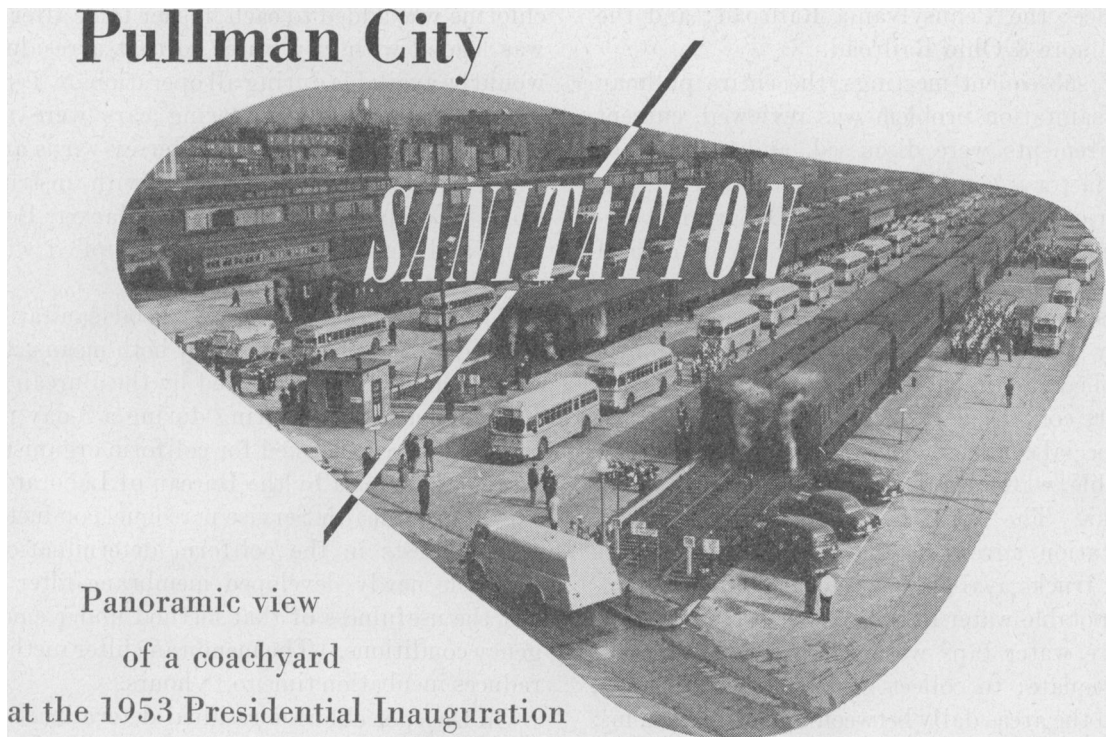


Pullman City



Panoramic view
of a coachyard
at the 1953 Presidential Inauguration

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FOR THE HALF MILLION or more visitors to the Nation's Capital during the 1953 Presidential Inauguration, the period of January 18-22 was a gay holiday. But the unprecedented throngs resulted in a variety of sanitation problems not encountered in the everyday activities of the District of Columbia sanitation and health workers and Public Health Service personnel.

Mr. Long has been engineer in charge of interstate carrier sanitation in the Region III office of the Public Health Service since 1952. Previous sanitary engineering assignments have been in Regions VIII and VI. Mr. Levin is public health engineer of the bureau of public health engineering, District of Columbia Department of Public Health. Prior to 1951 he held sanitary engineering posts with the California and Maryland State Departments of Public Health.

Railroad officials estimate that some 100,000 persons came to Washington by train during the inaugural period. Of these, 7,780 were housed in "pullman cities" at 5 railroad sidings and coachyards within the District of Columbia, creating special sanitation problems. A total of 299 pullman cars was used as railroad hotels during the inaugural period.

Approximately 1 year prior to the inauguration, sanitation and health officials met with railroad officials to determine the scope of the sanitation problems created by the operation of the pullman cities and to develop plans for a safe water and ice supply; collection and disposal of soil-can wastes, garbage, and trash; and for dining car sanitation. Taking part in the discussions and planning were representatives of the District of Columbia Department of Sanitary Engineering, division of sanitation; the District of Columbia Health Department bureau of public health engineering and bureau of food inspection; the Public Health

Service; the Pennsylvania Railroad; and the Baltimore & Ohio Railroad.

At subsequent meetings, the entire pullman city sanitation problem was reviewed, current requirements were discussed, and methods of satisfactory compliance were outlined. The District of Columbia Health Department developed detailed procedures for taking care of known and anticipated sanitation problems at the pullman cities, including necessary preliminary preparation. Instructions were mimeographed and distributed to railroad officials and others concerned.

