

The Pneumonic Plague Epidemic of 1924 in Los Angeles¹

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In 1924, Los Angeles was the largest city in the West, the largest in land area and the fifth largest city in the United States. Tourism, a land boom, emerging industries, and a new harbor had made Los Angeles prosper. There were one million residents in Los Angeles and, whether native born or migrants seeking a fortune or retirement haven, all enjoyed and extolled Los Angeles' one unchanging asset, its climate. With an average mean temperature in the mid-60's, an average mean rainfall of less than 15 inches per year, and a smog free atmosphere, despite the fact that there were more automobiles per capita in Los Angeles than in any other city, Los Angeles was truly "the climatic capital of the world," or so claimed its Chamber of Commerce.

Nineteen percent of the residents in Los Angeles were foreign born. There were approximately 2,000 Chinese, 12,000 Japanese, and 22,000 Mexicans in Los Angeles in 1924; each group settling in different locations. Chinese residents settled in the Northeast section of the city; Japanese chose the Western part of town; and most of the Mexicans lived in an area which straddled the Eastern boundary of the City of Los Angeles and the unincorporated territory of Los Angeles County.

One Mexican community, bounded on the North by Alhambra Avenue, on the West by Alameda Street, on the South by Macy Street, and on the East by the Southern Pacific Railroad, may be found today located adjacent to the famous tourist attraction, Olvera Street. It was in this area that 28 Mexicans and two Caucasians succumbed to pneumonic plague during a two-week outbreak from October to November, in 1924.

In accordance with California statute, Dr. Walter Dickie, Secretary of the State Board of Health, transmitted a biennial report to Governor Friend W. Richardson in which he noted in the preamble that the "management" of this particular outbreak had represented "the most outstanding accomplishment" of California's health officers in the biennial period beginning 1924. Certainly pneumonic plague is one of the most frightening epidemics known to man. Virulent and swift moving,

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pneumonic plague, under proper conditions, disrupts and is capable of decimating a community as few other epidemics can. It is understandable, then, that Dickie should take pride in the accomplishments of those responsible for containing the epidemic. But Dickie's report, submitted almost two years after the outbreak, is susceptible to "historical drift." In order to evaluate more properly the validity and appropriateness of Dickie's encomium, this paper will chronicle and analyze the events which occurred in Los Angeles, taking special cognizance of the social, administrative, and epidemiologic features of this last major epidemic of pneumonic plague in the United States.

I

On October 29, 1924, a physician requested an ambulance from the Los Angeles County General Hospital for Two Mexican patients critically ill of a malady which he could not definitely diagnose, but which he knew to be highly contagious since several others in the neighborhood were also affected with similar symptoms of very high fever and pains in the back and chest. The following day 13 other cases displaying the same symptoms were detected and subsequently admitted to the hospital, where they all developed signs of severe pneumonia, with bloody expectoration and marked cyanosis. It was during this day, after three of the 15 patients who had been admitted had died, that the diagnosis of pneumonic plague was first suggested. The diagnosis was confirmed the following morning, but not made public, when the staff pathologist performed an autopsy and reported the presence of gram-negative bipolar staining bacilli characteristic of plague in the lungs of one of the deceased patients (1).

The United States Public Health Service and the State Board of Health first learned of the diagnosis somewhat indirectly. On October 31, telegrams were sent from the assistant superintendent of the hospital to federal and state authorities and to medical supply dealers inquiring where plague serum and vaccine could be obtained. On November 1, Benjamin Brown, the Public Health Service surgeon stationed in Los Angeles, having confirmed the information contained in the telegram, wired the Surgeon General in code as follows: "Eighteen cases ekkil [pneumonic plague]. Three suspects. Ten begos [deaths]. Ethos [situation bad]. Recommend federal aid" (2). The Surgeon General immediately wired instructions to Senior Surgeon James Perry, stationed in San Francisco, to proceed to Los Angeles where he was to investigate quietly and be certain to keep the source of his information confidential. The Service, according to protocol and statute, did not wish to involve itself in state affairs unless officially invited or prescribed by law to do so (3).

On the same day, Dr. William Dickie, secretary of the State Board of Health, read in the morning newspapers that a "strange illness" had broken out in Los Angeles which had taken the lives of nine people and which threatened the lives of eight others. The unnamed ailment, which was being investigated by city health officers, resembled pneumonia but "ran its course much faster." In a wire to Dr. Elmer Pascoe, acting health officer of the Los Angeles Health Department, Dickie inquired: "Kindly wire immediately cause of death of Lucena Samarano." The reply was equally polite and laconic, "Death L. S. caused by *Bacillus pestis*" (4).

At 1:00 a.m., November 2, the Macy Street area, which included approximately eight city blocks and which housed approximately 2,500 Mexicans, was placed in quarantine by the City Health Department. All cases of illness occurring within

the area were examined by health department physicians and suspicious cases sent to the County Hospital. The Los Angeles County Board of Charities provided seven-day rations for each household and sought to establish "cubicle isolation" for each house within the quarantine area (5). With the cooperation of the Catholic Board of Charities, a Spanish-speaking priest and social worker were placed in the area to reassure and calm the anxious residents. Public health nurses were also sent to the area and directed to make a house to house inspection in an endeavor to locate other cases or contacts (6).

