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Housing Law Enforcement

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Elimination of poor housing and production of good housing constitute one of the critical problems of the day. The Congress of the United States has declared "that the general welfare and security of the Nation and the health and living standards of its people . . . require a decent home and a suitable living environment for every American family" (*1*).

The Surgeon General of the Public Health Service has said that underlying every action to improve the quality of housing is the recognition that the home environment plays a significant role in determining the health status of the individual, the family, and the community, and "that in our efforts for higher levels of national health, an aggressive program for improving the quality of housing is a necessary adjunct to the provision of better health services" (*2*).

The housing problem does not tend to solve itself. Neither adequate new housing nor good used housing is within the economic means of all, so many persons live in substandard housing.

Recent surveys have shown that substandard housing exists in the small cities and rural areas as well as in the metropolitan communities (*3–5, 31–33*).

Speaking in terms of dwellings, the solution of the total housing problem requires threefold action: first, the rehabilitation of existing substandard housing where economically feasible, and the demolition of the extremely substandard dwelling that is beyond repair; second, production of sufficient new housing; and third, retardation of the rates of deterioration of dwellings and their environment (*6*).

This gigantic, complex task can be accomplished only through the combined effort of Federal, State, and local governments, private enterprise, and unofficial civic organizations, backed up by active citizen support. Cooperation among all the departments of local government concerned with the solution of the entire housing problem is particularly important. However, this report is concerned

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with only a part of that problem—the housing law enforcement activities of the health department (*7*).

Historical Development of Housing Regulations

The recorded history of regulations controlling housing begins with the Code of Hammurabi in Babylon about 4,000 years ago (*8*). This building code of a sort was simple and effective (*9*) but provided drastic penalties. If a builder constructed a dwelling that collapsed and killed the occupant, he was put to death. But that enforcement principle of an eye for an eye and a tooth for a tooth is hardly acceptable today.

Legislation regulating housing existed in China about 1000 B. C. and in Rome during the days of the Empire (*10*). The Roman Code of the Twelve Tables established minimum fire, structural, and sanitation restrictions and provided for fines and imprisonment for violators (*11*).

In 1189 A. D. the Assize of Buildings issued by the Lord Mayor of London required the use of stone party walls, cesspools, and a few other elementary safety and health requirements (*12*). However, preventive housing regulations did not appear until the seventeenth century (*13*).

The absolute genesis of housing regulations in this country is obscure, but certainly it occurred during the very early colonization period.

A complete documentation of the development of the history of restrictive housing legislation in this country is hardly possible here. The history of such progress for New York City is well recorded, however, and it undoubtedly furnishes for the most part the history of "housing firsts", so in this brief review we may advantageously confine our inquiries to that development.

In 1625 detailed instructions for the layout and construction of dwellings were given to the engineer and surveyor who planned the first settlement on what is now known as Manhattan Island (*14*). In 1647 surveyors were appointed, in what was then called the New Amsterdam Colony, to superintend houses and fences, and land owners were required to build on their land within 9 months of residence or forfeit it. This was a significant early recognition of the primacy of the community's interest in the land (*15*).

Shortly after the middle of the seventeenth century, the provisions for social control of housing through legislation and enforcement were developed under burgher government in New Amsterdam (*16*). The means for inspection of houses were enlarged and more drastic penalties were provided for violations.

Then in 1657 a new type of legislation appeared in New Amsterdam relating to sanitary disposal of "rubbish and filth" from dwellings (*17*).

Two decades later, in 1676, the minutes of the common council of New York City (*18*) recorded that "all the ruinated and decayed houses which are untenentable within this City, bee forwith viewed, apprized and valued . . .: And to be disposed off to those who are willing to build or repaire the same."

By the close of the seventeenth century this community of 5,000 people on Manhattan Island had developed devices for social control of housing that greatly influenced subsequent housing legislation. And so Ford (*19*) has stated, ". . . the power to inspect and the right of entry by public authority had been established. Tenants, as well as owners, had been subjected to special controls in their use of both house and premises; public health and safety had been protected by restrictive legislation with regard to sanitation and fire risks. Already there had been sporadic attempts to direct the use of land to general social advantage."

The first half of the eighteenth century was unproductive of housing legislation, but in 1761 new regulations were enacted for New York City and extensively revised in 1775. Significantly, these provided for improvements to buildings already constructed and marked perhaps the beginning of a modern period in housing legislation.

In 1797 three commissioners of health were appointed for New York City, and the law authorizing their appointment recognized that housing was one of their primary concerns (*20*).

In 1834 Gerritt Forbes, city health inspector of New York, made the first American reference on record (*21*) to the coexistence of high death rates and bad housing conditions. In 1842 Dr. John H. Griscom became city health inspector of New York. While serving in this job and as a result of his reports in 1844 and later (*22–24*), he distinguished himself as the first outstanding figure in American housing reform (*25*). At that early time the importance of health and safety improvements to existing housing was acknowledged. Thus, the relation between health and housing has been recognized for more than a century.

The Association for Improving the Condition of the Poor was founded partly as a result of Griscom's activities. As a result of extensive surveys conducted by the association and by others, the New York State Legislature passed the first tenement house law (*26*) for New York City in 1867. This was "the first exercise of the police power in this country to regulate the use of private property, as tenement houses, in the interest of the health, safety, and morals of tenants" (*27*).

Meanwhile other American cities—Boston, Philadelphia, Chicago and Washington—were becoming housing conscious and were making a beginning at investigation and regulation.

Then the 1895 report of the Tenement House Committee of New

York (*28*) led to the passage of the Tenement House Act of 1901 (*29*), perhaps the most significant document regulating housing in America's history. The principles and methods of this law still underlie much of our restrictive housing legislation.

During the next third of a century other cities and States enacted restrictive legislation patterned frequently after the New York Tenement House Law and Lawrence Veiller's Model Housing Law (*30*). There followed a wave of zoning regulations, and the movement for comprehensive city planning originated about 1916.

This takes us to the era of constructive housing legislation beginning with the National Recovery Act in 1932 and including such outstanding legislation as the Housing Act of 1937 and the Housing Act of 1949.

And so we see that restrictive housing regulations and their enforcement began some 4,000 years ago, were present in the days of the Roman Empire, began in this country some 300 years ago, and were developed to a fine degree as long as a half a century ago. We see also that during much of our Nation's history of housing reform, health regulations have been a fundamental basis for housing improvement and health officials have played a significant role.

Some Principles of Housing Law Enforcement

Education of the public regarding the housing conditions that exist in the community is the first requisite for a housing law-enforcement program. Ascher (*34*) points out that Justice Holmes in a decision stated "that the police power was whatever the community preponderantly desired at a given time." The well-recognized importance of the public press in this matter cannot be overemphasized. Dr. Huntington Williams, health officer of Baltimore, gives due credit to the influence of the Baltimore Evening Sun which, through its editorials and pictures, brought daily to the people of Baltimore the story of the slums of that city. He stated that this 2-year initial educational support was the essential foundation stone for Baltimore's later success in the housing law enforcement field (*35*).

The excellent series entitled, "Progress or Decay? St. Louis Must Choose" in the St. Louis Post-Dispatch, appearing in May 1950, is another noteworthy example of the important public education job that the press can do. Obviously, all the other educational techniques with which public health educators and public health specialists are familiar should also be used.

It is not enough, however, to make broad general statements and to propose general programs. Specific housing information must be obtained to state exact facts and, more importantly, to formulate a policy of action (*36–39*).

Fortunately, there exists an established technique for determining these housing facts. The Appraisal Method for Measuring the Quality of Housing (*40*) has now been used by more than 30 departments of local government (mostly health departments) and over 150,000 dwellings have been studied.[1]

Once the specific information has been obtained, standards and laws for enforcement can be formulated intelligently. Generally speaking, housing regulations from the public health viewpoint should include standards of health, safety, and amenity for new family dwellings of all kinds and their environment; standards of occupancy and maintenance for existing family dwellings; standards for such special dwellings as trailer camps, dormitories, and rooming houses; and the extension of suitable controls beyond the built-up areas (*41*).