Special consideration was given to the care of potable water hauled with flusher-type tank trucks. The District of Columbia division of sanitation agreed to make seven flusher-type tank trucks available to the railroads for hauling potable water to equipment located in areas where water taps were not available or were inadequate; to collect garbage, free of trash, from the areas daily between 7 a. m. and 9 a. m.; and to have a public scavenger collect soil-can wastes on regular workdays between 7 a. m. and 6 p. m.

The railroads agreed to provide adequate storage facilities for trash at each parking area, using their equipment to collect and dispose of these wastes at the District's landfill. To insure adequate coverage, the railroads arranged with the public scavenger for special service after hours and on holidays.

Because of the interstate aspects, Public Health Service personnel from Region III were assigned the responsibility for railroad dining car and food sanitation associated with inaugural travel. Representatives of the Region III office maintained close contact with the railroad dining car officials for several weeks before the arrival of the first inauguration specials and assisted in the planning and development of an effective program of operation. Two Public Health Service vessel inspectors stationed at Baltimore were temporarily assigned to Washington to assist in inspection of dining cars.

Water Supply

In addition to the precautions for water care, outlined in the mimeographed instructions to the railroads, a dose of 1 p.p.m. of available

chlorine was added to each flusher tank after it was loaded with city water so that a residual would be available during all operations. Temporary pipelines for watering cars were installed at the 14th Street and Jersey yards and were disinfected in accordance with instructions. Equipment at the Union Market, Benning, and Eckington yards was supplied with water by the street-flusher trucks.

To confirm the practice of good sanitation methods in supplying water by both means, 206 water samples were collected by the Bureau of Public Health Engineering during a 3-day period and were examined for coliform organisms and total bacteria by the Bureau of Laboratories. Public Health Service personnel conducted parallel tests in the coliform determinations with the newly developed membrane filter to test the usefulness of that method under emergency conditions. The membrane filter method reduces incubation time to 18 hours.

On-the-spot chlorine residual determinations were made at each point sampled. All bacteriological samples were divided and were examined in accordance with Standard Methods for the Examination of Water and Sewage as well as by the membrane filter method. The two methods produced excellent correlation of results.

In all, only three of the samples collected were positive for coliform organisms, and at least one of these was taken from an incoming train before fresh water was added. In each instance in which a positive sample was collected, the car tanks were thoroughly flushed and were refilled with water containing a chlorine residual.

Chlorine residual tests, made on the trains shortly after fresh water had been loaded, rarely showed any free or combined chlorine residual, despite the 1 p.p.m. dose applied to the flusher trucks. Apparently, the chlorine, readily detected in the flusher trucks in amounts of 0.3 p.p.m. or more, was consumed almost immediately upon being introduced into the railroad car water tanks. These tanks probably contained considerable amounts of material with a high chlorine demand.

Clear plastic bags or wrappings were placed over flusher outlets, connections, fittings, appurtenances, and hose ends to protect them from possible contamination.

Sewage, Garbage, and Refuse Disposal

At the various yards, railroad crews of from 6 to 9 men, each with a supervisor, tended the soil cans, which were to be placed under every hopper outlet as soon as a train arrived in a parking area. However, when long trains arrived, or several trains arrived at about the same time, there were not enough men to get all cans in place in time to prevent discharge from some of the car hoppers.

Full cans were taken out of service, replaced by clean cans, removed to one section of the yard, and covered with a tarpaulin, pending twice-daily scavenger collection. On each visit, the scavenger emptied the assembled cans, as well as those in service requiring attention. The large number of extra cans available, in addition to the number actually in use at any one time, reduced waste spillage considerably. In all, the railroads provided some 2,200 soil cans.

The principal cause of spillage or discharge of waste to the ground was not the fault of the operation, but a defect in the design of many of the old railroad cars used. Hopper discharge outlets located over wheel trucks or other obstructions resulted in poor alinement of the cans with the hopper outlets. In some instances, it was impossible to catch any of the discharge in the cans.

Of the two types of cans used, the angle-spout can was superior to the vertical type. The angle-spout can, when properly placed, was more adaptable to the servicing of relatively inaccessible hoppers. The smaller inlet and good fit to the hopper outlet reduced waste spillage and exposure.

The placing of soil cans so that the hopper outlet extended into the can was most important in preventing spillage and wind dispersion. When the soil cans could not be suspended from the car by hooks with the hopper outlet extending into the can, they were elevated on cinder blocks. Most of the waste spillage occurred when the cans were not placed high enough to cover the hopper outlet.

