secretary of Sanitation but their carrying out was interrupted by lack of funds and the program was reduced to a substitute, skeleton scheme, limited to quarantine measures and watchful waiting. The all-important matter of wholesale rat destruction had to be abandoned for lack of funds. In its place was substituted an educational effort, through an appeal to the people to practice individual rat-proofing of their premises and the destruction of rats by individual householders. This substitute plan cannot fail to be inadequate and to yield small results. The disastrous effect of introducing rats infected with plague into the Dominican Republic, where the rat population is extremely large and where rat control measures are practically unknown, can well be imagined.

I had the privilege of bringing this matter to public attention in the January Bulletin of the department; the article appearing in Spanish (La amenza de la peste y de las ratas).

One of the most interesting duties assigned to me during my stay in Santo Domingo was the investigation of a prison outbreak of beriberi. This investigation was completed just before my return to the United States and an account of this beriberi outbreak will be published as a separate report, shortly.

There is no lack of problems, of both health and sanitation, awaiting investigation but surveys and studies which do not lead to corrective effort are more or less wasteful and futile.
In general terms it may be said that the construction efforts of the military government in Santo Domingo seem to be patterned somewhat after our insular government in the Philippine Islands of the early days.

The ability to put across, completely and adequately, an elaborate sanitary program in any country depends upon one of two conditions. Either there must be unlimited and unquestioned authority, backed by governmental aid, military and fiscal—or there must be a highly developed public health conscience, such as we have in some but by no means all of our American communities.

In the last analysis all of our successful governmental experiments—so far as they have actually succeeded—have been by reason of the first-named condition. Witness the Philippines and Panama. As this condition of authority, governmental support and adequate financial backing relaxes, the structure weakens and falls into a state of greater or less inefficiency and ineffectiveness.

NATIONAL LABORATORY

At the close of the calendar year 1920, the writer rendered a report of the laboratory operations for the year with certain observations and opinions touching efficiency and the possibility of increased future usefulness. The national laboratory consisted of two sections—a biological section and a chemical section—under the supervision of the director; the chemical section being administered by a sub-director who was a trained and experienced American chemist. The various determinations requested of the laboratory were made in these two departments according to their character, an exception being made in the case of urinalysis—both the chemical and biologic investigations of urine being made in the biological laboratory. The year's work was of creditable character but would have been greatly increased in volume in 1921, had the national laboratory been continued. In the report mentioned the director expressed the opinion that relatively too much attention was given to urinalysis, at the expense of biologic examinations relating to the diagnosis of the
bacterial infections and parasitism, which cause a large percentage of the morbidity throughout the republic. The opinion was also expressed that the physician who does not make use of the diagnostic laboratory, particularly in the tropics, is not practicing medicine intelligently—whether engaged either in civil or military practice or in the practice of preventive medicine. It was planned to increase the usefulness of the national laboratory by extending the utilization of its diagnostic facilities during 1921.

Conceiving the proper functions of such a laboratory to be activities of practical helpfulness, rather than research, the rational extending of its influence should be along such lines, with an aim to the betterment of the public health.

Another field of useful work was recognized in the examining of large groups of persons, for intestinal parasitism and malarial and filarial infections, utilizing for this work groups in institutions of correction or detention, the prisons, hospitals, leper colony, etc. Naturally the complement to such investigation would be corrective medication and preventive sanitation.

It was also recommended that a branch laboratory be established, either in the interior of the island (Santiago) or at Puerta Plata on the north coast; and that a suitable technician from the national laboratory be detached for service there as local director; the sub-laboratory to be entirely auxiliary to the national laboratory and subject to complete direction therefrom.

For the year 1920 the operations of the Laboratory, tabulated by months, were as follows:

<table>
<thead>
<tr>
<th>Biological section</th>
<th>Number of examinations</th>
</tr>
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<tbody>
<tr>
<td>January, February and March</td>
<td>342</td>
</tr>
<tr>
<td>April</td>
<td>146</td>
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<tr>
<td>May</td>
<td>193</td>
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<td>June</td>
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<td>119</td>
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<td>November</td>
<td>118</td>
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<tr>
<td>December</td>
<td>345</td>
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<tr>
<td>Total</td>
<td>1875</td>
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The total number of laboratory examinations for the year was 2,281.