Laws are not self-enforcing. Once they are established the actual accomplishments of enforcement stand or fall on the judgment, the efficiency, and the impartiality with which the laws are administered (*42*).

The responsibility for administering laws or regulations relating to housing should be centered. This can be accomplished by establishing a board consisting of the heads of the departments directly responsible for enforcement of housing regulations and one or two others who are vitally concerned. For example, a typical board might consist of the commissioners of the building, fire, and health departments along with the executive director of the Housing Authority or the slum clearance and redevelopment agency, and the head of the planning department. In some communities the commissioner of police and the director of welfare may be added to, or substituted for, one of the above representatives. This board should be responsible to the administrative head of the city. A new department need not be created (*43*, *44*).

It is so obvious that an adequate budget is necessary that even to mention it may seem gratuitous. This does not necessarily mean that additional funds must be appropriated to provide for all of the personnel. Although not well documented, numerous engineers in municipal public health work have reported that the instigation of a systematic housing inspection program reduces the number of complaints and thereby the inspectional load. This is obvious when consideration is given to the type of complaints received by health departments (*55*).

It is necessary to have competent personnel and to insure their continued interest and efficiency by such devices as in-service training

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[1] Through an agreement between the American Public Health Association and the Public Health Service, training in the use of this method is available at the Public Health Service housing training stations at Atlanta, Ga., and Syracuse, N. Y. Follow-up assistance is also provided. No charge is made for the course, but the trainee must provide for his own subsistence and quarters.

programs and changes in their area of operation. Likewise a systematic scheme of keeping adequate records is essential.

"The regulation of housing is an application of the police power of the community to insist that an individual limit his freedom of action in the paramount interest of the community, without compensation," according to Ascher (*45*). It is beyond question that the legislatures, in the interest of public health, safety, and welfare may, either directly by statute or by authority conferred upon municipal corporations, enact rules and ordinances regulating the manner of constructing buildings and making alterations and improvements (*46–48*).

This power is not without limit. It must be exercised so as to have a reasonable relation to the nature of the problem to be corrected and the improvement to be effected. Further, police power and procedures of enforcement must not be used in an arbitrary or capricious manner that will put undue burdens on owners. There have been, comparatively speaking, only a few tests of this power. One of these [2] is a basic case, and in his opinion Judge Peckham declared, "Reasonable provision for the health and safety of the inhabitants . . . and the welfare of the community is the test" of the legal validity of such actions (*49*). The right of entry without a warrant to conduct a health inspection has recently been challenged, but the U. S. Supreme Court disposed of the case without passing on the ultimate constitutional issue (*50*).

It is the enlightened use of the police power that Ascher says we must look to for our base (*51*). He further states that the doctrine of nuisance is not a profitable basis for regulation of housing by health officials. Briefly, Parratt (*52*) accounts for this by pointing out that nuisances have been, for the most part, judicially defined. However, the advent of the germ theory of disease and later scientific developments establish the health official—not lawyers and judges—as the repository of a special expertness in matters pertaining to health and housing.

Certain administrative legal procedures must be adhered to if the purpose is to make the administrator's action conform with legal due process so as to minimize the possibility of administrative decisions being overruled by the courts.

These procedures are not identical in detail for all areas. Nor does authority for establishing them exist in all communities. However, the administrative officer must first develop a set of standards, recognizing well-established scientific criteria [3] for healthful housing within the realm of public support and understanding. Then he should make

[2] New York Health Department *v.* Trinity Church, 145 N. Y. 32 (1895).

[3] For example, the Basic Principles of Healthful Housing developed by the Committee on the Hygiene of Housing of the American Public Health Association.

a specific set of rules to guide enforcement that will make clear the standards to be imposed (*53*).

In the entire enforcement process, there must be a truly democratic effort by the administrator to balance coercion against education and persuasion. This process begins with the rule making. The persons to be affected should be given an opportunity to be heard, to present contrary evidence or opinion, and significantly to define for the administrator the level of community acceptance of the proposed regulations.

The statute should impose the obligation to hold a hearing before enforcement action is undertaken. This can be accomplished by notice of complaint and the setting of a hearing place and date (*54*). The interested party should then have the opportunity to present testimony in his behalf. Such action presumes of course that all typical efforts of the health department to obtain voluntary compliance have failed.

If the administrator, after making a finding of the facts, decides that a violation exists, he should then proceed with service of an order to abate or another indicated remedial action. All the proceedings should be recorded carefully. Court action is necessary in only a small proportion of cases. However, the administrative procedure should be carried out as though court action will be required in all cases.

In certain instances it may be advisable to establish the board, previously referred to, as an appeal body. In large cities the volume of housing and other enforcement cases may justify the appointment of a hearing officer representing this and perhaps other boards. All the appeal proceedings should be only quasi-judicial but should be duly recorded. If need for summary action exists, it may be necessary to eliminate the hearing procedure before taking enforcement action; however, subsequent opportunity for hearing should be afforded.

Study of the housing law enforcement problems of health officials leads one directly to the conclusion that adherence to good administrative legal practices is essential for effective results. The above is by no means a complete statement of this complex procedure. Obviously, health officials should consult lawyers expert in the field of administrative law before attempting large-scale housing law enforcement programs.

Current Housing Law Enforcement Activities

Since the end of World War II, there has been a resurgent interest and activity by health departments in the hygiene of housing. Specific information from a number of local health departments around

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the country indicates that they are engaged extensively in public education and intensive surveys to obtain the facts. As a result of these studies, many cities have adopted new laws or regulations, or amendments to existing laws, or are proposing their adoption.

When considering improvement programs for substandard housing, the health official has always to keep in mind the deterrent factors of cost and poverty. Although extensive reports of improvement as a result of enforcement action are not available, it is known that important results are being obtained.

In Baltimore, for example, during a recent 2-year period, the health qualities of over 2,100 dwelling units were improved significantly. In Washington, D. C., the health qualities of approximately 500 dwellings were materially improved in a recent year along with numerous minor housing improvements—and this with only a small staff. Among others, the health departments of Milwaukee, St. Louis, Los Angeles, Memphis, Atlanta, Miami, Birmingham, and Brookline are engaged in significant programs to improve the quality of substandard dwellings.

Summary

Out of the above discussion come four points, which in effect, summarize the material. These are: First, there is a housing problem today, and health department enforcement of regulations pertaining to health can help to solve that problem; second, the interest and importance of the health official in the housing problem is by no means new; third, enforcement though not easy is possible by giving attention to public education, by fact finding, by adopting reasonable laws, and by administering the program soundly; and fourth, a few local health departments today are actively engaged in a program of housing improvement, and a score of others are well on their way to a genuine program of housing law enforcement. This bodes well for the future.

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Public Health Consideration on Housing Design and Home Accident Prevention

By Frederick S. Kent and M. Allen Pond*

With an improved housing environment, would the home accident rate decrease?

An attempt to answer this question was made in 1940 in a survey of a New England housing project. Prior to that the National Health Survey, a pioneer study conducted in 1936 to evaluate the Nation's health status, concluded that home accidents gained in frequency as rents or values of dwelling units and family incomes declined. Apart from social, psychological, and income factors affecting home accidents, however, the question still remains whether an increase in expenditures for housing automatically eliminates structural hazards.

The New England survey studied 1,000 families living in a public housing project to determine what changes occur in frequencies and types of accidents when families move out of delapidated housing into new structures. The families were asked to report on home accidents that had occurred in the 2 years before they moved and in the 2-year occupancy in the housing project. Obviously, recollections fade in proportion to time lapse. Furthermore, the strangeness of the new environment in this case was an indeterminable cause of accidents. These factors help to account for the fact that the frequencies of reported accidents were not materially changed.