Arrangements were made with the County General Hospital to admit all persons who lived at addresses where pneumonic plague had occurred. A total of 114 contacts were admitted but none became ill with plague. Accordingly to the state epidemiologist, the inhabitants recognized the highly contagious nature of the disease and avoided intimate contact (7). Early hospitalization of cases and self-imposed isolation were considered by the authorities as helping to contain the epidemic. Mention was also made of the fact that Mexicans, unlike Orientals, did not attempt to hide their dead. When seriously ill, they called a priest and, generally, were prompt in securing aid. This one fact, it was believed, eliminated many of the difficulties encountered by health officials who had been responsible for controlling the San Francisco outbreaks of the early 1900's (8).

Upon admission to the hospital all suspected plague cases had their charts flagged with a notation which read, "pneumonic plague," "suspected pneumonic plague," "suspected bubonic plague," or "individual isolation." Nurses, doctors and orderlies responsible for the care of suspicious cases or contacts protected themselves with a rather simple but ingenious mask device made of a pillow slip and celluloid, gowns which fitted closely about the neck, and rubber gloves.

The plague serum which had been requested by the Los Angeles County General Hospital and the acting health officer of the City Health Department arrived in Los Angeles on November 5, but records reveal that it was secured in time to be used in only one case. Moreover, there seems to have been some doubt expressed in the reports that it would have been effective in cases of pneumonic plague (9). Mention is made in the records, however, of the use of mercurochrome and the subsequent recovery of two plague patients who received inoculations of this substance (10). The plague serum predictably received prominent attention by the press and was played up in the promotional literature of the company that produced it. In the house organ of the Mulford Laboratories, the affair was dramatically depicted:

"Science has discovered . . . a serum that will stop the Swath of Death and save the lives of thousands. Los Angeles calls for help and in less than 36 hours the vials of serum were brought to the front lines where the battle is on against the Terror. That's the thriller. That's 20th century truth. That's the news that warms the heart rather than chills the marrow. That's the sort of stuff that makes you glad you're living and inspires you to be proud of your kind, of your country and of the prosperity and enterprise which have backed experiment to the point of achievement where such miracles are possible. And you are part and parcel of the organization that produced this thriller" (11). (See figs. 1 and 2).

Additional measures were taken by authorities which appear prominently in the reports. All health care facilities, such as emergency rooms and free clinics, were instructed by the State Board to report any illness of a suspicious nature and the



FIG. 1

Los Angeles County Medical Society, on the urging of the State Board, assembled in special session to hear lectures on the etiology, signs, symptoms, and therapy of the three varieties of plague (12).

City health officers who released the story already had a confirmed diagnosis of pneumonic plague but chose for obvious reasons to refer to the disease, from November 1 to November 5, as the "strange malady," "pneumonia," "virulent pneumonia," or "malignant pneumonia." Not until November 6, when the epidemic appeared to have run its course, did Los Angeles newspapers refer to the disease properly as pneumonic plague and even then justified their evasion by adding that pneumonic plague was the "technical term" for "malignant pneumonia" (13).

Airplane Rushes Phila. Serum to Plague Area
A race across the continent against death began yesterday when serum to combat the dread plague raging in Los Angeles was shipped from this city in an airplane. It is expected to reach the Pacific early Thursday.

PLANE CARRIES PLAGUE SERUM
Medicine to Fight Pestilence Rushed to Coast.

Airplane Carries Serum to Combat Pneumonic Plague

5000 MORE DOSES OF SERUM GO WEST
Airplane Shipment Sent to Los Angeles Due to Stricken City This Morning
BIG STOCK IN LABORATORY

SERUM FOR PLAGUE SPEEDS BY PLANE FOR LOS ANGELES

SERUM RUSHED BY AIRPLANE TO RAMP PLAGUE SERUM TO BE SENT TO L.A. BY

ANOTHER MULFORD "FIRST"

The first to span a continent in the air, that immediate relief might be brought to a suffering community. An achievement of distance overcome in record time—an added proof that the Mulford Laboratories can serve any and every part of the continent at a moment's notice.

Other Mulford "Firsts"

- First to produce Diphtheria Antitoxin commercially in the United States after its discovery, by von Behring, in 1898.
- First to produce and introduce Antipneumococic Serum.
- First to produce Antidysenteric Serum, following the publication of results of investigation by Shiga (1902) and later by Fleisner.
- First to produce Antimentingitis Serum, following publication of the work by Kolbe and Wassermann (1906) and by Fleisner and Jobling (1908).
- First to produce an aseptic glass Vaccine Point, the only "Point" now licensed by the U. S. Government.
- First to supply Biological Products in Piston Syringes ready for administration.
- First to produce Bacterial Vaccines (Bacterins) commercially in the United States.
- First to produce Sensitized Bacterial Vaccines (Serobacterins) commercially in the United States.
- First to separate the pneumococcus antibodies from immune serum—Pneumococcus Antibody Solution.
- First to produce Super-Concentrated Diphtheria Antitoxin—*less bulk, less pain, quicker results.*
- First to supply a physiologically standardized and uniform Tincture Digitalis (Digital).
- First to prepare Blackleg Aggressin for the prevention of Blackleg in cattle.