It will be noted that the number of biologic examinations made in December, alone, exceeded the total number made in January, February and March, and that the work done in December greatly exceeded that of any previous month.

In the chemical section, on the other hand, there was a decrease in the number of examinations made, operations for the final three months of the year totalling but 61, against 112 for the first three months of the year. This decrease was in line with the director’s conception of the relative importance of biologic diagnostic operations, as compared with purely chemical examinations indirectly related to public health.

A further analysis of the year’s laboratory reports, divided bacteriologically and chemically, shows that there were 870 complete or partial chemical and biological examinations of urine; 181 examinations of blood for malaria parasites, filaria, hemoglobin, serum reactions, morphology, white and red cell counts, culture for bacteria, etc.; 172 examinations of feces for parasites, parasite eggs, blood, bacteria, etc.; 16 examinations of pus for bacteria, spirochetae, etc.; 196 examinations of sputum for tubercle bacilli, pneumococci and bacteria in general, protozoa, etc.; 367 examinations of secretions, exudates, tissue, skin, etc., for bacilli of leprosy and diphtheria, spirochetae; bacteria in general, blood, pus, cells, tubercle bacilli, cytologic study, etc.; 73 miscellaneous examinations.
In the chemical section the 406 investigations made included the following products: Drugs; dyes and colors; fruits, canned and dried; fish, canned and dried; vegetables, canned; liquors, wines, beers, bottled water; essential oils and lard; milk, fresh and canned; butter and cheese, goats' milk and mothers' milk; beans, sugar, rice, flour, bread, pastries and biscuits; sausages; chocolate, coffee and fresh water.

The laboratory reports for January and February, 1921, are not reported here. In a general way they showed great relative increase in the biological work, particularly with regard to stools and blood; the January and February examinations approximating in number, each month, those for December, 1920.

Both of the reports to which I have referred above comment upon the inadequate character of Dominican medical instruction and the facilities for both college and hospital teaching. These criticisms are, perhaps, fair, but there is, nevertheless, a small group of medical men in the capital, continentally trained in Europe or America. These men read extensively and compare favorably in understanding of tropical diseases with groups in certain communities of the southern United States.

The number is small, to be sure, but the men included are men of attainments in a clinical way. It is true that they have never engaged in administrative preventive medicine. I did not find the microscope to be an unknown instrument among them, as might perhaps be inferentially supposed from some accounts. There are enough technicians in Santo Domingo to carry on a creditable laboratory if they were supervised by an American director trained in public health and laboratory management and interpretation.

THE SANITARY LAW AND CODE

Dr. J. B. Grant, in his report for the International Health Board (Rockefeller Foundation), analyzes the organization of the public health department and gives a summary of the principal duties of the secretary of sanitation. He also recites some of the provisions of the sanitary law and code.
The law was promulgated by executive order of the military governor in October, 1919, and the code was promulgated in similar manner in September, 1920. The code consists of 300 articles and 24 chapters. The administrative features contain some novel methods of enforcement and punishment of violations. The modus operandi is suited to a purely military government but will surely fail under civil self government. As I have already remarked, the organization exists principally on paper and the enforcement of all health measures except those related to quarantine is practically unattempted. Even under a purely military government an executive personnel is indispensable.

Before the breakdown of December, 1920, and January, 1921, Dr. Grant rated the efficiency of the department, after less than two years existence, above that of the Sanidad of Porto Rico at the end of its twenty years of organization. Although I have no recent personal knowledge of Porto Rican conditions I am not able to so visualize them, taking into account the military character of one government and the civil character of the other.

It is true that the infant mortality of Santo Domingo is less than that of Porto Rico and it is also true that the prevalence of anemia of parasitic origin is lower than in Porto Rico. These conditions, however, may be explained in large part by the poverty of the Porto Ricans. This poverty, in turn, depends upon density of population, the population per square mile in Porto Rico exceeding that of Santo Domingo many times. The fertility and productivity of Santo Domingo are so great and its resources are so abundant that the problem of existence there should be and is simpler than in Porto Rico. Under such conditions nutrition and resistance should be high and contact between individuals must be less intimate.