In the housing project, accidents on stairs were only two-thirds of the former number; only one-half as many burns due to contact with steam pipes and radiators and approximately one-fourth the number of burns from stoves were reported. In their former housing, a significant number of accidents resulted from rotten and loose boards, splinters in the floor, leaking gas, faulty electric fixtures, and stuck windows. In the new homes such accidents were not reported. Instead, accidents were caused by kitchen cabinet doors, nails or pins pushed into electric wall plugs, glass in entrance doors, and incinerators: all elements new to the occupants' experience. It appears that in efforts to improve environment we often substitute new hazards for old.

A similar study is being planned in another eastern city. To re-

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duce the error of recollection, families who have applied for admission to a public housing project scheduled for completion late in 1952 will be interviewed regularly during the next 2 years on accidents occurring in their present domiciles and then will be interviewed periodically for 2 years at the housing project.

New private homes do not afford complete protection from accident potential any more than does low-cost public housing. To illustrate, we will recount a tragic accident. A 31-year-old housewife, her husband and 3-month-old baby had moved into a new home that represented the climax of years of hope and plans. For 10 months before moving they had lived on the third floor of a walk-up apartment house. During that time there was no noteworthy accident. However, 3 days after moving into her own new home, the housewife died from a fall down the cellar stairs. It was late afternoon, dark enough for a light, as she went down the hallway to the kitchen, intending to make coffee. But no light switch was at hand in the hall. She opened what she believed was the kitchen door. It was actually the cellar doorway she stepped through. Her husband suggested five factors that contributed to the accident: (1) unfamiliarity with the surroundings, (2) lack of light switch at both ends of the hallway, (3) absence of a landing at the top of the cellar steps, (4) absence of a handrail on those stairs, and (5) failure to provide an automatic light switch on cellar stairs controlled by opening the door. Any one of these installations might have saved her life, and the additional expense in this $25,000 home would have been insignificant.

Home accidents are a major source of unnecessary and untimely deaths and disabling injuries. And yet we are doing little to build safety measures into our homes. Even with the limitations imposed on housing by the emergency, we are proceeding with extensive building projects. Every house built will be in use for at least a third of a century. Thus, any accident hazards that happen to be built into the house will (unless later removed) provide exposure to the occupant for many years. It is well known that deterioration of dwellings begins early and increases with time. Hence, the likelihood that built-in hazards will be subsequently eliminated is relatively slight unless there is aggressive enforcement of local housing regulations. If we were to design each house so that it will be safe, so that all unnecessary accident hazards are eliminated, we could materially reduce our annual accident toll.

Such a task is by no means simple. It requires the assistance of each individual householder in addition to all the local, State, and Federal agencies and organizations, official and voluntary, that are concerned.

To base a housing safety program on a sound foundation, we may borrow the three E's from other safety fields—engineering, education,

and enforcement. We place engineering first since it is our conviction that it is the most tangible and most readily affected area of work. Providing safe housing and equipment to insure safe living should be the goal of the engineer, architect, contractor, and builder. They should plan not only to reduce hazards but also to reduce stresses and strains, to lessen cardiac and muscular fatigue. A home that pro vides compactness and an efficient lay-out, preferably a single-story dwelling, reduces accident hazards and the strain on the heart, if only by eliminating the use of stairs.

Education is to be associated with any effective prevention program. We must educate the individual to be aware of and to recognize accident hazards, to practice rules of safe living, and to assume a healthful attitude toward danger. There can be no "accident-proof" home as long as people are unaware of, or indifferent to, all safety considerations. Often economics comes into conflict with education. In one public housing project, an architect was asked to remove from his design three-way switches controlling the overhead lights in passageways. The saving was $13 for each switch. This request disregarded the fact that it created a 15-foot unlighted walk to the pull-chain along a passageway customarily littered with children's toys. Thus, at a saving of $13 per apartment, the builder exposed each of his tenants daily to a reducible hazard.

A similar situation involved installation of handrails around the platform of the outside stairways of a group of private homes near Washington, D. C. The building code requires that when such a platform is 30 inches above the ground or higher, there shall be a protective railing. The contractor, to save the cost of the rails, built the platforms 29½ inches above the ground. Luckily, the owner of the subdivision was less interested in cost and more interested in eliminating hazards. The handrails were installed as soon as the matter was brought to his attention.

Thus, we approach our last E—enforcement or, to be exact, legislation. Building codes have long included structural requirements to prevent collapse of structures and to some degree prevent accidents to occupants. Adequate enforcement of building codes must be practical. Along with this, we need the establishment and determined enforcement of housing codes to reduce accident hazards. Whereas building codes are applied to new construction but not again until a permit for remodeling or major building alteration is requested, housing codes are enforced routinely for the life of the dwelling. Health departments can thus not only determine violations of basic health and sanitation needs but of safety requirements as well.

The Committee on the Hygiene of Housing of the American Public Health Association has devised a valid quantitative method for measuring the quality of urban housing. In formulating the basic

health needs for housing, the Committee included 30 basic principles. Seven of the 30 were grouped under the heading: Protection Against Accidents. These seven principles, listed as 24 to 30, are:

1. Erection of the dwelling with such materials and methods of construction as to minimize danger of accidents due to collapse of any part of structure.
2. Control of conditions likely to cause fires or to promote their spread.
3. Provision of adequate facilities for escape in case of fire.
4. Protection against danger of electrical shocks and burns.
5. Protection against gas poisonings.
6. Protection against falls and other mechanical injuries in the home.
7. Protection of the neighborhood against the hazards of automobile traffic.

Home accidents are one of the more tangible aspects of the general problem in the relation of housing to health. They can measure the direct relationship between certain characteristic structural conditions or lay-outs in housing and the accidents that are caused thereby. The appraisal technique is a clear-cut method of measuring objectively the quality of housing. Additional information on home accident hazards can be obtained by expanding the appraisal schedule so that it will pick up details which are not otherwise gathered in the ordinary housing survey. A study is being planned to reveal the prevalence of specific accident hazards in the average home and to determine which of these hazards are most often involved in accidents. Currently a list of 110 potential accident hazards has been compiled. However, if we can reduce this number to the 20 or 30 most important ones, we will have a more practical working list.

From past experience in the health field, it is evident that persons can be motivated to correct a few defects, but a large number of defects present an undertaking that overwhelms them.

The Committee has published three guides to healthful housing—Planning the Neighborhood, Planning the Home for Occupancy, and Construction and Equipment of the Home.

The Committee's general statement on safety in the second volume is detailed in the third. The general statement emphasizes the safety value of space—to permit easy movement about the home, to put away toys and other objects which may cause falls, and to keep safely out of reach the things that are not to be trusted to the hands of curious small boys and girls. Adequate lighting is recommended for all parts of the dwelling, including storage closets. There are also specific precautions on windows, such as a sill at least 30 inches above the floor; designs for stairways and balconies; fire protection; and adequate clearances in front of stoves and other equipment that may cause burns. The first volume discusses measures against traffic hazards on the site.

The Committee is interested in setting up housing codes as companions to building codes and the establishment of administrative

techniques for enforcing housing codes. Such measures take into account not only the sanitary short-comings of existing housing but also other kinds of hazards of which accident hazards are a significant group. This activity is being carried on in cooperation with the National Safety Council and the Public Health Service.

The Committee represents a group of experts in the various aspects of the housing field and of the health field. One member is an expert in home safety. Through its activities the Committee is influencing not only health people, but also housing officials, redevelopment officials, code writers, enforcement officials, and many others closely allied with public health.

We shall cease to add annually to our large number of hazardous homes on the day when safety will be demanded by all—by the architect, the builder, the government official, and most importantly, the householder. Possibly that will be the day when classified ads of homes for sale will print leads in large type reading not only "High on a Hill" or "Old World Charm," but also will include a line to the effect that "This is a Safe Home."

