

# Battling Smallpox

## State and Local Boards of Health

by Philip L. Frana

The first significant smallpox epidemic in Iowa after the establishment of the State Board of Health occurred in Keokuk, ironically the site of Iowa's oldest and largest medical school. This 1882 epidemic, which made national headlines, began when a student nicked himself with a scalpel drawn from a smallpox-infected cadaver. In all, 71 cases were reported to the State Board of Health, with nine confirmed deaths.

Keokuk in 1882 was better prepared than most cities to wage a war against smallpox and other pestilential diseases. Occupying a low-lying area at the confluence of the Mississippi and Des Moines Rivers, Keokuk had experience in previous decades with malaria, cholera, and yellow fever epidemics that spread along the Mississippi River. Keokuk had a well-worn pest house—a small wooden shack—on the outskirts of town where individuals with smallpox, malaria, and other afflictions were isolated. Medical facilities beyond the ramshackle pest house were far in advance of others in the state, with the possible exception of the recently established medical department at the State University in Iowa City. Keokuk had a ready supply of physicians and students willing to practice their arts on the local inhabitants.

Smallpox broke out in town on Christmas Day, 1881. Keokuk had no effective local health board in place to deal with this epidemic, although the municipal code charged the mayor and council with the responsibility. This was not unusual. Keokuk had no board during the devastating cholera epidemic of 1876, or during the recurrent smallpox epidemics of 1862–1864.

Hastily, then, a local board of health was formed of city officials, trustees, and physicians to issue proclamations quarantining all those suspected of exposure to the disease. At the same time, two local newspapers, the *Keokuk Constitution* and the *Weekly Gate-City*, were enlisted to salvage the city's image and economy.

Efforts of the Keokuk board came too late for the afflicted, although its promotion of vaccination certainly protected many. The board's first action—closing the medical college where the disease originated—backfired. Since none of the students and faculty at the institution lived in on-site dormitories, the gesture was

meaningless as a quarantine strategy. In fact, school closure provided the excuse for “a stampede of the students” to their homes in the tri-state area. Towns across the region bashed the Keokuk board in the press for its inability to control the epidemic. The city council of the town of Warsaw, only five miles from Keokuk, warned its residents to “abstain from all communication with said city of Keokuk,” and recommended that local hotels turn away all “strangers or visitors” for the duration.

The board's vaccination efforts began with local schools, and by January 16 the *Keokuk Constitution* reported that “the little pretty white arms [of students] were scratched and mutilated in wholesale numbers.” The board also assigned a physician to go house to house in each of four districts in the city seeking voluntary vaccinations. They encountered unexpected public resistance. “I s'pose you've come to vaccinate us,” one woman was quoted as saying, “And ye might jest as well go away agin, for we won't have it.” At one house a “colored brother” refused vaccination because, according to him, a relative who had been vaccinated in Georgia died one month later from the measles, so none of his family was ever going to be vaccinated. At another house a young girl declined vaccination for her brothers and sisters, saying, “The folks was all away from home, sir, besides, they was all vaccinated last year, and we had the small-pox when we lived in Missouri!” Others argued that American rights to freedom and independence implied the right to refuse vaccination.

In response to such resistance, the board demanded that the public give vaccinators “courteous treatment” and allow them to “enter into the work of vaccination at once” as they were “using none other than bovine (animal) virus of the purest quality.” Although no penalties were drawn up for noncompliance, the majority of Keokuk's population had been vaccinated or revaccinated by the end of February. “The common remark now is, ‘don't touch my sore arm,’” reported the *Constitution*.



Photos of smallpox in State Board of Health publications helped doctors distinguish it from chickenpox and other similar-looking diseases.

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Efforts by the local board to promote vaccination and quarantine were further hampered when the medical college's officials insisted on reopening the school immediately and local businessmen sought to minimize the impact on trade. The competing factions eventually reached a compromise, and following a thorough disinfection of the dissecting laboratory, the school reopened.

In the wake of the epidemic, Keokuk citizens wanted to snatch their economic chestnuts from the fire. As long as there were reminders that smallpox raged in the city, business would remain stagnant, as rural farmers, purveyors of merchandise, and river traffickers refused to enter town. "The hotel registers begin to tell of the effect the small-pox scare in this city is having on the outside world," reported the *Constitution*. "The arrivals now are about one-third the usual number." Worries about potential loss of income caused the local press to begin noting instances of unfair quarantining against Keokuk.