The American Red Cross asked for cholera vaccine for the Serbian Army during the war. A concrete building—rat-proof, vermin-proof, and fire-proof—was constructed in 30 days. The vaccine was delivered in record time.

A carload of Mulford supplies formed part of the first train that pulled into San Francisco from the East after the earthquake.

When spinal meningitis broke out in Texas, more than a decade ago, the Mulford Laboratories had the only anti-meningococic serum available.

For life-saving emergencies, look to Mulford—the pioneer biological laboratories.

H. K. MULFORD COMPANY
PHILADELPHIA, U. S. A.

FIG. 2.

The New York Times and the Washington Post, however, were quick to headline that pneumonic plague had erupted in Los Angeles (14). Indeed, the news blackout was confined to Los Angeles as most major California newspapers reported the epidemic correctly and, in Oakland, the State Board of Health even chose to discuss

the epidemic on its weekly radio show. Unabashedly referring to pneumonic plague as the "celebrated black death of the 14th century, in which one-quarter of the European population was destroyed," the narrator proceeded to discuss in layman's terms the three types of plague, bubonic, pneumonic, and septicemic, the role of the flea and the rat, and describe in detail the measures that officials had taken to contain the epidemic in Los Angeles. Despite the virulence of the pneumonic variety and the potential danger, concluded the health officer, pneumonic plague fortunately did not flourish in dry climates, such as Los Angeles, where there is comparatively little moisture in the air (15).

In Washington, the Public Health Service's Sanitary Board met to discuss the situation as reported in the Los Angeles dispatches. It was the opinion of the Board that a ground squirrel and rat survey be made in Los Angeles and neighboring counties, and especially of Los Angeles' harbor in San Pedro, to determine the extent of infection. The Board believed that Senior Surgeons Perry and Wayson, both seasoned and experienced officers, could be relied upon to carry out all necessary procedures and that no detailed instructions needed to be sent to them (16).

II

On November 3, Perry, accompanied by Surgeon Newton Wayson, arrived in Los Angeles and met with Dr. Dickie, and with representatives of the City and County Health Departments and the Chamber of Commerce in the office of the mayor. It was agreed that all plague control work was to be coordinated by an Advisory Committee composed of Dickie, Perry, and representatives of the City and County Health Departments and the County General Hospital. In Dickie's Biennial Report he notes that "all control work" was placed under his direction, but the records reveal that formal control was not transferred to the State until November 21. On the 3rd, as a result of the meeting establishing the Advisory Committee, it is difficult to determine just who was in charge since jurisdictional disputes were evident from the start, compounded by the fact that only a few weeks prior to the outbreak, Los Angeles' Health Officer, Dr. Luther Powers, had died and the City only recently had appointed an acting health officer, Dr. Elmer Pascoe, in his place (17).

The Advisory Committee on the 3rd issued a plan of operation, which included the following.

1. Quarantine
2. Restriction of movement within the quarantine area
3. House to house inspection
4. Hospitalization of all contacts
5. Post mortems on all deaths occurring in the quarantine area
6. The establishment of a bacteriological laboratory
7. Hiring a force of men responsible for trapping, poisoning and rat proofing of buildings
8. Disinfection of households by petroleum spray
9. Tagging of all rats, mice and squirrels by location
10. Eradication of ground squirrels

On the same day, the 3rd, Perry wired Acting Surgeon General White that Dickie, representing the State Board, appeared to be in charge and that Public

Health Service personnel were serving in an advisory capacity only. Perry believed that the community could finance the work and that no additional Public Health Service representatives were needed at that time (18). White unfortunately did not receive Perry's cable and sent a rather sharply worded wire which probably had been prompted by the banner headlines that appeared in the Washington papers, inquiries from other state health officials and the Secretary of the Treasury, and White's own untenable position as acting surgeon general in Hugh Cumming's absence. White wrote as follows.

"Perry. Your failure to report on situation has created very unfavorable impression for the Service. . . . You will immediately telegraph full report. . . . Other States are keenly interested in what is being done to protect them. . . . Bureau depends on you for information and strict attention to this order is enjoined. You will explain in your first telegram why you have delayed reporting and give your Los Angeles address (19).

Perry sent White his address in a cable mailed on the 5th and, later that day, sent another cable describing the control measures taken by the Advisory Committee (20).