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Plague on the High Seas

By VERNON B. LINK, M.D., M.P.H.*

Plague has been spread along trade routes ever since the beginning of commerce. Dissemination of this disease was relatively slow when overland routes were the principal means of transportation. With the development of ocean travel, the speed of dissemination was proportionately increased. For many centuries ships continued to carry plague back and forth across the high seas. Today, however, seagoing vessels are practically free of rats, and the danger of their transporting plague has been nearly eliminated. The story of how this occurred is an interesting chapter in world history. The part played by the Public Health Service constitutes one of the most valuable contributions to plague prevention which has ever been made by any organization.

The first official recognition of the danger of importing plague from across the seas was recorded in 1127 at Venice, Italy. Every traveler from the Levant was required to remain in the house of St. Lazarus for 40 days before being admitted to the city. After the Black Death of 1346 to 1355, overseers of public health (proveditori sopra la saluti della terra) were appointed in Venice to isolate vessels, persons, and goods suspected of carrying infection. In 1403, a maritime quarantine station was established; and in 1448, quarantine regulations were formulated on which all later measures have been based (*1*).

Over eight centuries elapsed between the time when the Venetians first attempted to halt the spread of plague by quarantine measures and the period when ships practically ceased to be carriers of the disease. During these 811 years (1127 to 1938), quarantine measures must have had some deterrent effect on the spread of plague. However, the actual results were unimportant because efforts were directed primarily at the detection and isolation of human plague.

Simply because the epidemiology of plague was not understood, no cognizance was taken of the much greater importance of the rat and flea as host and vector of the disease. As a result, rodent plague continued to be spread widely in spite of the fact that the occasional resulting human cases were carefully isolated by quarantine procedures.

It is astonishing that the importance of the rat and its flea was not

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recognized until the twentieth century. Numerous clues have been recorded in all kinds of literature which long ago should have led someone to suspect that rodents were the important links in the infection chain. The Bible contains a reference to the association between mice and a plague outbreak among Canaanites (*2*). Poseidonius at the beginning of the Christian era stated, "One can see an approaching plague by paying attention to the ill conditions of the seasons, to the mode of living less conducive to health, and to the death of animals that precede its invasion." In the eighteenth century, a Chinese named Shih Taonan (1765 to 1792) wrote a poem which pointed out the relationship of rodents to human plague (*1*).

> "Dead rats in the east,
> Dead rats in the west!
> Few days following the death of the rats,
> Men pass away like falling walls!"

In the Hong Kong epidemic of 1894, the Chinese must have been aware of the connection between mortality in rats and plague in man, because one official offered a reward of a 10-cash piece for every dead rat brought to him. In a short time, 35 thousand were paid for, and a Dr. Rennie dissected many of them. He found enlarged glands in 90 percent and asked, "Is the disease in man and animals identical?" In the same year, however, J. A. Lowson (*1*) in the official report of the Hong Kong outbreak wrote, "The question of the infection of rats previous to the epidemic being noted in human beings has been made too much of."

Ogata, working in the Formosa epidemic in 1897, stated that the disease was known there as "rat-pest" (*3*). Simond, in 1898, noted the frequency of disease among those who had recently handled rats (*4*). Thompson, in 1900, expressed his opinion that rats played the chief part in spread of the disease (*5*). Finally, the Commission for the Investigation of Plague in India, working from 1906 to 1917, proved conclusively that rats and fleas were the hosts and vectors of the disease (*6*). This brilliant sequence of epidemiological research demolished previous theories that plague was spread by cadaveric poison, foamites, soil, or flying insects, and established at once and for all time that the disease was primarily one of rodents, with man becoming involved secondarily.

In the meantime, another pandemic of plague had become well established and there was accumulating a remarkable record of shipborne plague. This pandemic is believed to have originated in the Chinese Province of Yunnan in 1893. At the end of February 1894, it had traveled overland to Pakhoi and Canton. A considerable epidemic occurred in Canton in March and April, and when it was at its worst, thousands of natives fled to Hong Kong. The reporting of

plague deaths on board vessels plying between Canton and Hong Kong was an almost daily occurrence. Hong Kong suffered from a serious epidemic starting in May 1894. Here again, when the situation became grave, an exodus to Canton took place which set up a vicious cycle keeping the epidemic going in both cities. In following years, the disease spread fairly rapidly to every continent and to nearly every country in the world. This dissemination could have been brought about only by overseas shipping, and the records of human and rodent plague on board ships in the period from 1894 to 1938 support this contention.

The first recorded instances of ship-borne plague in the present pandemic were plague cases occurring in June 1894 on two ships en route from Hong Kong to Japan and Singapore. No ship-borne plague was reported in 1895, but during the period from 1896 to 1938, plague was reported every year on board ships. There were 332 instances in which human, rodent, or both types of plague were confirmed by clinical or laboratory determinations. Of these, 291 were human cases only, 29 rodent plague only, and 12 were both types. One ship reported human cases 4 times in an 11-year period, 4 ships reported human cases on 3 occasions, 12 ships reported human plague twice, while 315 reported plague on board once only. These 332 instances involved many ports of departure and arrival in 55 different countries in all continents. The peak of ship-borne plague occurred in 1901 when 29 ships were reported with plague on board; 1 with rodent plague, 4 with rodent and human plague, and 24 with human plague only. Although the rat was not incriminated until 1906, there were 9 occasions in 1900, 1901, and 1904 when infected rats were found on board ships. That more were not discovered is undoubtedly due to the fact that a more intensive search was not made in those early days (*7*).

The existence today of plague-free world shipping has been brought about by a combination of several factors. Among the most important are: the succession of international agreements concerning the "quarantinable diseases" (cholera, plague, smallpox, typhus, yellow fever); the initiation and improvement of antirat fumigation of ships; the perfection of intensive rat infestation inspection methods; and the development and installation of ship ratproofing methods.

A long series of international meetings have been called to discuss ways and means of combating the spread of epidemic diseases among countries. These international agreements were responsible for developing the rules and regulations which govern modern maritime quarantine procedures. They have played an important part in the achievement of a plague-free world shipping (*8*).

Agreement	Locality	Year signed
International Sanitary Convention	Paris	1903
Pan American Sanitary Convention	Washington	1905
International Sanitary Convention	Paris	1912
Pan American Sanitary Code	Habana	1924
International Sanitary Convention	Paris	[1] 1926
International Sanitary Convention	The Hague	[2] 1933
International Sanitary Convention	Paris	1938
International Sanitary Convention	Washington	[3 4] 1944

[1] Modified by the International Agreement of 1934.
[2] Concerning aerial navigation.
[3] Including aerial navigation.
[4] Prolonged by the Protocol of 1946.

Fumigation of ships to destroy rats was started early in the present century. In this country, the first of such fumigations were performed at Savannah and at Tampa in 1903 (*9*). Routine fumigation alone, with the methods employed in the early days, could never have eradicated rats on ships. This is readily apparent from the records of the S. S. *Innamincka* in Australia, which was fumigated with sulphur:

Date	Port	Procedure	Rats obtained	Plague rats
5/21/07	Sydney	Trapping	19	1.
5/24/07	Melbourne	Inspection	164	Several.
5/25/07	Melbourne	Fumigation	164	Several.
5/29/07	Sydney	Trapping	63	None.
5/30/07	Sydney	Fumigation	69	None.
5/31/07	Sydney	Fumigation	509	None.
6/1/07	Sydney	Fumigation	70	None.
		Total	1,058	

The fumigations on May 30 and 31 were done after completely unloading all cargo. When rats were still heard running around, the coal bunkers were unloaded and another 70 rats were obtained after the fumigation on June 1. Few ships before had ever been subjected to as thorough an effort to get rid of rats (*10*).