Within a week of the first smallpox deaths, the *New York Times* published a report of the "ravages of smallpox" afflicting Keokuk. Local health board president D. B. Hillis responded, "There is a limited number of cases confined entirely to medical students, and there is as yet no assured tendency to spread among citizens outside." The local press attempted to reeducate misinformed individuals who accepted unconfirmed stories as fact or who wrongly condemned the local board's efforts. "All kinds of wild and unfounded rumors still continue to exist," wrote the editor of the *Constitution* two weeks into the siege, "the generally accepted one outside of the city being that there are forty cases when there are only about ten."

Whatever response was to be made to the epidemic had to come from local sources; the State Board of Health offered no help. The state board instead spent most of the first three years of its existence setting up a rudimentary system of gathering information. It took two years alone to collect incomplete statistics on births, deaths, and marriages from Iowa's ninety-nine counties for the single year of 1880. Later, use of telegraphy greatly enhanced the board's ability to collect data speedily, especially after it instructed county clerks to charge all communications to the board. But Keokuk officials handling the smallpox epidemic of 1881-1882 could not legitimize their efforts by appealing to a more objective outside body, nor did they wish to.

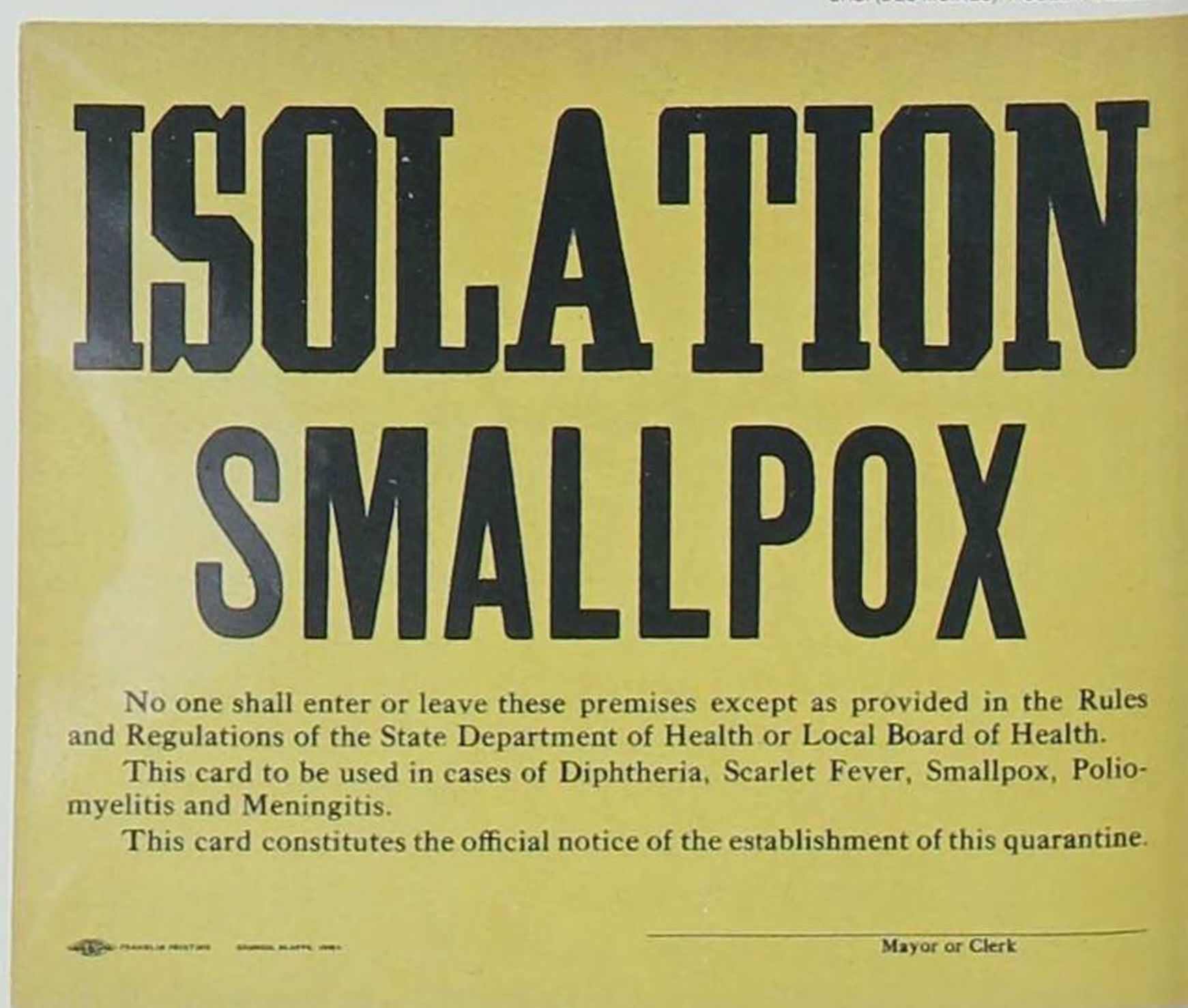
**W**ithin five years, local authorities did begin using such a resource, as they drew expertise from a state board devoted to promoting public health. Remittent importations of smallpox into rural Worth County from 1886 to 1904 illustrate how local boards gradually yielded authority to the state