Between the time of the original reprimand to Perry on the 3rd and November 6, Perry continued to wire factual information to Washington. On the 7th, however, he wrote a three-page letter in which he justified his actions and expressed his own dissatisfaction with White's apparent lack of confidence in his ability. Perry wrote that it was he who had recommended the establishment of the Advisory Committee and sought to coordinate eradication measures; that neither the city nor the state wanted the Public Health Service to take charge of the operation, especially since Dickie, believing he was filling the vacuum created by Power's death, was "keenly desirous" of taking complete control himself; and that the delay in responding to Washington had been further justified since there was some doubt that pneumonic plague actually existed! The surgeon who accompanied Perry to Los Angeles, Dr. Newton Wayson, was an expert in identifying plague organisms and, upon arriving in the city, went promptly to the hospital to confirm the original diagnosis. Wayson subsequently reported to Perry that "a few" bipolar organisms were visible on the prepared slides but since they had been so poorly stained and since there had been no animal inoculation, he believed, as did the state bacteriologist, W. H. Kellogg, who possessed similar impeccable credentials, that there was not sufficient bacteriologic evidence upon which to make the diagnosis of plague (21). On the next day, however, they prepared their own slides from the lungs of another victim and were able to confirm the disease bacteriologically. Although both men may have been bacteriological purists, it appears, given the overwhelming clinical evidence, that neither wished to place himself in a potentially vulnerable position based on a junior pathologist's poorly prepared slides. With so much at stake only their own preparations would satisfy them.

Perry concluded his letter to White with a statement that he believed that the Board should have had confidence in his ability to judge matters and, moreover, that he had followed accepted Board protocol and procedures. He in no way felt that his actions were responsible for any embarrassment experienced by White or the Board. Stopping short of requesting an apology from White, he noted that subsequent daily reports would follow as soon as accurate information had been digested and analyzed (22).

Whether or not Perry's letter affected White is not known since Hugh Cumming returned to Washington and resumed his post as Surgeon General. The letter obviously had a cathartic affect on Perry, but too much was happening in the early days of November for Perry to rest easy. Dr. Dickie, for whom Perry earlier had expressed high regard, soon became the object of Perry's attention and the correspondence from November 7 to mid-December reveals a new conflict: Perry vs Dickie.

In a telegram sent to Washington on November 10, Perry conveyed certain confidential "personal impressions" about the management of the epidemic. Dickie and other city and state health officers believed that the epidemic eventually would be traced to infected squirrels, as it had during the Oakland pneumonic plague epidemic of 1919 (23). If such was the case, then the epidemic, if localized by careful quarantine, would be over when the last case was isolated in the hospital. Prompt containment of the epidemic, wrote Perry, would work to the credit of Dr. Dickie, whose term had expired and reappointment not yet been made. Perry might have cited the additional fact that Dr. Pascoe, acting city health officer, was also interested in a favorable press since he, too, was in line for promotion. Indeed, there seemed to be developing a growing friction between the three principal players, Dickie, Pascoe and Perry (24).

Perry eventually won Dickie over to his position that the outbreak in the Macy Street District had been the result of rat and not squirrel infection and Dickie subsequently emphasized the importance of an extensive and well financed campaign of rat eradication before the Los Angeles City Council, of which more will be said shortly. The issue that Perry pressed in his letter of the 10th, however, was that neither the state nor the city had the personnel to carry on effective control measures. Dickie already had stripped his office in San Francisco and no longer had available personnel for duty in case other communicable diseases became epidemic. W. H. Kellogg, the state's only experienced plague bacteriologist, was dividing his time, as was Dickie, between San Francisco and Los Angeles. Moreover, eradication measures would be very extensive since there were many unsanitary areas in Los Angeles, few houses that were adequately rat proofed, and there appeared to be a heavy rat infestation. Sooner or later, prophesied Perry, the Service will be asked to take charge of the work (25).

On November 14, Perry spelled out another area of potential friction; namely, that his association with Dr. Dickie might lead some to conclude incorrectly that the Service had a great deal to do with the campaign, whereas, in fact, it had nothing to do with regard to implementation. Dickie freely sought Perry's opinion, as did Dickie's staff, which only further compromised Perry's and the Service's position. If the campaign succeeded, Perry wrote, the State Board of Health would receive the credit; but if the work did not meet with success, the Service would be held responsible. Perry recommended, as a way out of the predicament, that the Board issue a press release that they had cooperated with the State Board of Health by loaning experienced officers for the formulation of the control and eradication campaign, but that this having been done, the execution of the plan rested solely in the hands of the State Board of Health (26).

Perry and Dickie maintained a polite but remote relationship at this time, which was sweetness and light compared to Dickie's relationship with the acting city health officer, Dr. Pascoe. On the 21st, Perry informed Washington of the power struggle that had developed between Pascoe and Dickie as to who would be respon-

sible for the rat eradication campaign. Despite his earlier reservations about the resources of the state, Perry recognized that it was in a better position to run the campaign than the city because the state would be less susceptible to the inevitable pressures from the City Council and the Chamber of Commerce, who might wish to end the campaign prematurely in order to restore as soon as possible Los Angeles' salubrious image (27). At least the state, wrote Perry, recognized the gravity and the necessity of a long campaign (28). But there is no doubt that Perry believed he was choosing between the lesser of two evils.