The above example is cited not to condemn fumigation as a rat-control measure, but to point out the relative inefficiency of the earlier methods. Modern fumigation techniques by first dosing the harborages with hydrogen cyanide and then gassing the main compartments will generally give a 100-percent kill. The use of hydrocyanic acid gas was first authorized by the Public Health Service in 1910, although its extensive use in this country did not come about until 1914 during the plague epidemic in New Orleans (*11*). Today, cyanide products are generally accepted as the most efficient antirat fumigants and deserve much credit in the campaign to rid ocean-going vessels of rodent infestations.

In the early years of this century, fumigations were prescribed at regular intervals which were arbitrarily established. The only criterion for fumigating a ship was the time elapsed since the previous fumigation. Obviously, this penalized a ship that had little or no rat infestation and really did not need to be fumigated. It erred in

regard to heavily infested ships which actually should have been refumigated before the expiration of the required interval. In an effort to put fumigation on a more rational basis, ships were inspected in order to determine the degree of rat infestation. This practice was started in Seattle in 1908 (*11a*). However, it was not until 1913 that general attention in this country turned to the degree of rat infestation rather than merely to the latest date of fumigation (*11b*). The art of ship inspection was subsequently developed to the point at which an experienced person could determine accurately the total number of rats present. It finally became accepted international practice to fumigate ships on the basis of the inspection result rather than on the duration of time since the last previous fumigation, and standards were prescribed which allowed maximum numbers of rats in relation to the ship's tonnage under certain conditions. The development of intensive rat infestation inspection services really put ship fumigation on a logical and sound basis.

Although international agreements, fumigation, and inspection methods have been important, the real story of the creation of rat- and plague-free shipping is the account of the development of ratproofing of ships. The earliest attempts were made by Grubbs and Holsendorf, Public Health Service Officers in Puerto Rico in 1912. They developed a system called partial ratproofing. This system consisted of removal, before fumigation, of dunnage, planking, casing, and other material which could give protection to rats from the fumigant gas or keep the gas from circulating properly. As a result, steamship companies began to make certain removable panels, which could easily be taken out or opened on hinges, for the places which fumigating crews had previously damaged by opening (*10*). Then in 1924, studies were initiated by the Public Health Service in New York on the complete ratproofing of ships. It was considered that while fumigation and trapping of vessels would continue to be valuable methods, ratproofing should take its place among antiplague procedures on ships in a manner similar to its use in buildings (*11c*).

Within a year, ratproofing methods had been developed to the point of practicability. By midyear 1925, 13 vessels were being ratproofed by Public Health Service personnel in New York harbor. This work was requested by steamship companies on a voluntary basis. They were quick to realize the advantages in economic savings as well as in subsequent saving of time by avoiding some of the compulsory fumigations (*11d*). In another year, ratproofing of ships began in Southampton, Bremen, Danzig, Buenos Aires, Gothenburg, and Bergen. Steamship companies began to employ regular ratproofing crews, and before long, ratproofing was being incorporated into all vessels under construction (*11e*). By 1929, standard specifications for ratproofing of ships had been approved by the American

Marine Standards Committee of the Department of Commerce (*11f*). In 1931, 75 percent of the better-class ships coming into New York had been ratproofed. Ratproofing had been completed on 288 vessels belonging to 47 different companies of 14 nations (*11g*). Ratproofing of ships in the United States received a big impetus during World War II when the Maritime Commission specified that Liberty and Victory ships be constructed in accordance with the Public Health Service specifications for ratproofing (*8*).

Ratproofing of ships has been a truly international effort. Its efficacy is shown not only by the fact that no plague has been reported on board any ship in the world since 1938, but also by the evidence that there was a decided decrease in rat populations as soon as a considerable proportion of ships were ratproofed. In a 7-month period between July 1, 1936 and January 31, 1937, there were 4,418 ship entries at our Atlantic ports. Of these, only 8.4 percent were found infested with rats. This compared very favorably with the figure of 50 percent infestation observed on ships at New York in the period between 1925 and 1927. This remarkable situation was credited at that time to effective fumigation, ratproofing of vessels, international certification, and intensive rat-infestation inspection (*12*). Although the end result could not have been accomplished without the operation of all four factors, it is significant that the big decrease in rat infestation did not occur until ratproofing of ships on a world-wide basis was well under way.

In April 1937, PUBLIC HEALTH REPORTS carried a statement that the Public Health Service "believes that the problem of overseas transmission of bubonic plague is almost solved" (*12*). The same article emphasized that precautions should not be relaxed and that there was need for the continuation and even intensification of the methods which have brought about the favorable conditions.

The 13 years which have elapsed since the above statement was made have supported the prediction that the problem of overseas transmission of bubonic plague was almost solved. One instance alone has been reported since then, when plague was found on board the S. S. *Ville de Tamative* in April 1938, at Beirut (*13*). Even World War II has not marred this record, which is somewhat surprising in view of the past association of war and plague.

For the first time since the beginning of ocean travel, the world is free of ship-borne plague; and it is almost inconceivable that any considerable amount of future spread by sea should occur, provided that we continue to maintain ships free from rats.

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Q Fever in California

IV. Occurrence of *Coxiella burnetii* in the Placenta of Naturally Infected Sheep

By Hartwell H. Welsh, M.S.,* Edwin H. Lennette, M.D., Ph.D.,* Francis R. Abinanti, D.V.M.,† and John F. Winn, D.V.M.†

Epidemiologic studies of Q fever in northern California have shown that approximately two-thirds of the human cases give a history of contact with livestock (*1*, *2*). Serologic surveys of the domestic livestock populations of presumably endemic and nonendemic areas in this part of the State have shown that antibodies to *Coxiella burnetii* are much more prevalent in sheep and goats than in cattle (*3*, *4*). These findings, among others, led to studies on the role of sheep in the epidemiology of the disease. The observation that the rickettsia is present in the milk of this species has already been reported (*3*) (see also Caminopetros (*5*) and Jellison et al. (*6*)). The presence of rickettsiae in the milk suggested that the organism may be present in other secretions or excreta. This report deals with the presence of *C. burnetii* in the placenta of parturient animals.

Material and Methods

Study Area

Eight sheep ranches in the Yolo-Solano County endemic area were selected. These ranches were chosen because previous serologic surveys had shown the presence of infection in the flocks, and human cases of Q fever had occurred on certain of the premises. The ranches were not contiguous.

Collection and Handling of Tissues

Placentas were collected from 72 animals of the 350 under observation, the animals being taken consecutively on each ranch as the lambs were born. The placental tissues were taken from the vaginal vault, or as they were being expelled. Only freshly delivered tissues were utilized; those expelled at times when personnel were not in attendance were not collected. Small portions of placental tissue were excised at random with sterile instruments, placed in sterile 30-ml. screw-cap jars, and immediately frozen on dry ice. The speci-

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mens were kept on dry ice until delivered to the laboratory, where they were subsequently stored at −20° C. in a mechanical refrigerator.

Preparation and Inoculation of Material

The frozen specimens were thawed under running, cold tap water. Each specimen was then washed three times with sterile 0.85-percent salt solution. A small portion of tissue, usually about 1 gm., was cut off, weighed, and ground into a 10-percent suspension in sterile skimmed milk. This suspension was centrifuged at 500 rpm for 5 minutes in a horizontal centrifuge. The supernatant fluid was drawn off, and sufficient penicillin was added to give a concentration of 200 units per ml. The suspension was incubated for 4 hours at 4° C., and then inoculated into test animals; guinea pigs, hamsters, or both, were used. When guinea pigs were employed, the material was inoculated into two animals, each receiving 2 ml. intra-abdominally; when hamsters were used, four animals were inoculated, each with 1 ml. intra-abdominally.

The test animals were kept under observation for 6 weeks, and then bled. The sera were examined for the presence of complement-fixing antibodies to *C. burnetii*. On the basis of experience in this laboratory, a 3+ fixation at a dilution of 1:32, or greater, by the sera of one or more animals of the test group was interpreted as definite evidence of infection, and hence that the rickettsia was present in the placental tissue under examination.