board. The local response also suggests that citizens perceived in the outbreaks an outside threat to their way of life. Many times over the years, new immigrants and travelers imported smallpox epidemics into this rural community. At irregular intervals, dozens of people fell ill from the disease, and a few lost their lives.

Two smallpox epidemics in particular are significant in describing disease fighting by both the local Worth County boards and the state board. In response to a new local code requiring that the state board be notified of all epidemic diseases and noxious hazards, both physician D. S. More of Northwood and the clerk of rural Barton Township in eastern Worth County reported in July 1886 "a number of persons exposed" to the contagion by a recently arrived German immigrant family. In December 1899 a separate epidemic began, which authorities traced to a street carnival in Albert Lea, Minnesota. One of the fair-goers, it was reported, was "allowed to go about at large in Northwood, with a small-pox rash broken out on his face and all over his body for nearly forty-eight hours."

Resistance from within the German-born population to measures taken by local officials justified the state board's decision to step in and attempt to reestablish order during the 1886 epidemic. In response to reports from local officials, the state board had wired the Barton Township clerk to "establish vigorous quarantine of all small-pox cases and exposed persons, and order and enforce general vaccination, to prevent spread of disease, and obey rules of State Board." The same day the Barton Township Board of Trustees wired back that all

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Quarantine signs helped control the spread of diseases.

efforts to secure compliance had been thwarted by a popular challenge to their authority, and they did not know how to deal with the "ten or fifteen exposed persons [who] refuse to obey trustees." The *Worth County Index* recounted in its first story on the epidemic in Barton Township, "The local board quarantined the Dietrick and Brown families [where the smallpox had first erupted], but were powerless to enforce their orders, and the German minister of Grafton, as well as many of the neighbors visited the sick daily and insisted that it was not the small pox and there was nothing to fear."

At that point the state board and the county sheriff were called in. The secretary of the state board reported that local officials manifested "an earnest desire . . . to do all that was necessary to get rid of the scourge, but they did not know what to do. They were further embarrassed by the interference of pretended physicians who pronounced the disease not smallpox, and advised resistance to all orders of the local board." Compounding the problems, the doctor hired to vaccinate county residents skipped town and was not heard from for many weeks thereafter. Another doctor hired by the state board to treat smallpox cases in Barton Township was not allowed to return to his office in Northwood for fear that he "would not know enough to properly disinfect himself before leaving the infected houses."

Under increasing pressure from the state board, local officials began arresting and prosecuting those who refused to obey the quarantine. Two members of the Dietrick family were fined twenty-five dollars each, while a similar case was remitted on the grounds that the defendant was "a Dane who recently arrived in this country and he was not sufficiently acquainted with the language to understand that the town trustees had provided means for furnishing all necessary supplies to the parties who were quarantined." Clearly, the *Index* reported, township officials had shown that they "don't propose being trifled with."

In 1899 rumors of a renewed outbreak of disease abounded in Worth County. According to attending physician J. Herbert Darey, "cries of 'Cuban itch,' 'Philippine itch,' 'chickenpox,' 'ruin the holiday trade,' etc. were heard on all hands, till the mayor, at the insistence of a number of the leading citizens, did what I requested him to do on the start, viz:—request the State Board of Health to send an expert to Northwood, to see if it was really smallpox or not." State Board President J. C. Schrader arrived from Iowa City in short order and concluded that the cases in question were indeed smallpox, though of an attenuated form. Resistance to vaccination efforts in Silver Lake Township were also overcome when reports of the malady mailed to the board in Des Moines returned with a commandment to quarantine for fear of smallpox.