If Perry was absolutely impartial, he would have recognized earlier the important role played by Dickie. Perry, for example, had not been present on November 15 when Dickie addressed a meeting attended by the mayor, the City Council and representatives of the Chamber of Commerce. Before this assembly, Dickie warned that the plague would bring financial ruin to Los Angeles if prompt action was not taken. "There is no disease known that has such an effect upon the business world as plague," he said. The harbor will be quarantined, boats will not be permitted to dock, goods will rot in warehouses, and businesses will go bankrupt as long as there is even the suspicion of plague. It is imperative he added, that rats be eradicated and houses be rat proofed. The entire Macy Street area and areas like it in the city should be condemned and restored so that they would be fit for human habitation. Dickie concluded that the cost of the clean-up and eradication campaign would be \$500,000. Nothing less will restore the confidence of the world in Los Angeles than an expenditure of such magnitude, he concluded (29). It was the threat of a quarantined port, then, that had convinced the Council to appropriate \$250,000, half the sum requested by Dickie, for plague control. It should be of no surprise that most of the trapping and rat proofing operations initially took place in the harbor and not in the Macy Street district. Shacks in the area were indeed condemned and demolished, and dwellings fumigated and rat proofed but most of the early effort was reserved for the harbor district. Ironically, the first plague rat in the harbor area was not found until December 29, trapped on a hog ranch located four miles from the harbor. So intimidated was the City Council and the Harbor Commission that the ranch was completely demolished and relocated 10 miles from the harbor (30).

On November 28, a meeting arranged by Surgeon General Hugh Cumming, was held in Los Angeles. In attendance was Surgeon Richard Creel, who was Cumming's personal representative, and Drs. Perry and Dickie. Creel's letter to Cumming presented highlights of the meeting and brought out the following points. First, Dickie believed that the state could handle the eradication program and the Service should do nothing to inhibit the state's operation. If the state found itself in difficulty, however, Dickie would be honor bound to let the Service know before March 4, which was the date Congress would adjourn and therefore the last day the Service could secure necessary funds to take control of operations. Second, that Dickie had planned to capitalize on the epidemic by seeking additional funds from the California State Assembly. The state legislature for years had not heeded the State Board's request for increased appropriations, due largely to the antagonistic attitude of the governor. Third, since Dickie himself had expressed concern about the lack of a qualified bacteriologist, he was asked to turn over the laboratory operation to the Service. Creel believed Dickie might apply to the Service for a bacteriologist to work on a temporary basis, but Dickie finessed the question. In the back of his mind he feared the proverbial camel sticking its head under the tent. For reasons

that were perhaps both chauvinistic and pragmatic, Dickie subsequently was able to bring Professor Karl Meyer of the University of California into the picture. He might have reasoned as follows. The state should have complete control; Meyer is a professor at the state's own University; the legislature would be pleased because its own employees will be in charge of key operations; their pleasure might be reflected in larger appropriations to the State Board of Health. Meyer, incidentally, was agreeable to the plan for reasons of his own. According to Wayson, he saw himself as the head of a new School of Public Health at Berkeley, which was being proposed at that time before the state legislature (31). Fourth, the Service in no way could wrest control from the state since the Service was bound by the 1893 Act authorizing the president ". . . to adopt such measures as in his judgment shall be necessary to prevent the introduction or spread of diseases, and may detail or appoint officers for that purpose; but only in the event that the state or the municipal authorities shall fail or refuse to enforce its own rules and regulations . . . ," which Los Angeles and the state had not done. And fifth, quarantine was justifiable so long as rodent plague existed in Los Angeles. This latter point was to be raised whenever the campaign seemed to falter (32).

Although Creel seemed sanguine after the meeting, Perry remained skeptical. His interpretation differed markedly from Creel's. The conference, he wrote, was "without tangible result." Dickie had not accepted the Service's offer to take over his laboratory, which both Perry and Wayson believed to be central to the eradication campaign. Moreover, the fact that Dickie had admitted he might be able to capitalize on the epidemic to increase the state's appropriations to the State Board of Health was interpreted by Perry as indicating the baseness of Dickie's motives (33).

Perry continued in this critical vein in succeeding weeks. He repeatedly returned to points he had made earlier; namely, that the Service representative in Los Angeles be merely an "observer" and not serve in an advisory capacity, that Dickie's resources were too limited to mount an effective eradication campaign and that Dickie's motives were based primarily on ambition.

On December 6, Cumming authorized Perry, Creel and Wayson to serve as a Committee of Three to prepare a formal report on the adequacy of the plague eradication measures for official Service use (34). The committee completed its report on December 11 and transmitted its finding to Cumming. Despite Creel's moderating influence, the report seemed more a reflection of Perry's original positions: that Dickie was a marginal and absentee administrator; that the supervision of the campaign was casual and periodic and suffered from the lack of a sustained effort; that there was precious little cooperation and uniformity of procedure; and that the scope, practice and efficiency of the field and laboratory work were inadequate. In view of such conclusions, the Committee of Three recommended that the Service disassociate itself from the campaign and issue Perry's earlier statement, that the Service in no way approves of the State's program. An added sentence, somewhat gratuitous under the circumstances, is indicative of Perry's opinion of Dickie: "It is apparent that Dr. Dickie does not appreciate the gravity of the situation or the importance of enlarging the scope of the campaign or of increasing the efficiency of operations. This is evidenced by his nonacceptance of the proffered concrete Service aid" (35).