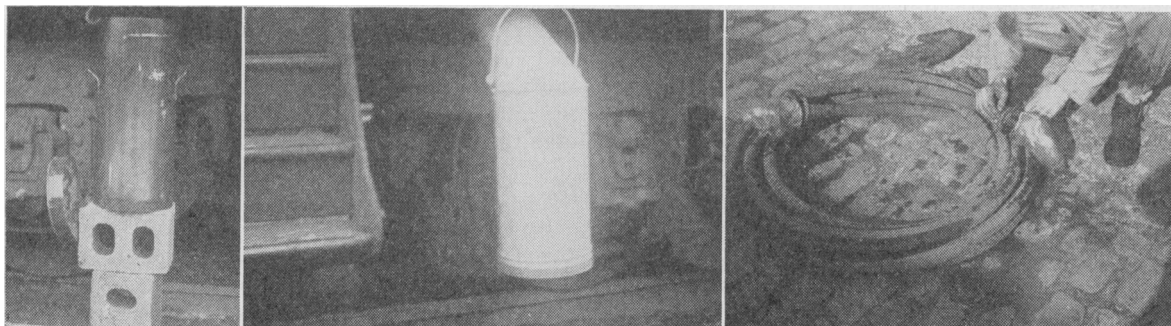
Spillage occurred rather frequently, but was attended to rapidly, and the yards were maintained in reasonably good condition. Lime was used liberally to cover all spilled waste.

Waste water from car lavatories was discharged to the track ballast. Because of food particles normally present in waste water from dining cars, this discharge was to be stored in containers for subsequent collection. However, the only receptacles provided by the railroads were regular soil cans which were inadequate in size. Thus spillage of waste water occurred at most diners.

Garbage and refuse were collected and disposed of as outlined in the instructions to the carriers, and the procedure appeared to be completely adequate. Refuse cans were placed at approximately 5-car intervals, and porters policed the cars and areas, collecting trash in burlap bags which they emptied into cans. Comparatively little trash and refuse were strewn about the yards.

Ice Supply

Probably the phase of sanitation leaving most to be desired in the entire pullman city operation was the care of ice. Very little of the ice was



Left: Vertical soil can, properly elevated on cinder blocks with hopper outlet extending into can. Center: Proper placement of angle-spout soil can. Right: Improper storage of hose on ground illustrates value of protective plastic bags on ends.

wrapped as directed, and none of the unwrapped ice was delivered in the sanitary fashion prescribed in the instructions. The ice was unloaded from open ice trucks to the floor of the railroad cars, and the porters rarely washed the ice before use. Although the bulk ice was supposedly for use in water coolers only, in innumerable instances the porters chopped off pieces of ice and placed them in the lavatories of the roomettes and other places for the passengers' use.

The ice for dining and kitchen cars was washed by dining car personnel prior to use, but here again, no arrangements were made to prevent or minimize contamination of the ice before placing it aboard the cars.

Dining Car and Food Sanitation

A total of 73 dining cars arrived in the Washington area on inaugural specials during the 3-day period, and 33 of the diners were set up and

operated in the several pullman cities, serving 3 or more meals between the times of arrival and departure.

The Pennsylvania Railroad provided meals for 828 West Point cadets and 928 Coast Guard cadets in 17 dining cars at 2 freight yards and operated an additional 14 diners at 2 other yards.

In addition to operating 2 regular dining cars, the Baltimore & Ohio Railroad converted 2 baggage cars into kitchen cars, provided a refrigerator car for the storage of perishable food, and converted a freight warehouse into a temporary messhall seating 800 persons.

The kitchen car and temporary messhall setup provided meals for some 1,600 West Point cadets, 800 newsboys, and 125 Mount Lebanon, Pa., high school boys. Consultative service was provided Baltimore & Ohio dining car officials in the planning of this operation in order to obtain compliance with accepted sanitation standards.

Condensed Version of Advance Instructions to Railroads

Water

Flusher-type tank-trucks and appurtenances. Truck tanks, pumping equipment, hose, and fittings are to be given effective bactericidal treatment with a 100-p.p.m. chlorine solution, flushed twice through all outlets and refilled with fresh water not earlier than 1 day prior to use.

Temporary distribution systems and potable water hose. The locations of couplings on temporary hose distribution systems are to be staggered with respect to car toilet-hopper outlets to prevent contamination by splash and elevated at least 6 inches to minimize the possibility of contamination by pooled wastes. All temporary distribution systems are to be given effective bactericidal treatment with 100-p.p.m. chlorine solution discharged through all outlets, and flushed with fresh city water.