This time the state board directed most of the actions of local health boards. While aiding in the writing of an extensive code concerning public health in Northwood, the state board directly implemented quarantine and preventative measures. The board also encouraged county mayors and aldermen to exercise their right to create local boards of health where there were none. Local boards were also instructed in the disinfection of homes and were legally empowered to remove a "sick or infected person to a separate house, if it can be done without damage to his health, and [to provide] nurses and other assistance and supplies, which shall be charged to the person himself, his parents or other person who may be liable for his support, if able; otherwise at the expense of the county to which he belongs." In turn, local authorities drew up a new Northwood ordinance, which included more than thirty sections concerning disease control, burials, and penalties for defiance. Finally, a state law passed in 1897 enabled the local Worth County boards to arrest those inoculating with smallpox—which unlike cowpox vaccination makes the individual a carrier of the disease—or knowingly using public transportation while infected.

The *Index* itself served to defuse panic as the smallpox advanced, dispelling wild speculation and providing constructive information. "You are in no danger of catching smallpox by long distance telephone."

Although officials in Worth County relied heavily on the authority of the state board of health, the limits of the board's intervention were apparent even at the turn of the century. Those limits are demonstrated in a smallpox epidemic that affected a wide area of southwest Iowa and eastern Nebraska in 1898–1899. The *Fremont Democrat* portrayed a county under siege by an invisible invader that threatened the economic life of the city. Blame for the debacle was placed squarely on its neighbor across the Missouri River, Nebraska City, where smallpox had gotten completely out of control. This epidemic revealed most strikingly the inability of the local Fremont County boards to control what had become an interstate problem.

The State Board of Health did offer its encouragement and limited support as the epidemic threatened to engulf the state. By the late 1890s, the board was waging war against disease on a number of fronts. It was, for example, encouraging improvements in sanitary and water systems and the development of a new diphtheria vaccine. Epidemic outbreaks were reported by wire directly to the board offices in Des Moines, then transmitted to health officials and appointed district officials who could benefit from the knowledge. During the smallpox epidemic of 1898, the city clerk of Ham-

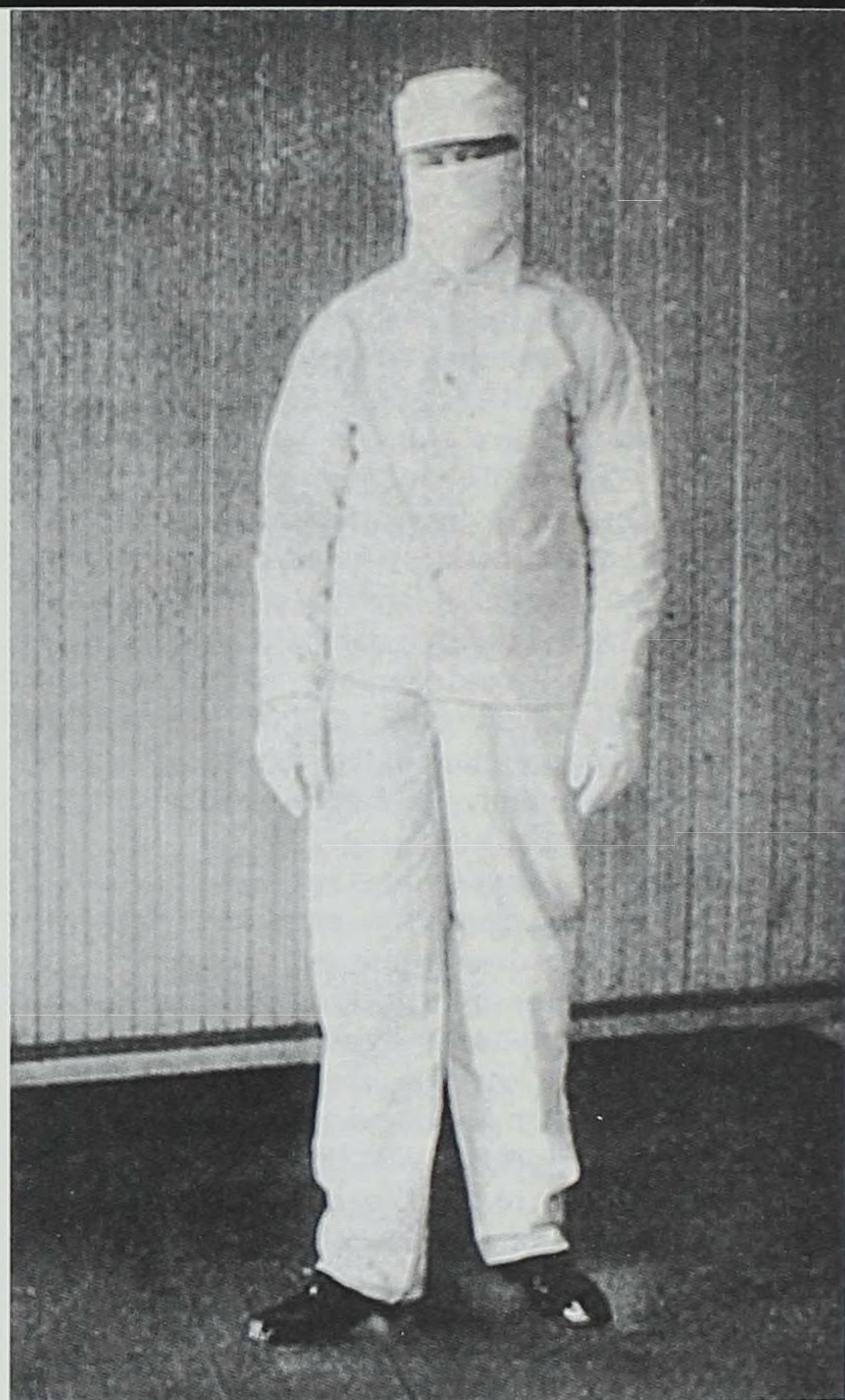
burg and local boards of health remained in constant contact with the state board. The state board had offered indirect support to local communities since the mid-1880s, but asserted vehemently that its advice was "given for the benefit of local boards that they may more fully understand their duty in the premises, and the necessity for prompt and vigilant action." Thus, local boards were charged with ultimate responsibility for ending smallpox incursions. Educated by the state board, they were to prepare carefully for epidemics and act judiciously when they struck.