Uninoculated animals were held under the same conditions in the same quarters as the test animals as a control on the possible occurrence of cross-infection; none of the control animals, held in cages interspersed with those containing the test animals, developed complement-fixing antibodies.

Complement Fixation Tests

These were conducted according to the method previously described (*3*). The Henzerling (Italian) strain of *C. burnetii* was used as the antigen.

Results

A total of 72 ovine placentas was tested, and 21 (or 29 percent) were found to contain *C. burnetii* (table 1).

Forty-seven placentas were tested by guinea pig inoculation, and subsequently the same suspensions were tested in hamsters as a check; in 42 instances, the results of tests in both species were in agreement. Thus, 36 placentas were negative and 6 were positive by both tests. In the remaining 5 instances, placental suspensions were negative by guinea pig inoculation, but were positive when tested in hamsters.

Twenty-five placentas were tested by inoculation into only one or

Table 1. *Presence of* Coxiella burnetii *in placentas of parturient sheep from an endemic area in northern California*

Ranch	All sheep			Serologically positive sheep			Serologically negative sheep		
	Placentas tested	Placentas positive	Percent positive	Placentas tested	Placentas positive	Percent positive	Placentas tested	Placentas positive	Percent positive
1	11	5	*45*	7	3	*43*	4	2	*50*
2	9	7	*78*	5	4	*80*	4	3	*75*
3	8	4	*50*	5	3	*60*	3	1	*33*
4	3	0	*0*	2	0	*0*	1	0	*0*
5	13	2	*15*	7	2	*29*	6	0	*0*
6	17	0	*0*	8	0	*0*	9	0	*0*
7	2	1	*50*	2	1	*50*	0	0	*0*
8	9	2	*22*	7	2	*29*	2	0	*0*
	72	21	*29*	43	15	*35*	29	6	*21*

the other test species. Of 16 tested in guinea pigs only, 7 were positive, and of 9 tested in hamsters only, 3 were positive.

Of the 72 placentas tested, therefore, 16 were found to contain *C. burnetii* on the first test, and 5 additional positives were found when materials negative by the guinea pig test were reexamined in hamsters.[1]

As is indicated in table 1, 43 placentas came from sheep which were serologically positive [2] for Q fever; 15 (or 35 percent) of these placentas contained the rickettsia. These findings are in agreement with those reported by Luoto and Huebner (*7*) for dairy cattle.

Of greater interest, perhaps, are the placentas which came from serologically negative sheep; of 29 specimens tested, 6 (or 21 percent) were found to contain *C. burnetii*. A similar situation has not been observed in dairy cattle (*7*).

To obtain some idea of the infectivity of placental tissue, portions of placentas from 6 sheep were titrated in guinea pigs or hamsters, or in both species; the results are presented in table 2. In general, the results of the few specimens tested indicate that the placentas of the serologically negative sheep contained from 100 to 10,000 hamster-infective doses per gram, and that the placentas of serologically positive sheep contained from 10 to more than 1 billion hamster-infective doses per gram. Additional information, however, is necessary to determine what the usual level of infectivity of ovine placental tissues might be.

Discussion

The finding of *C. burnetii* in the placenta of 21 of 72 sheep (29 per cent) points to this organ as an important means of exitus for the

[1] Nine attempts were made to establish strains of *C. burnetii* from placental tissues by passage through guinea pigs; all nine were successful. Seven of the strains were isolated from the placentas of serologically positive animals, and two from the placentas of serologically negative animals.

[2] The term "serologically positive" refers to the presence of complement-fixing antibody (3+ or greater fixation at 1 : 8 or more (*5*)) in the serum at, or subsequent to, parturition, or in the colostrum at parturition.

Table 2. *Results of titrations of ovine placental tissues for content of* Coxiella burnetii

Sheep number	Antibody titer		Test species*	Dilution of placental tissue in skimmed milk							Hamster-infective doses (approximate) per gram placental tissue
	Serum	Colostrum		10^{-1}	10^{-2}	10^{-4}	10^{-6}	10^{-7}	10^{-8}	10^{-9}	
W1	<1:8	<1:8	Hamster	++++	+000	0000	0000	0000	0000	0000	10^{3}.
W7	<1:8	<1:8	Hamster	++++	++++	0000	0000	0000	0000	0000	10^{3}.
W39	<1:8	<1:8	Hamster	+++0	++++	+000	0000	0000	0000	00DD	10^{4}.
			Guinea pig	+D	++	00	00	00	00	00	
W4	1:64	<1:8	Hamster	++++	++++	++++	0000	0000	0000	0000	10^{5}.
W31	1:32	1:64	Hamster	+++D	0000	0000	0000	0000	0000	0000	10^{7}.
			Guinea pig	+0	00	00	00	00	00	00	
W38	1:64	1:128	Hamster	+++D	++++	++++	++++	++++	++++	++++	10^{9} or >.
			Guinea pig	++	+D	00	++	++	0D	++	

*=4 hamsters, or 2 guinea pigs, used per dilution.
+=Serum of test animal positive (3+ or better fixation at serum dilution of 1:32 or more); animals bled 6 weeks after inoculation.
0=Test animal serum negative.
D=Test animal died.

rickettsia from the body of the infected animal. Also, the high concentration of rickettsiae in the placentas, as suggested by the preliminary titrations reported here, indicates that this organ constitutes a rich source of infective material for contamination of the environment.

Lambing in northern California takes place during the winter and early spring months only, customarily within lambing sheds or circumscribed pasturage. It is, therefore, presumably possible to attain a high degree of contamination in a relatively small area during certain times of the year. Such a set of environmental conditions agrees well with epidemiologic observations of the human disease made by Clark, Lennette, and Romer (*2*), viz, the incidence of human infection is seasonal, and is greatest among males of the working-age group.

An additional point of comment, and of some import in the epidemiology and epizootiology of the disease, is the finding that the rickettsia may be present in the placental tissues not only of serologically positive animals, put also in the placental tissues of serologically negative animals. Negative serologic tests in sheep should not, therefore, be interpreted as unequivocally excluding the existence of infection with *C. burnetii*.

Summary

The placental tissues of 72 sheep, representing both serologically positive and serologically negative animals from an endemic Q fever area in northern California, were examined for the presence of *Coxiella burnetii*. The rickettsia was found with relative ease and with about the same frequency in both serologically positive and serologically negative animals.

The significance of these findings is briefly discussed.

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Salmonella mendoza: A New *Salmonella* Type

By R. H. Leiguarda, O. A. Peso, A. Z. R. de Pelazzolo, and E. M. Ansiaume*

Salmonella mendoza is represented by one culture isolated from the Mendoza River during the routine examination of samples of water from several places along the irrigation system of the province of Mendoza (R. Argentina).

The culture presented the typical biochemical reactions of the genus *Salmonella*. It was a motile rod which produced hydrogen sulfide, utilized d-tartrate, and failed to produce indol, to hydrolyze urea, or to liquefy gelatin.

The organism ferments glucose, arabinose, galactose, trehalose, maltose, xylose, mannose, levulose, dulcitol, inositol (variable), isodulcitol, and mannitol with production of acid and gas. Starch, dextrin, erythrol, adonitol, inulin, lactose, raffinose, sucrose, and salicin were not attacked.

The O antigens of *S. mendoza* were related to the O antigens of group D.[1] In absorption tests the organisms were able to remove all the O agglutinins from serum prepared with *S. gallinarum* (IX, XII). Likewise, *S. gallinarum* was able to absorb all agglutinins from an O serum prepared from *S. mendoza*.