SPECIAL DISEASES

Malaria. From both laboratory and clinical observations I was able to determine the varieties of malaria prevailing in Santo Domingo. Owing to the scarcity of anophelines in the capital
city, new infections are not propagated among the people who
reside in and confine their residence to the city. There are,
nevertheless, many carriers, some "silent" cases, and numerous
fresh clinical cases among the residents of the city, while the
guardia (native militia) and marines, in their excursions from
the capital into the interior and in their camps in the provinces,
furnish a fairly large and constant supply of malaria cases. There
is a constant flow of natives from the city to the country
and vice versa, farmers, workmen, gardeners, sugar cane workers,
peon, etc. Moreover, many of the better class of people living
in suburban homes suffer more or less constantly from malaria
and most of these suburban homes are infected with anopheles
mosquitoes. House screening is practiced scarcely at all as yet.

Subtertian, tertian and quartan cases abound in about the order
mentioned, if my experience is trustworthy. Except in those
cases studied microscopically, the differentiation is seldom made
and never with absolute accuracy. The pure clinician would
probably take issue with me, basing his observations on appar-
ent periodicity of symptoms and the statements of his patients;
but to one experienced in the clinical phases and laboratory
study of malaria the difficulty of determining the type of infec-
tion with certainty, from briefly observed symptoms and incom-
plete histories, is sufficiently manifest. Combined infections
(tertian and subtertian; or quartan combinations with the two
tertians) are not uncommon. In passing I may state that I
encountered more quartan parasites in months in Santo Domingo
than in years of observation in Cuba, the Philippines and the
Balkans. Whether or not this be pure coincidence I am unpre-
pared to state. It is conceivable that the African origin of part
of the population may also account originally for the larger
sprinkling of quartan cases, possibly introduced from that con-
tinent.

With regard to the existence of two distinct species of "falciparum" parasites (estivo-autumnal parasites, crescent form
gametes) I am still open-minded. I brought back a fair sized
collection of stained specimens for study. One could profitably
devote at least six months of intensive study to Dominican
malaria alone. Material is abundant for all reasonable purposes and easily accessible.

**Intestinal parasites.** Routine examinations of the stools of all patients admitted to the general and military hospitals of Santo Domingo were made during November, December, January and February with results not unlike those found in the other American tropics, including the Philippines. Eggs of the common intestinal worms *Ascaris lumbricoides, Trichocephalus dispar,* and *uncinaria (Necator americanus)* were found in many stools, regardless of admission causes. The embryos of *Strongyloides stercoralis* and endamebas coli and *dysenteriae* were also encountered.

The reported prevalence of hookworm infestation, as determined in Dr. Grant's survey, based on about 2000 stool examinations from inhabitants of all parts of the island, was found to be 52 per cent, and he estimates the percentage for the country at 50 per cent. This figure was obtained by taking percentages of separate areas as regards population and soil, prorating the infestation by the ratio of each area's population to the whole and averaging. It is interesting to note that our routine laboratory study of unselected cases for four months gave approximately a similar rate. The figures for ascaris infestation and other intestinal parasites are not available. Specimens of all the common parasites or their ova were secured, including the tapeworms and one specimen of *Schistosomum mansoni* ova (lateral-spined eggs) was encountered. The individual from whom this specimen was secured was a young man who had visited Porto Rico and had resided in Haiti within recent years. Moderate anemia and neurasthenic symptoms were present; also a coincident whipworm infestation (*trichocephalus dispar*). Diarrheal cases and dysenteric stools yielded specimens of endamebas (histolytica) and flagellates (trichomonas, et al.)

In staining certain stool smears for amebae, numerous spirochetae were demonstrated but their significance, if any exists, is purely speculative.

Sputum examinations for bronchial spirochetosis or bronchomoniiliasis and for the ova of the lung fluke (*Paragonimus westerm*) were negative.
Tuberculosis, as indicated by positive sputum specimens examined in the laboratory, is apparently common, but as the cases demonstrated were general hospital cases no deductions whatever, as to prevalence, are permissible.