The Fremont County epidemic began in mid-November 1898, when Mrs. Samuel Townsend returned from a visit to a married daughter in Nebraska City who was sick with an "eruptive fever, but not well defined." Although Mrs. Townsend was only mildly affected herself, her family was quickly and seriously infected. On November 18 the city clerk telegraphed the state board to report the outbreak. He noted that the mayor had appointed four police to guard the Townsend residence. The same afternoon, local physician W. L. Bogan wired the state board to ask what additional steps should be taken to stem the spread of the smallpox.

The next day Hamburg's local press, the *Fremont Democrat*, began reporting the course of the epidemic as it spread outward from the Townsend family and from a felled contract laborer home from Nebraska City. The *Democrat* praised the mayor and town physicians for their quick reaction to the disease and the subsequent quarantine. The paper noted with concern, however, that another of Mrs. Townsend's daughters had continued to attend public school, much to the consternation of the teachers and pupils. Further infection arrived by steady communication across the railroad trestle bridging the Missouri. "We have quarantined against Nebraska City, Neb., but we are unable to place a quarantine at the bridge," lamented the city clerk in a communication to the state board.

As alarm spread, other Fremont County communities began to request the state board to step in and establish a more secure quarantine against Nebraska City. J. A. Armstrong, Percival's mayor and de facto local health board president, requested that the state board draft men to guard the bridge spanning the Missouri. "A great many people are daily passing from Iowa into Nebraska City for the purpose of trading," wrote the mayor. "Consequently, we are very anxious to have guards stationed there." Strict quarantine "would have been done before now if our local board had understood the necessary steps in the proceeding. . . . We shall be very glad to have you take active measures at once."

Pleas received from officials in Hamburg, Percival, and rural Fremont County townships prompted the state board to send [Board of Health] district physician



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**"A Simple Method Whereby a Physician May Properly Prepare Himself to Visit a Home Where a Contagious Disease Exists" (Iowa Health Bulletin supplement, July 1911).**

Dr. McKlveen to report on the situation first hand and explain to local boards the principles of restricting smallpox. The task was more formidable than either the state board or McKlveen had anticipated. Not only would they have to quarantine the railroad and wagon bridge that connected Nebraska City with Iowa, but also miles of the riverbank as well, "as the river is frozen over and persons can cross on the ice."