The H antigens of the microorganism were diphasic and phase 1 was closely related to phase 1 of *S. bredeney* (l, v). In absorption tests *S. mendoza* reduced the titer of serum for phase 1 of *S. bredeney* from 10,000 to 20. The absorption of phase 1 serum of *S. mendoza* with *S. bredeney* phase 1 reduced the titer from 40,000 to less than 20. Phase 1 of *S. mendoza* can be denoted by the symbols l, v. Phase 2 was agglutinated in high dilution by phase 2 serum of *S. newport* (1,2 . . .) and in absorption tests *S. mendoza* reduced the titer of *S. newport* serum from 20,000 to 20. Absorption of serum prepared from phase 2 of *S. mendoza* by phase 2 of *S. newport* reduced the titer from 80,000 to less than 20. The antigens of phase 2 of *S. mendoza* are 1,2 . . . .

S. mendoza is pathogenic for mice only by intraperitoneal injection. A laboratory worker accidentally infected with *S. mendoza* had enteritis and diarrhea of 1 week's duration. The organism was iso-

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[1] The absorption of O and H related sera by *S. mendoza* was repeated by O. A. Peso in the laboratory of Dr. P. R. Edwards, Communicable Disease Center, Chamblee, Ga., before publication. We are in debt to Dr. Edwards for allowing us the use of his laboratory facilities and typing sera.

lated from the stools of the infected person during the acute stage of the infection, which subsided spontaneously.

Summary

S. mendoza is a new *Salmonella* type which was recovered from the water of the Mendoza River. It belongs to group D of the Kauffmann and White Schema and has the antigenic formula IX,XII: 1,v–1,2 . . . . Accidental ingestion of the organism resulted in enteritis and diarrhea which disappeared spontaneously after 1 week.

Incidence of Disease

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

Reports From States for Week Ended October 13, 1951

The number of cases of typhoid fever being reported currently is well below that of a decade ago. In September 1951 the average per week was 60, while in 1940 the average number reported per week in September was about 160. The very marked summer peak has nearly disappeared leaving a more even distribution of cases throughout the year. Epidemiological investigation of the three cases reported by California for the current week suggests that a member of the family is a carrier in one case, another case is the second in a family previously reported, and the third occurred in a transient.

The number of cases of malaria reported for the current week was greater for civilians than for any week since September. The States reporting the largest numbers for the current week were Georgia (98), Michigan (17), Texas (13), and South Carolina (7). No information is available regarding previous military service in these cases. The number reported from military establishments closely approximates those for the previous 6 weeks.

The number of cases of poliomyelitis reported for the current week (1,062) is slightly above that for the previous week (1,016). The States in which an increase of more than 10 cases occurred, as compared with the previous week, were New York, Missouri, Kansas, North Carolina, Kentucky, Washington, and California. A secondary rise in the number of cases has occurred frequently in the fall months of past years.

The cumulative total number of cases of poliomyelitis for the calendar year is now 23,853 as compared with 26,505 for the same period in 1950. The cumulative total since the seasonal low week is 22,641 as compared with 25,374 for last year. If the present trend in the number of cases is maintained for the remainder of the year, approximately 30,000 cases will be reported in 1951 which would be about 3,000 less than in 1950.

One case of rabies in man, which was reported by Iowa, is stated to be a delayed report. The case occurred in June 1951.

Infectious Hepatitis

Dr. R. H. Hutcheson, Tennessee Commissioner of Health, has reported two outbreaks of infectious hepatitis. In a group of 300 pupils attending a rural school in Giles County, there were 25 cases, and among 400 pupils in a school in Wilson County, there were 100 cases. Investigations have indicated that both outbreaks were contact infections.

Gastroenteritis

Sarah V. Dugan, Kentucky State Department of Health, has reported an outbreak of gastroenteritis following a dinner in a hotel. Ten to 18 hours after eating, 90 persons became ill. The number attending the dinner was 130. No food was available for analysis, principally because 4 days elapsed before the outbreak was reported.

Dr. L. M. Shuman, Illinois Department of Health, has reported a food poisoning outbreak in Decatur in which cream-filled bismarks and coconut pies were shown to be the vehicles of infection. In the investigation by Dr. A. C. Baxter, it was found that 10 persons, of an estimated total of 100 who ate the pastry, became ill after an incubation period of 1½ hours. *Staphylococcus albus* was isolated from the pastries. The baker had an open sore on one hand, a culture of which yielded an organism identical with those found in the pastry.

Comparative Data For Cases of Specified Reportable Diseases: United States

[Numbers after diseases are International List numbers, 1948 revision]

Disease	Total for week ended—		5-year median 1946–50	Seasonal low week	Cumulative total since seasonal low week		5-year median 1945–46 through 1949–50	Cumulative total for calendar year—		5-year median 1946–50
	Oct. 20, 1951	Oct. 21, 1950			1950–51	1949–50		1951	1950	
Anthrax (062)	1	3	1	[1]	[1]	[1]	[1]	49	39	42
Diphtheria (055)	110	209	303	27th	1,070	1,556	2,725	3,078	4,684	7,334
Encephalitis, acute infectious (082)	28	21	15	[1]	[1]	[1]	[1]	863	784	529
Influenza (480–483)	292	733	733	30th	3,649	5,529	5,529	119,704	144,293	132,780
Measles (085)	1,498	998	922	35th	[2] 7,292	4,604	4,567	[2]476,203	292,775	558,200
Meningitis, meningococcal (057.0)	65	72	62	37th	274	298	259	3,335	3,097	2,870
Pneumonia (490–493)	604	923	[3]	[1]	[1]	[1]	[1]	50,442	67,741	[3]
Poliomyelitis, acute (080)	1,062	1,548	1,078	11th	22,641	25,374	22,238	23,853	26,505	22,588
Rocky Mountain spotted fever (104)	3	3	3	[1]	[1]	[1]	[1]	[4] 314	404	532
Scarlet fever (050)[5]	771	778	1,028	32d	4,048	4,354	5,098	57,434	44,524	62,339
Smallpox (084)				35th		1	3	11	27	51
Tularemia (059)	11	8	15	[1]	[1]	[1]	[1]	547	753	799
Typhoid and paratyphoid fever (040, 041)[6]	61	56	70	11th	2,146	2,388	2,774	2,581	2,898	3,259
Whooping cough (056)	993	1,473	1,473	39th	[4] 2,674	4,366	4,366	[4] 56,449	101,561	80,438

[1] Not computed. [2] Deduction: Ohio, week ended Oct. 6, 39 cases. [3] Data not available.
[4] Additions: Rocky Mountain spotted fever—North Carolina, week ended Aug. 18, 1 case; Whooping cough—Kentucky, week ended Oct. 13, 10 cases and Rhode Island, week ended Oct. 6, 20 cases. [5] Includes cases reported as streptococcal sore throat. [6] Includes cases reported as salmonellosis.

The cream filling was made in the morning and placed on sale before noon.

Dr. Malcolm H. Merrill, California Department of Public Health, has reported 17 cases of *Shigella* infection in a rural area. The first case had its onset on August 1 and the last on October 8. Thirteen of the cases have been in children under 10 years of age.

Plague Infection in Grant County, Wash.

Dr. V. B. Link, Western Communicable Disease Center Laboratory, has reported that a specimen (51–WB–40), consisting of 199 fleas (*Megabothris clantoni, Meringis shannoi, Thrassis gladiolis johnsoni,* and *Catallagia charlottensis*) from 49 sagebrush voles (*Lagurus curtatus*) which were trapped October 2, 1951, 9 miles north of Quincey, Wash., was proved positive for plague.