Pneumococci associated with lobar pneumonia and diphtheria bacilli associated with the clinical disease were demonstrated in the laboratory.

With regard to syphilis prevalence, there are absolutely no criteria for basing an estimate for Santo Domingo. Limited military statistics are, of course, available, but it is by no means certain that they represent or approximate the rate in the general population. These military statistics may, in fact, be either better or worse than the population at large. Wassermann testing has not been practiced extensively and we are quite in the dark as to the prevalence of syphilis in Santo Domingo. Doubtless the rate is high. The manifestations of nerve syphilis, as indicated by various paralyses, tabes, etc., are far more common than in the Philippines, if one may judge by the number of cases in the persons of crippled beggars seen upon the streets.

In a localized district not far from the capital, yaws is known to prevail quite extensively and an expedition from the Harvard Medical School recently visited Santo Domingo and conducted research study concerning this disease.

Rumors of cases of guineaworm among the natives of a certain section also came to me while in Santo Domingo but I was unable to investigate or confirm the reports.

Yellow fever has been unknown for years. However, the distributing mosquito (Stegomyia fasciata) abounds in Santo Domingo and other towns and is in fact one of the most numerous varieties.

Dengue, also, is endemic in the country and filariasis, another mosquito-borne disease, is fairly common in and about Santo Domingo both with and without elephantiasis. One case of reversed (?) periodicity in a policeman performing night duties was seen at the laboratory, the embryos being detected in his blood taken at our laboratory during the daytime.
Malta fever has also been observed in Santo Domingo, one of the university faculty having made some epidemiologic observation of cases in connection with Dominican goats (personal communication).

Typhoid fever and the paratyphoid fevers occur endemically and Widal testing and blood cultures for diagnosis were carried out in the laboratory. These diseases would probably be more prevalent but for the fortunate circumstance that a large part of all the milk used is boiled before transportation or consumption and that much of the drinking water used in the towns is rainwater collected in cement cisterns above ground, cisterns unlikely from their location to be contaminated fecally. Nearly all of the well water examined during the four months of my observations was found to be contaminated, even deep wells in the limestone of the capital showing the presence of colon bacilli and gas formers. This deep contamination, of course, is quite characteristic of wells in limestone rock. Some very unusual subterranean caverns occur in the neighborhood of Santo Domingo and it is not surprising that rock faults in this vicinity permit these deep wells to be polluted.

Leprosy. Leprosy received especial attention in January and February, 1921, because of the approaching time for the opening of the national leper colony, located at Nigua on the coast, fifteen miles west of the capital. The forty double cottages of concrete, the administration building, the kitchen and dining hall and dormitory buildings for the Sisters were then more than 90 per cent. completed. Arrangements had been made for twelve Spanish nuns from Europe to assume institutional care of patients and supervise the conduct of the colony. With the financial impasse of January the work of completing and equipping the buildings was suspended and the whole project was discontinued. Within the past few weeks (July, 1921), I have learned that hopes are still entertained for the completion and opening of this colony and that funds for this purpose may perhaps be found. Money for operation expenses will also be needed, of course. Preparatory to the transfer of the Santo Domingo cases of leprosy to the colony, seventeen were critically examined by the
writer. Detailed instructions for the preparing of the mixed esters of chaulmoogric acid and the sodium salts from chaulmoogra oil were requested and received from Dr. E. L. Walker of the Hooper Foundation for Medical Research, of San Francisco, with a view to the preparation of our own materials for treatment at the new colony and provisions for the reception of eighty patients had been made.

The department did not expect that this treatment for leprosy, which has recently been much acclaimed, would fulfil all the promises made for it. The claims made are believed to be extravagant and have led to a false conception on the part of the people as to the curability of leprosy. Early diagnosis and careful selection of cases are necessary to secure even symptomatic cures. All of the Santo Domingo cases studied were proper ones for detention but by a loosely applied standard several might have been paroled. All had taken large doses of chaulmoogra oil by mouth for years and indeed there were at large in Santo Domingo at the time quite a number of lepers who had been paroled in previous years and considered but slightly menacing to their fellows. The fallacy and folly of such a policy are manifest from both clinical and historical viewpoints. Only with the permanent segregation of lepers throughout the countries of Europe, in lazarettos, following the great diffusion of the disease immediately after the Crusades and the Middle Ages did leprosy practically disappear from the continent. The best students of the disease today are conservative in their claims for treatment by esters and chaulmoogrates.