One of McKlveen's most important duties was to disseminate information concerning the prevention of smallpox. As the disease continued into the spring, instruction provided by McKlveen encouraged vaccination and disinfection. McKlveen suggested that all structures containing smallpox patients be thoroughly fumigated, and the board issued a pamphlet recommending the best means. Their advice was followed throughout the county. When two fresh cases of smallpox appeared in Hamburg in May 1899, for example, a local doctor wrote that "all doubtful clothing, bedding and draperies were burned. . . . I had the stable and the

horses disinfected, also the privy vault, by using a solution of sulphate of iron and carbolic acid. I had the yard raked and rubbish burned, then had the yard and walks sprayed with solution of sulphate of iron." Moreover, Bogan "had the parties all bathed, then washed in a solution of carbolic acid and dressed in clean clothing. I had each room fumigated with sulphur, cooled them off, and then used formaldehyde for six hours, opened the apartments [*sic*] and thoroughly ventilated them, and moved the family in; considering there was no more danger." Although it is doubtful that any of these techniques worked, they do illustrate the degree to which local boards responded to the state board's authority.

Persons exposed to smallpox in Nebraska City were in Hamburg nearly every day, and many cases undoubtedly went unreported for fear of inviting quarantine at home or in a drafty building outside the city limits. Town leaders quarantined against Nebraska City reluctantly, hoping that this time the health board's edict would be obeyed.

Nebraska City citizens, in their turn, believed that the epidemic had started among the more than 2.5 million people who attended the Trans-Missouri Exposition held between June 1 and October 31, 1898, in Omaha.

**T**he Hamburg-Nebraska City epidemic of 1898-1899 probably arrived via a Missouri River steamboat. There was, however, an even more disquieting way for smallpox to enter the state. Iowa's Board of Health recognized that passenger rail travel, and especially the immigrants aboard the trains, carried the potential to spread disease. The board documented cases of immigrants, travelers, or hobos infecting Iowa communities. Many articles in the public health journals and newspapers of the period lamented the double-edged sword of railroads and disease. The secretary of Iowa's board worried about the lack of control over this moving menace. "A great deal is being said about the commercial value of railroads," he noted, "and yet they have a sanitary value hardly less important." As local Iowa communities drew life-blood from railroads that had given birth to them, so also did they suffer from the railroads' occasionally deadly cargo. Rural towns were much less likely to refuse trains than for railroad companies to refuse service to towns suffering localized epidemics. The state board made numerous attempts to reduce the risk, but most were imperfect, ill conceived, or simply not in the best interests of the railroads. Still, encouraged by state and national boards of health, the railroads made efforts to vaccinate employees, disinfect passenger cars, and selectively forbid passage to those with obvious cases of disease.

The increasing number of smallpox cases in Chicago had prompted a special meeting of the Chicago Board of Health and other midwestern health boards. Conferees at this Chicago Smallpox Conference in 1881 included Iowa State Board Secretary R. J. Farquharson. "In view of the fact of the frequent introduction of small-pox into the interior of Iowa from immigrants," said Secretary Farquharson, "the Iowa State Board of Health would respectfully request the National Board of Health to secure the vaccination of all unprotected immigrants before they leave the ports of arrival in this country." Some conferees denounced the feeble efforts made by eastern ports to prevent diseases from propagating. Others complained that midwestern termini were becoming dumping grounds for sick immigrants.

The Chicago Smallpox Conference and the pleas of midwestern public health authorities drew a response from the recently created National Board of Health, which created a special Immigration Inspection Service in June 1882 to check railroads, ocean steamers, and river transport for disease. Doctors were hired across the nation to inspect and vaccinate immigrants and travelers. From the start, though, the Immigration Inspection Service was ineffective in stemming the flow of disease across the Atlantic and from east to west. Inadequate numbers of inspectors were overwhelmed by the task.

The Immigration Inspection Service had little immediate impact, but its existence had important ramifications. It contributed to the sense that "every organized community should be provided with a competent board of health, and the State with a State Board, supplied with every requisite for aiding and directing the local authorities in their sanitary work." More importantly, though, for a short time the Immigration Inspection Service was a visible reminder that disease was more than a local phenomenon, one that demanded coordinated efforts, and it provided a national forum for discussing ways to combat the health problems related to integrated, global transportation systems. In 1883, as the service was being phased out due to budget cuts and political infighting, sixteen local and state boards, including Iowa's, submitted a blanket recommendation to the National Board pleading for its continuation. These boards noted that "this inspection service is such that its benefits have no relation to State boundaries, but its protective influences extend widely throughout this country; consequently, expenses therefore should not properly be borne by any local or State board of health."