Cumming now had no other recourse than to quarantine Los Angeles' port in San Pedro. On December 22, he sent a letter to all medical officers in charge of

quarantine stations declaring San Pedro, and the ports of Oakland and New Orleans, where plague also had become epidemic, as "plague infected." All vessels departing from these ports were required to fly a quarantine flag, await inspection upon arriving at quarantine, and present a port sanitary statement, issued by the medical officer in charge of the outgoing quarantine station at each of the ports mentioned (36).

Dr. George Ebright, director of the State Board of Health, was dumbfounded at the order, but Dickie seemed unperturbed. He assured Ebright that his program had been effective and asked Ebright to invite Cumming to Los Angeles so that he might see for himself how wrong Creel, Wayson, and Perry had been (37).

Others, however, reacted predictably. The chairman of the Los Angeles Chamber of Commerce, for example, in a letter to Congressman Robert Armstrong, believed the Surgeon General's promulgation was "rank discrimination" since the conditions in Los Angeles were in no way analogous to Oakland or New Orleans. In those ports, he explained, rodent plague was actually on the waterfront, whereas in San Pedro trapping operations had revealed a catch of astonishing few rats. Moreover, he wrote, the harbor was located 22 miles from the site of the epidemic, being connected to the municipality by a narrow, railroad track wide strip of land that passed through sparsely settled regions. Overlooking the fact that freight trains and laborers made many round trips between the city and the harbor, the letter concluded by assuring Armstrong that the Committee of Three's report was "ridiculous" and "without foundation in fact." He urged that every effort be made in Washington to remove the quarantine, "as shipping was being seriously affected" (38).

After the new year, Ebright followed Dickie's advice and invited Cumming to Los Angeles to acquaint himself personally with the rodent situation (39). Cumming was agreeable and planned to come immediately. "I have always felt that if we could get together we could straighten out what appeared to be a rather awkward situation. . . . My only purpose has been to assist the state in getting rid of this condition quickly," Cumming wrote in reply (40).

Cumming did indeed meet with state and local officials but appraised the situation in the same terms as had Perry. Dickie assured Cumming that he would do all in his power to correct the items noted in the Committee of Three's report and that the Service would be called in before March if needed. Cumming returned to Washington, but despite Dickie's assurances appeared to be as frustrated as Perry had been. He also believed that the Service should take responsibility for the eradication program, and for a reason precisely similar to that Perry believed had motivated Dickie: that the Service would be better able to plead its case before Congressional Committee for increased appropriations in order to protect the nation from dread diseases such as pneumonic plague. In subsequent letters Cumming lamented the fact that this had been the only epidemic for which the Service had not been invited by local authorities to take charge (41). It was more than being left out administratively that concerned Cumming; it was being left out of the dollar sweepstakes.

During the early months of 1925, the city and the state continued their feud. Los Angeles had appointed a new health officer, Dr. George Parrish of Oregon, and letters were written to Cumming wondering why so qualified a man as Parrish should not be entrusted with the eradication campaign (42).

Cumming's replies were not satisfactory to city officials and they proceeded to

attempt to discredit the state's program by intimating that the state had misappropriated city funds for rat control. The City Council then passed an ordinance enabling Parrish to take over the program from the state so as to insure, in their words, proper expenditure of city funds (43). But once this was done, the Council's Finance Committee immediately reduced Parrish's budget which severely impeded the eradication program (44). This is what Perry had feared all along would happen if the city took control. When Parrish, Dickie, and the Service representative learned of this maneuver, they petitioned the Council, not to restore the original budget, but rather to request that the Public Health Service be given control of the program once and for all. Some seven months after Perry had surmised that the Service would be called in, Mayor George Cryer sent a letter to President Calvin Coolidge requesting that the Public Health Service be given responsibility for the plague eradication program in Los Angeles (45). Within a week of the request, in July, former Surgeon General Rupert Blue, who had been in charge of the first plague control program in San Francisco in the early 1900's was recommissioned as an assistant surgeon general and sent to Los Angeles to take charge (46). Blue initiated an immediate rat control campaign which was to cost the city and county of Los Angeles, the County Horticulture Commission, and the state sums in excess of \$400,000. In addition, property owners were to spend over \$2,000,000 to comply with new rat proofing ordinances passed at Blue's insistence. Despite the fact that the mortality rate was relatively small, the amount spent to contain the epidemic was indeed considerable.

III

Interestingly, but perhaps not surprisingly, Dr. Dickie, in his Biennial Report written in 1926, makes no mention of Blue's role in the campaign; nor does he make mention of Senior Surgeons Perry and Wayson. Instead, Dickie dwelt on the usual and customary epidemiological features of the epidemic, singling out only the work of the state epidemiologist who traced the epidemic to a 55-year old Mexican who had fallen ill on October 1, and his daughter, both of whose symptoms had been misdiagnosed. The daughter's "lobar pneumonia," from which she succumbed on October 5, was actually a secondary plague pneumonia and the father's "veneral bubo" was bubonic plague. When the father was examined on October 31, pus was still draining from a sinus at the site of the bubo. Microscopic examination revealed characteristic plague organisms and animal diagnosis verified the diagnosis of bubonic plague. Both cases were believed to be the origin of the series of cases of pneumonic plague in the Macy Street District.