Nearly, if not quite all, of the Santo Domingo cases are cases of mixed leprosy wherein the signs of nodular, macular and nerve leprosy are combined. Indeed it seems quite probable that most cases of leprosy everywhere are of the so-called mixed variety from their onset, although the manifestations of one or other of the clinical groups of skin leprosy may be far more evident than the clinical signs and effects of nerve leprosy, particularly in the early years of the disease. The sequence in which the human tissues are invaded, skin, mucosa, nervous tissue, etc., may frequently vary, but the early involvement of
more than one of these tissues is practically inevitable in every case of leprosy, having in mind the distribution of the bacilli by both blood and lymph streams.

Smallpox. Santo Domingo has been visited by smallpox in years past but until its reappearance there in 1920 the country has been practically free from the disease for nearly a generation. Some of the older Dominican physicians informed me that in previous epidemics extensive vaccination was performed, at least in the vicinity of the capital. During the year 1920 cases were introduced across the border by natives from Haiti, where an epidemic of considerable proportions was raging. A controversy as to the identity of the Haitian disease, whether it was smallpox or "alastrim," so-called Kaffir milk-pox, continued there for some time. Meanwhile the Dominican government, through the efforts of its Secretary of Sanitation, Dr. Hayden, successfully prepared for the advent of the disease by wholesale and countrywide smallpox vaccination. In due time the disease appeared in the country and proved to be true smallpox. The clinical picture, its amenability to control by vaccination and every essential diagnostic feature were present. I saw the first fifteen cases at the capital and observed the disease from its earliest to its latest stage. It differed not at all from smallpox as I have seen it in Cuba, the Philippines and the United States. Moreover, it originated from so-called cases of "alastrim" in Haiti. It is but fair to state that the diagnosis of smallpox was subsequently adopted in public health reports from Haiti. Our control efforts through vaccination were extremely successful but the usual anti-vaccination propaganda was carried on by unfriendly newspapers. Charges to the effect that the vaccine furnished by three well known American firms contained the "streptococci of erysipelas" were made by a Dominican physician in the interior of the island. Accordingly, cultural tests of specimens of vaccine of all makes were made in the national laboratory with constant negative findings. Upon direct examination under the microscope, of vaccine smears from all of the different American manufacturers, streptococci and staphylococci in small numbers were found, the chains
appearing to be diplo-streptococci in most instances. As stated above, however, no cultures were obtainable from these specimens. The secretary of sanitation thereupon issued a circular calling attention to the requirements of the United States Pharmacopoeia and United States Dispensatory for vaccine virus. The last editions of these publications contain specifications that vaccine shall be free from pathogenic microorganisms and that a special examination of each lot of virus shall be made to determine the absence of such organisms and of tetanus spores and toxins. Attention was called to the fact that the vaccine in use conformed to these specifications and that cultural tests of all samples were negative. This bulletin was effective in quieting unfriendly clamors against vaccination.

Unless we are prepared to adopt a new name for a disease whenever it undergoes sufficient attenuation or modification to greatly reduce its mortality rate, I see no reason for changing the name of the mild form of smallpox which has prevailed, not only in the West Indies recently, but for some time past in the United States. The same observation is true concerning the exanthemata in general and the recently declining curves in mortality rates probably indicate lessened virulence of many of the infectious diseases from causes or circumstances not understood.

CONCLUSION

The writer has not attempted, in this presentation, to discuss exhaustively any of the various phases of public health in Dominica nor any of the diseases which occur among the Dominican people. A large and fruitful field for endeavor, along the lines of preventive medicine and epidemiology, exists in this old-new country, well named the Land of Promise. It is sincerely to be hoped that ways and means may be found whereby, with the friendly acquiescence of the Dominican people, a suitable public health program may be agreed upon, activities resumed and the work carried to its logical conclusion in the interests of medical and sanitary science and the welfare of the Dominican people.