Reported Cases of Selected Communicable Diseases: United States, Week Ended Oct. 20, 1951

[Numbers under diseases are International List numbers, 1948 revision]

Area	Diphtheria (055)	Encephalitis, infectious (082)	Influenza (480–483)	Measles (085)	Meningitis, meningococcal (057.0)	Pneumonia (490–493)	Poliomyelitis (080)
United States	**110**	**28**	**292**	**1,498**	**65**	**669**	**1,062**
New England	**2**		**1**	**217**	**1**	**24**	**16**
Maine			1	31		7	
New Hampshire				11		1	1
Vermont				64			
Massachusetts	2			79	1		3
Rhode Island				11			1
Connecticut				21		16	11
Middle Atlantic	**10**	**11**	**1**	**443**	**11**	**96**	**127**
New York	5	6	(1)	295	6		82
New Jersey	3	2	1	71	3	56	14
Pennsylvania	2	3		77	2	40	31
East North Central	**4**	**2**	**15**	**274**	**15**	**65**	**231**
Ohio	1			39	5		48
Indiana	2		13	8		11	14
Illinois	1		1	110	5	37	54
Michigan		2	1	52	5	17	64
Wisconsin				65			51
West North Central	**2**	**1**	**1**	**30**	**9**	**51**	**152**
Minnesota	2			11	3	16	27
Iowa		1			2	6	10
Missouri				3	3	1	40
North Dakota				1		24	2
South Dakota			1	4			4
Nebraska				2			19
Kansas				9	1	4	50
South Atlantic	**46**	**3**	**11**	**144**	**8**	**60**	**76**
Delaware				3			
Maryland	1			53		13	7
District of Columbia				13		4	3
Virginia	11	1		25	3	30	9
West Virginia	1			11			11
North Carolina	17	1		8	2		17
South Carolina	2		2	1		1	6
Georgia	13	1	9	27		12	18
Florida	1			3	3		5
East South Central	**23**	**1**	**5**	**48**	**5**	**36**	**97**
Kentucky	8			31	1	3	28
Tennessee	3			7	3		36
Alabama	10			7		21	8
Mississippi	2	1	5	3	1	12	25
West South Central	**20**	**4**	**81**	**43**	**9**	**165**	**97**
Arkansas	2	2	62	2	1	10	10
Louisiana	4				2	9	23
Oklahoma	2		19	3		10	13
Texas	12	2		38	6	136	51
Mountain	**1**		**127**	**142**		**60**	**69**
Montana			10	21			1
Idaho				8			8
Wyoming						2	4
Colorado			28	13		20	17
New Mexico			2	37		26	8
Arizona	1		87	33		12	6
Utah				30			23
Nevada							2
Pacific	**2**	**6**	**50**	**157**	**7**	**52**	**197**
Washington			34	28	2	4	20
Oregon	1		8	32		20	22
California	1	6	8	97	5	28	155
Alaska							
Hawaii		1	42	302			1

[1] New York City only.

Reported Cases of Selected Communicable Diseases: United States, Week Ended Oct. 20, 1951—Continued

[Numbers under diseases are International List numbers, 1948 revision]

Area	Rocky Mountain spotted fever (104)	Scarlet fever [1] (050)	Smallpox (084)	Tularemia (059)	Typhoid and paratyphoid fever [2] (040,041)	Whooping cough (056)	Rabies in animals
United States	**3**	**771**		**11**	**61**	**993**	**134**
New England		**34**			**9**	**46**	
Maine		3			1	5	
New Hampshire		3				2	
Vermont						2	
Massachusetts		20			8	32	
Rhode Island		1					
Connecticut		7				5	
Middle Atlantic	**1**	**88**			**5**	**209**	**13**
New York	1	49			2	91	13
New Jersey		13			2	58	
Pennsylvania		26			1	60	
East North Central		**189**		**3**	**4**	**219**	**11**
Ohio		49				27	5
Indiana		25				17	4
Illinois		35		3	2	47	2
Michigan		68			2	72	
Wisconsin		12				56	
West North Central		**60**				**25**	**19**
Minnesota		9				3	7
Iowa		10				2	6
Missouri		13				11	5
North Dakota							
South Dakota		18					
Nebraska		1				1	1
Kansas		9				8	
South Atlantic	**2**	**152**		**2**	**11**	**98**	**20**
Delaware						2	
Maryland		11			1	3	
District of Columbia		5				1	
Virginia		15		1	3	21	6
West Virginia		9				14	1
North Carolina	2	81			1	13	
South Carolina		12		1	1		8
Georgia		19			4	28	5
Florida					1	16	
East South Central		**66**			**10**	**38**	**24**
Kentucky		19			2	10	8
Tennessee		41			3	16	5
Alabama		5			1	5	6
Mississippi		1			4	7	5
West South Central		**11**		**2**	**4**	**213**	**47**
Arkansas		1				28	1
Louisiana				1		6	[3] 12
Oklahoma		1			2	15	4
Texas		9		1	2	164	30
Mountain		**26**		**4**	**2**	**53**	
Montana		2				3	
Idaho		3				14	
Wyoming						2	
Colorado		9				10	
New Mexico		2			2	15	
Arizona		8				9	
Utah		2		4			
Nevada							
Pacific		**145**			**16**	**92**	
Washington		18				11	
Oregon		11			1	3	
California		116			15	78	
Alaska					1	8	
Hawaii					1	2	

[1] Including cases reported as streptococcal sore throat.
[2] Including cases reported as salmonellosis.
[3] Report for September.
Rabies in man: Iowa, 1 case.

FOREIGN REPORTS

CANADA

Reported Cases of Certain Diseases—Week Ended October 6, 1951

Disease	Total	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Brucellosis	11					3	4				4
Chickenpox	311			4		23	137	8	25	62	52
Diphtheria	3				1	2					
Dysentery, bacillary	11	3									8
Encephalitis, infectious	1					1					
German measles	54			1		9	15		7	9	13
Influenza	29			23			1	4			1
Measles	449	4		39	2	82	47	2	9	135	129
Meningitis, meningococcal	5	1			1	3					
Mumps	218	1				27	100	10	28	14	38
Poliomyelitis	97			6	6	11	54	7	5	2	6
Scarlet fever	193					46	23	25	23	24	52
Tuberculosis (all forms)	192	8		3	21	62	18	17	9	11	43
Typhoid and paratyphoid fever	18				8	9			1		
Venereal diseases:											
Gonorrhea	322	11		10	3	101	59	21	15	44	58
Syphilis	59	2		1	4	28	5	2	4	1	12
Primary	7					3			2	1	1
Secondary	2								2		
Other	50	2		1	4	25	5	2			11
Other forms	1										1
Whooping cough	219			2	1	79	65	17	20	27	8

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

The following reports include only items of unusual incidence or of special interest and the occu rence of these diseases, except yellow fever, in localities which had not recently reported cases. All reports o f yellow fever are published currently.

Plague

India. For the week ended September 29, 1951, 29 cases (10 deaths) of plague were reported in Mysore State as compared with 67, 66, and 18 cases for the first 3 weeks of the month. There were 104 cases (30 deaths) reported in the whole country for the week ended September 8.

Union of South Africa. During the period September 14–20, two fatal cases of bubonic plague were reported in the Maraisburg District, Cape Province.

Smallpox

Ecuador. During August, 10 cases of smallpox were reported, 2 of which were in the airport of Quito.

India (French). Nine cases of smallpox were reported in Karikal during the period September 21–30.

Indochina. For the week ended October 13, 19 cases of smallpox were reported in Hanoi, Viet Nam, and 2 were reported in Haiphong.

Rhodesia, Northern. During the week ended October 6, six cases of smallpox were reported in Northern Rhodesia.

Typhus Fever

Ecuador. For the month of August, 72 cases (8 deaths) of typhus fever were reported in Ecuador. Of these, 16 were in Quito and 1 murine type was in Quayaquil.

Eritrea. For the week ended October 6, four cases of typhus fever were reported in Eritrea.

Yellow Fever

Ecuador. During the period August 1–15, 1951, one fatal case of jungle yellow fever was reported in Calceta, Bolivar County, Manabi Province.

French West Africa. On October 13, one suspected case of yellow fever was reported in Guinea. This is the first case to be reported in the area; however, in February a suspected case was reported in Freetown, Sierra Leona. The patient was said to have been from Timbo, Guinea.