In the conclusion to his report, Dickie wrote this final sentence: "Local, state and federal officials who have engaged in plague work in California may view with satisfaction and look back with some degree of pardonable pride on the results accomplished [here]" (47). One may legitimately ask "whose satisfaction" and "whose pardonable pride?" Certainly Dr. Pascoe, acting city health officer of Los Angeles had not been satisfied, since he was passed over for promotion and eventually discharged by the man hired as health officer, Dr. George Parrish. Nor can one say that Senior Surgeons Perry and Wayson experienced "pride," pardonable or otherwise, since they could not convince state and local officials to give the Service control of the eradication program from the start. Surgeon General Cumming's quarantine order, based on the Committee of Three's report, was also not the proudest day for the Service since one may question his motives as well.

No infected rats had been found in the harbor when Cumming had declared the port "plague infected" on December 22, despite the fact that trapping operations had begun on November 5. The potential for an outbreak to occur in the port, the need to protect shipping and abide by international sanitary treaty obligations, and Cumming's own vulnerability, doubtless prompted the order, but it would be difficult not to assume that the Service also needed a favorable press to maintain its own image as the health guardian of the nation, a press which would be viewed favorably by Congressional Committee at annual budget sessions. One even wonders if Dr. Dickie believed his own conclusions, for he had been discredited by both the Service and the Los Angeles press. Yet among his peers within the state, Dickie emerged as the hero. Dr. James Pomeroy, Los Angeles County health officer, in 1926 praised Dickie's work on behalf of a beleaguered city (48). And, in 1927, when the State Board of Health evolved into a Department of Public Health, Dickie was appointed its first full-time director.

If we return to evaluate Dickie's encomium, "that the management of this epidemic represented the most outstanding accomplishment of California's health officers," we appreciate that much more was involved and at stake than the official reports reveal. Interpreted in this way, Dickie's statement is gratuitous at best and at the very least misleading, albeit understandably so.

REFERENCES

1. Bogen, Emil. "The Pneumonic Plague in Los Angeles," *Calif. & West. Med.* **23**, 175-176 (1925).
2. Benjamin Brown to Surgeon General, 1 November 1924. USPHS/LA 0425-183. The papers of the U.S. Public Health Service are stored in the National Archives. I am indebted to Jane F. Smith, Director, Social and Economics Records Division, National Archives, for locating pertinent documents in this vast collection.
3. Surgeon General to James Perry, 1 November 1924, Ref. (2). Confirmed by the Secretary of the Treasury, Mellon to Perry, 3 November 1924. USPHS/LA 0425-32.
4. Walter Dickie to Elmer Pascoe, 1 November 1924, and Pascoe to Dickie, 1 November 1924. Ref. (3).
5. Minutes, Board of Supervisors, County of Los Angeles, 10 November 1924, **95**, 113. See also L. E. Lampton (Clerk, County Board of Supervisors) to W. H. Holland (Superintendent of Charities) 6 November 1924. *Board of Supervisors*, 180/OD 1878. 1H.
6. State Board of Health, "Twenty-ninth Biennial Report of the State Board of Health of California for the Fiscal Years from July 1, 1924 to June 30, 1926." Sacramento, California State Printing Office, 1926, p. 11.
7. California State Board of Health, "Pneumonic Plague, Report of an Outbreak at Los Angeles, California, October-November, 1924. Special Bulletin No. 46." Sacramento, California State Printing Office, 1925, p. 12.
8. "Biennial Report," Ref. (6), p. 10. For information about earlier outbreaks in California see: Blue Rupert, "The Underlying Principles of Anti-Plague Measures," *Calif. St. J. Med.* **6**, 271-277 (1908) and his "Statistics of Plague in California," *Public Health Reports* **23**, 593 (1908) and "Bubonic Plague Control in California in 1903 . . .," *Calif. & West.* **40**, 363-365 (1934); Hassler, W. C., "The continuance of plague in San Francisco," *Calif. St. J. Med.* **6**, 7-10 (1908); McCoy, G. W. "Plague prevention works; Anti-plague measures in California," *Public Health Reports* **25**, 585-589 (1910); Evans, G. H. "Plague epidemics in San Francisco," *Calif. & West. Med.* **50**, 24-25 (1939), and Link, Vernon B. "A History of Plague in the United States of America." Public Health Monograph No. 26, Washington, G.P.O., 1955.
9. G. W. McCoy to Phoebus Berman (Assistant Superintendent, Los Angeles County General Hospital), 3 November 1924. USPHS/LA 0425-183.
10. White (acting Surgeon General) to J. C. Perry, 12 November 1924. USPHS/LA 0425-183. See also Bogen, Ref. (1), p. 175.