Sewage

An approved type of soil can is to be placed under each car's toilet-hopper outlet immediately after the car is located in the parking area. When possible, the soil cans are to be hung from the car, with the discharge pipe extending into the can to minimize splashing and wind dispersion. All other soil cans are to be replaced as needed and emptied at least twice daily by the District of Columbia contractor in accordance with rail-

road arrangements. Spillage and overflow of soil can waste are to be covered and thoroughly limed. Waste water from diners and buffet lounge cars are to be disposed of in a sanitary manner.

Garbage

Garbage, free of trash, is to be stored in covered metal containers and collected daily by the District of Columbia division of sanitation, in accordance with prior agreement.

Trash and Refuse

Fifty-gallon, metal drums are to be provided in all parking areas (1 drum for each 5 cars) for the storage of trash and refuse. Porters and railroad personnel will clean the cars and police the areas, placing all trash and refuse in the drums. Waste, collected by the railroads in their own equipment, is to be disposed of at the District of Columbia Kenilworth landfill.

Ice

Ice supplied to diners is to be sized and wrapped at the plant and delivered to the cars in such wrapping; unwrapped ice is to be washed and transported in clean, painted metal trucks or wheelbarrows, covered with clean canvas. The unwrapped ice is to be washed again aboard the diner before use.

The kitchen cars were equipped with gas ranges, stock pots, coffee urns, and similar equipment; and adequate sinks were provided for the dishwashing and bactericidal treatment tasks. A temporary waterline was connected to each car to provide ample running water, and a steam locomotive was connected to the cars to supply steam for hot water and heating. All waste water from the kitchen cars was piped to a nearby catch basin and was disposed of in a sanitary manner. Single-service paper plates and other items were used throughout, except for coffee cups and silverware, to reduce dishwashing.

The size of the workload made it impractical to conduct the usual comprehensive sanitation inspections of dining cars. Instead, frequent inspections were directed at major sanitation items, principally operation, to obtain on-the-spot corrective action of any deficiencies observed. Emphasis was placed on wholesomeness and preparation of all food; dishwashing and bactericidal treatment procedures; refrigeration; washing and handling of vegetables to be eaten raw; condition and maintenance of such equipment as cutting boards and utility knives used in food preparation; availability of toilet and handwashing facilities for food service personnel; and infections or lesions on the hands of foodhandlers.

The inspectors were assigned to specific areas of operation and were provided with the names of the railroad officials responsible for each parking area. Necessary corrective action was routed through District of Columbia inspection personnel when possible.

Observations indicated a general tendency toward the following violations during the early stages of operation:

1. Water used for bactericidal treatment was not maintained at 170° F. or more.
2. Washwater in sinks was not being changed frequently enough.
3. Careless handling of garbage and trash in some diners created a nuisance problem during the preparation and serving of meals.

On-the-spot correction of these practices, as well as of other miscellaneous violations, was obtained through the action of dining car supervisory personnel, and the several subsequent in-

spections of all diners indicated that the entire operation was well conducted.

Recommended Improvements

The operation of the pullman cities brought to light a few defects in sanitation which should be eliminated in a future operation.

The chlorine residual tests made on samples of the fresh water loaded on the trains showed that the addition of a 1 p.p.m. dose of chlorine to the city water was warranted. The dosage might even be increased to 1.5 or 2.0 p.p.m. in the future.

The use of plastic coverings was worthwhile in protecting the ends of water-handling equipment but some of the covers did not fit as snugly as they might. In a similar situation, the covers should be kept in place with some elastic material such as rubber bands. The plastic bags or wrappings should be of sturdy material, highly resistant to wear or abrasion.

At one yard, the Pennsylvania Railroad welded metal disks around the temporary pipeline couplings to elevate them above the ground. The disks were only 4 inches in diameter and were almost completely ineffectual. Disks at least 8 inches in diameter would be satisfactory.

Lime used to cover spilled wastes proved relatively satisfactory as a disinfectant. However, chlorinated lime would achieve better results and should be required for similar operations.

All waste water from dining cars should be piped to municipal sewers wherever facilities are available, since cans of adequate capacity can rarely be placed under the cars.

Delivery of ice in a sanitary condition was a major shortcoming. The suggested remedy to this situation would be better advance planning on the part of railroads, the provision of satisfactory ice-handling equipment at the site, and more general use of wrapped ice.