Although state veterinary surgeons had drawn up lengthy regulations to certify the health of cattle coming from areas where disease was plentiful, few similar laws were on the books for humans until the 1890s. The Immigration Inspection Service and the Iowa State Board of Health spurred Iowa rail companies to detain

passengers who had obvious symptoms of smallpox, were incapacitated by dysentery, or were suffering from undiagnosed fevers. Iowa railroad stationmasters responded by disinfecting passenger cars just prior to their use. General Manager Marvin Hughitt of the Chicago & North Western Railway Company ordered his employees and officers to inspect "passenger coaches, and especially those used for the transportation of seaboard emigrants" and make sure they were "thoroughly cleaned throughout" after every run. In 1894 management for the Chicago, Milwaukee, & St. Paul Railway issued a circular making it the "duty of conductors to report by wire to their superintendents and the secretary of the State Board of Health any person on their train suspected of having small pox or cholera." Station agents were to report to the local board of health the arrival of all immigrants so that the board could inspect the immigrants and their baggage. Still, economic concerns prevented the national and state boards from demanding reform from railroad companies.

The Chicago & North Western Railway epidemic of June 1889 provides an example of the rail-borne vector for smallpox in Iowa. The epidemic spread virtually from one end of the state to the other, although only two exposed individuals died. Imported among German immigrants aboard a crowded passenger train, smallpox pustules were apparent on the face of one immigrant as the train entered the state. Nevertheless, no action was taken until stations along the route began complaining by telegraph to the state board. Clinton, Marshalltown, Nevada, Boone, and Jefferson each charged that smallpox had made its appearance in their communities coincidentally with the arrival of the train, leaving sickness in its tracks. Apparently, none of the station managers bothered to wire ahead and spare the next town. When the state board requested that exposed passengers be taken into protective custody, the mayor of Wall Lake in Sac County refused, saying that the board had to remove them from the community. The train was then sent on its way. At Galva, obstructions placed on the tracks forced the train to stop. The train was then moved onto a siding, and state board physician J. D. Miller quarantined the passengers and crew. The caboose in which the infected passenger had been riding was dragged to an Ida County gravel pit, where it was disinfected and abandoned. Regarding such problems as this, Secretary Farquharson was prompted to write, "Something more is required than the inspection and vaccination of passengers." Farquharson advocated the total isolation of immigrants on their journeys, sealed in their own cars as they crossed the state.

Finally, in 1891 Congress ruled that immigrants were to be screened both for pestilential diseases and epilepsy as well as for their moral character. That legislation did

not remove the immigrant vector for disease, but it did lessen it substantially. The widening scope of activity by the United States Public Health Service also limited the extraterritorial introduction of disease into Iowa and the nation. Facilities for quarantine of vessels were constructed at significant points of entry each year until detention stations were in operation at every major seaport and border crossing in the nation.

Concern about smallpox slowly weakened as the turn of the century approached, not because of the activities of health organizations, but because *V. minor* replaced *V. major* as the main type of infection. Mild cases of the disease were already present in Iowa by the 1880s and were often confused with chickenpox. Still, they could elicit panic. Des Moines adopted a siege mentality when two young boys and three girls in two families were incorrectly identified as exhibiting smallpox in 1892. Although the children began recovering within the week, the physician employed by the board of health to attend the children "stoutly maintained that the disease was small pox and urged the board not to release the quarantine." Three more weeks passed before the quarantine was lifted. "It seems incredible," state board physician E. H. Carter wrote later, "that in the city of Des Moines, two families should have been taken from their homes, placed in a pest house, guarded by officers and kept there for nearly a month during the development of six or eight well marked cases of chicken pox."

By the turn of the century, the changing nature of smallpox had a similar effect on the state board's approach to the disease. Instead of stressing its mortal effect, the board issued posters and other pamphlet material designed to portray those who refused vaccination as uneducated, and those who suffered the disease as threats to society.

In the preceding decades the Iowa State Board of Health had added a new voice to the debate over the relationship between epidemic disease, immigrants, and the marketplace. However, the board could do little to prevent the further spread of smallpox but share its expertise and lend its authority to encouraging the use of the cowpox vaccine and the quarantine of exposed persons. ❖

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