11. *The Spark Plug*, 13 November 1924. Weekly newsletter published by Mulford Biologic Laboratories, Philadelphia, Pa. Mulford was eventually absorbed by Merck Sharp & Dohme. I am indebted to Barbara L. Burke, Associate Librarian of Merck Sharp & Dohme Research Laboratories for this and other documents pertaining to Mulford's plague serum.
12. *Biennial Report*, Ref. (6), pp. 15-20.
13. *L. A. Times* and *L. A. Examiner*, 2-6 November 1924.
14. *N.Y. Times* and *Washington Post*, 2 November 1924.
15. "Plague and its prevention. Radio talk, Radiocasted from Station KGO, Oakland, 3 November 1924." *California State Board of Health Weekly Bulletin* 3, 158 (1924).
16. Minutes of Bureau Sanitary Board Meeting attended by Acting Surgeon General and Senior Surgeons White, McCoy, Lloyd, Stimson, Draper, and Guthrie. USPHS/LA 0425-32.
17. *L. A. Examiner* and *L. A. Times*, 4 November 1924. See also Perry to Surgeon General, 7 November 1924. Ref. (3).
18. Perry to Surgeon General, 4 November 1924. Ref. (3).
19. White to Perry, 4 November 1924. Ref. (10).
20. Perry to Surgeon General, 5 November 1924. Ref. (3).
21. Perry to Surgeon General, 5 and 7 November 1924. Ref. (3).
22. Perry to Surgeon General, 7 November 1924. USPHS/LA 0425-183.
23. Ref. (22). For further information on the Oakland epidemic see, California State Board of Health. *Pneumonic Plague, Report of an Outbreak in Oakland August-September, 1919*, by Walter Kellogg. October 1, 1919 Sacramento, State Printing Office, 1919 and *Twenty-Sixth Biennial Report of the State Board of Health*. Sacramento, State Printing Office, 1921, pp. 12-13.
24. Perry to Surgeon General, 29 November 1924. USPHS/LA 0425-183.
25. Perry to Surgeon General, 10 November 1924. USPHS/LA 0425-32.
26. Perry to Surgeon General, 14 November 1924. Ref. (25).
27. Los Angeles was indeed smarting under the adverse publicity it had received. A year after the epidemic one author gave an explanation for the attack. The City of Los Angeles, he wrote, had spent millions to establish itself in the minds of the public as an "earthly paradise." It was natural for city fathers to suppress news which might damage the city's reputation. Thus, when the story leaked out, mid-Western and Eastern newspapers, embittered by long years of smug and abusive propaganda, published the Los Angeles dispatches with banner headlines. These regions, the article continued, had suffered in silence while every eastern thunderstorm had been played up in Los Angeles' newspapers as a "death-dealing tornado" and every snow flurry labeled, "Scores Die in Eastern Blizzard." Now it was their turn. See Knox, W. B. Los Angeles's campaign of silence. *The Nation* 121, 646-647 (1925).
28. Perry to Surgeon General, 21 November 1924. USPHS/LA 0425-32.
29. Minutes, Conference on Sanitary Conditions, November 15, 1924. *Los Angeles City Council*, 1924, 1577:7340, n.p.
30. *Biennial Report*, Ref. (1), p. 15.
31. N. E. Wayson to J. C. Perry, 2 December 1924. USPHS Marine Hospital Records, "Los Angeles—Administrative." This file folder is located in the Communicable Disease Center, San Francisco Field Station, Public Health Service.
32. R. H. Creel to Surgeon General, 28 November 1924. USPHS/LA 0425-183.
33. Perry to Surgeon General, 29 November, 4 and 11 December 1924. Ref. (32).
34. Surgeon General to Perry, 6 December 1924. Ref. (32).
35. Perry to Creel, Wayson to Surgeon General, 11 December 1924. Ref. (34).
36. Surgeon General to Medical Officers in Charge, U.S. Quarantine Stations, Collectors of Customs, and others concerned, 22 December 1924. USPHS/LA 0425-183.
37. Dickie to Cumming, 3 January 1925. USPHS/LA 0425-32.
38. A. G. Arnoll to Robert Armstrong, 3 January 1925. Ref. (37).
39. Ebright to Cumming, 7 January 1925. Ref. (37).
40. Cumming to Ebright, 15 January 1925. Ref. (37).
41. Cumming to E. W. Nelson (Chief, Bureau of Biological Survey, Department of Agriculture), 7 January 1925. USPHS/LA 0425-183, and to Roy Knox (Director, Efficiency Department, City of Los Angeles), 28 April 1925. Ref. (37).

42. Knox to Cumming, 17 April 1925. Ref. (37).
43. Cumming to Knox, 28 April 1925. Ref. (37).
44. *L. A. Times*, April 30, 1925.
45. George Cryer to Calvin Coolidge, 27 June 1925. USPHS/LA 0425-183.
46. Rupert Blue to George Ebright, 2 July 1925. USPHS/LA 0425-32.
47. *Biennial Report*, Ref. (1), p. 23.
48. Discussion following paper presented by Walter Dickie entitled, "Plague in California, 1900-1925," a reprint from the Proceedings of the Conference of State and Provincial Health Authorities of North America, 1926, p. 66.