Discussion

The total public health personnel engaged in activities related to the pullman city phase of the inaugural sanitation program were 5 public health engineers and 7 inspectors. Two of the engineers and 4 of the inspectors were provided

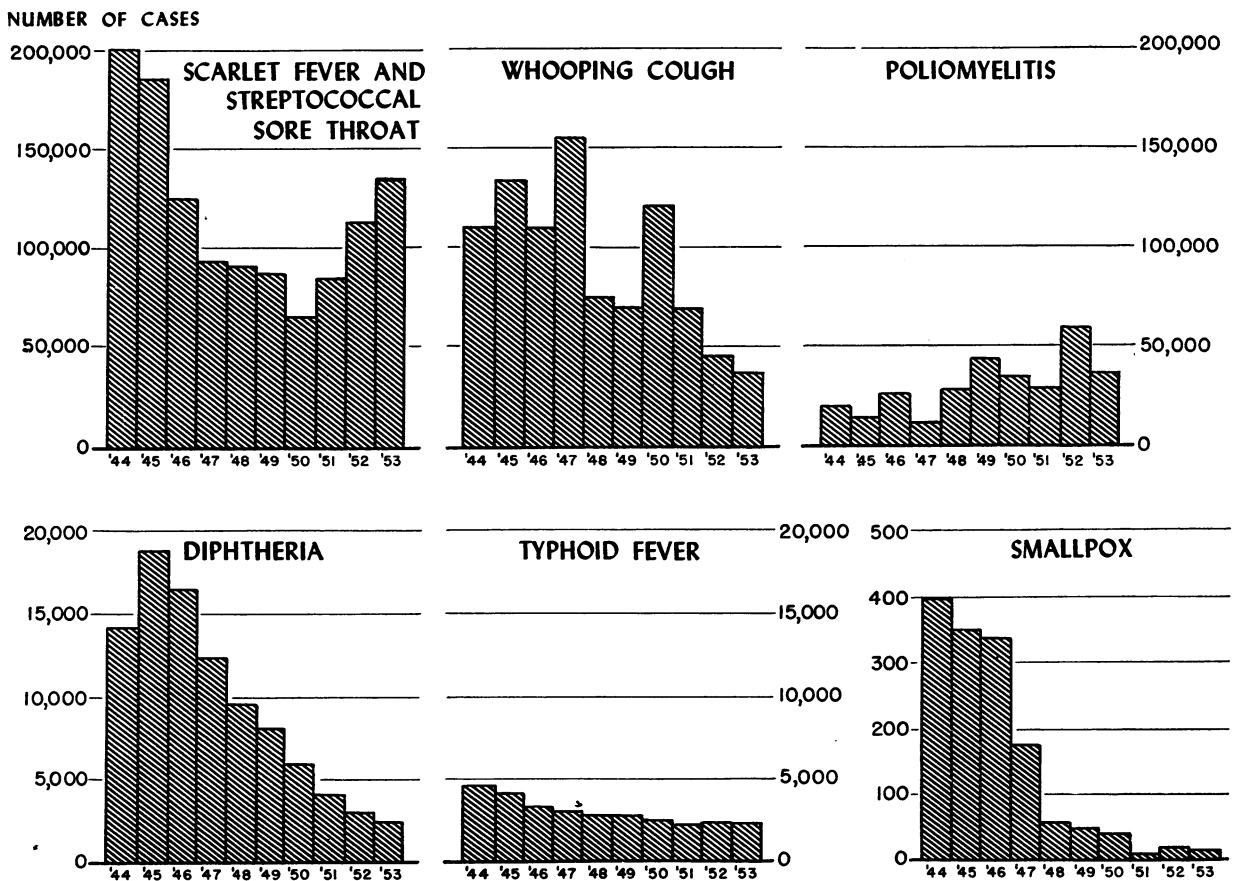
by the District of Columbia Health Department bureau of public health engineering, and 3 of the engineers and 3 of the inspectors were from the Public Health Service.

Cooperation among the many organizations actually doing the work was excellent. Although the railroads, their personnel, and facilities were taxed to the limit, supervisory and operating officials were most cooperative in correcting most deficiencies promptly upon being informed of them. The advance planning paid big dividends in pleasant working relationships and in keeping violations to a minimum.

The emergency housing methods and sanitary precautions described might be considered in civilian defense planning. With relatively few trained personnel, good temporary housing and all the concomitant needs were supplied for a sizable population. Railroad housing might provide the best solution in cities suffering from disasters, whether man-made or natural. As long as railroad tracks are serviceable, rolling stock could be made available to any large city in this country, on very short notice, to furnish shelter, food, water, and essential sanitary services to a large homeless population.

Trends

Reported cases of six notifiable diseases in the United States, 1944-53



NOTE: Charts are reprinted from the January 11, 1954, issue of *Morbidity and Mortality*, published weekly by the National Office of Vital Statistics, Public Health Service.