

For instance, Dejerine asserts that in France one half of the cases of epilepsy among children are due to alcoholic parents. Now, whereas the defect in the nervous system of the parents is perhaps unquestionably responsible for the defect in the nervous system of the child, an assumption that to the alcohol imbibed by the parents is due the epilepsy in the child is far from justified. Alcohol cannot be considered to father epilepsy merely because a man addicted to alcohol fathers a child addicted to convulsions. Such is very obviously a fallacious deduction. However, it is possible that excessive alcoholism in a pregnant woman may interfere with the proper development of the nervous system of the embryo, and so in some instances epilepsy may seem quite properly attributable to alcohol. But otherwise, alcoholism as a direct primary cause of epilepsy has not been proved. There are many who consider that as such it has been misapprehended. They believe the so-called rum-fits to be indicative merely of a dormant epilepsy. Indeed, when we compare the frequency of acute alcoholism with the infrequency of rum-fits, this view does seem plausible.

A study of the relation of alcohol to convulsions was undertaken at the Monson State Hospital for Epileptics. As a result of this study, the statement was made that "in a perfectly stable and well adjusted nervous system, alcohol per se is not sufficient to produce convulsions."

It is not my intention to underestimate the importance of alcoholism in the parents as an evidence of neuropathic stock, or to underestimate the importance of alcoholic intoxication as an irritant to sensitively balanced nervous systems, or to disregard the effect of alcoholic poisoning on the nervous system of the developing embryo. It is my object merely to call attention to the fallacy of assuming that because an epileptic drinks, or his parents drank, such facts make sufficient evidence for generalizations concerning the cause of epilepsy.

EYESTRAIN

Eyestrain may hardly seem worth mentioning, but it is believed by some to be the cause of epilepsy. Indeed, the epileptic eye has been spoken of.

At the Monson State Hospital for Epileptics, "Eyes are marked by no distinguishing feature." Hodskins and Moore³ obtain no positive findings. In fact, evidence was produced to prove that eyestrain was not of any importance as a primary etiologic factor in epilepsy.

CONCLUSION

Perhaps the best and most practical view for the general practitioner to adopt is that epilepsy means a tendency to recurrent convulsions, that such a tendency implies a more or less generalized cortical instability, and that epilepsy is therefore not properly due to any cause outside the brain.

Then, too, it is not an incurable disorder. In fact, treatment in accord with the view just mentioned has for years proved more or less effectual when well carried out. For instance, William Aldren Turner of the National Hospital for the Paralyzed and Epileptic in London, an indisputably eminent authority on this subject, gave some figures in 1910 which might be considered accurate proof of this. He published statistics

of a large series of cases, many observed for as long as twenty-two years, in which small doses of bromid alone had cured entirely 23.5 per cent., or about one epileptic in every four, and greatly benefited another 50 per cent.

At the Neurological Institute we find that practically all epileptics of the class who live at home and are able to visit the hospital derive great benefit from treatment. A cerebral sedative is used almost always, and this is combined with what other remedies or treatment a study of their physiologic processes and particular difficulties suggests.

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EPIDEMIC INFLUENZA AT THE COOK COUNTY HOSPITAL*

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CHICAGO

True to the history of pandemics of influenza of the nineteenth century prepared by Leichtenstern,¹ the great outbreak of last year has been followed by epidemic outbreaks chiefly in the larger cities. So far as conditions at Cook County Hospital obtain, Chicago was invaded early in January, 1920, and during the five weeks ending February 15, 1,128 patients were admitted to this institution. There were 264 deaths among this number, a mortality of 23.4 per cent., as compared to the rate of 31 per cent. at this hospital in the recent pandemic.

The crest of the epidemic (Chart 1) as indicated by admission to this hospital was reached on January 20, after a duration of about ten days. The secondary rise both in admissions and deaths occurred about January 30. This corresponds to the marked increase in the number of patients admitted with pneumonia.

Because of the rather limited hospital facilities, instructions were issued to the examining physicians to accept for hospital care only those patients that were really ill. With such a rule in effect, the distribution of the first 839 patients as shown by the diagnosis on admission to the ward was: influenza, 503, or 60.7 per cent., of which forty-six, or 9.1 per cent., developed pneumonia during their stay in the hospital; influenzal pneumonia on admission to the hospital, 326, or 39.3 per cent. Of the 326 patients admitted with pneumonia, 205 died, a mortality rate of 62.9 per cent. The patients who developed pneumonia in the hospital include, among others, children, patients in obstetric wards, and patients suffering from chronic diseases. In this group of forty-six cases there were twenty-six deaths, a mortality rate of 47.8 per cent.

The unfavorable effect of pregnancy on the prognosis as noted by observers in previous epidemics is again brought out. Of the forty-eight women admitted to the obstetric ward with influenza, twenty-four died, a mortality rate of 50 per cent.

There were two age periods of greatest number of admissions (Chart 2): one from birth to 10 years, and one between the twentieth and fortieth years.

Of the adult admissions, 59.8 per cent. were males and 40.2 per cent. were females, a relationship prac-

3. Hodskins and Moore: The Relation of Eyestrain to Epilepsy, *J. Ophth. & Oto-Laryngol.* 2: 169-175, 1908.

* From the Laboratory of the Cook County Hospital.

1. Leichtenstern, Otto: *Influenza*, Ed. 2, by George Sticker.

tically identical to the percentages of last year, 59.2 of males and 40.8 of females,² respectively.

CLINICAL PICTURE

The clinical picture was in all essentials like that described during the previous outbreaks of the disease. The onset was abrupt, with the features of acute

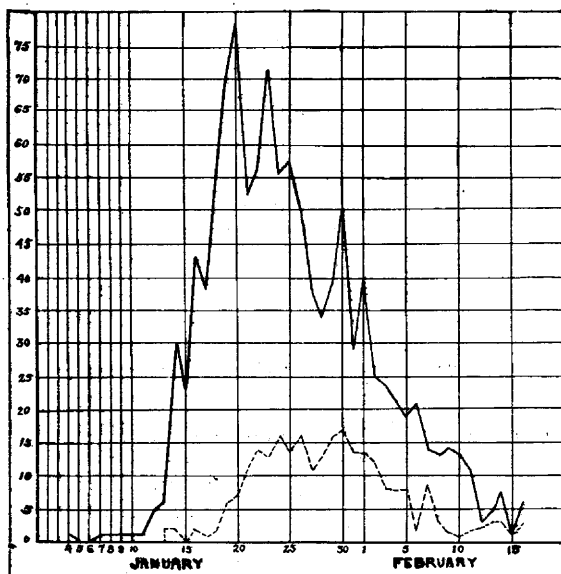


Chart 1.—Duration of the epidemic as shown by daily admissions (solid line) and deaths (broken line).

catarrhal fever. The prostration and debility were all out of proportion to the demonstrable pathologic changes. Among the common complaints were coryza, headache, retrobulbar pain, backache, chilly sensations, muscle pains and later cough which characteristically was productive of thick, greenish-yellow sputum. Gastro-intestinal symptoms were not infrequent and included nausea, vomiting, diarrhea and sometimes abdominal pain. Of the nervous symptoms noted, there were delirium, meningismus and rarely melancholia or dementia.

Physical examination revealed flushed face, injected conjunctivae, and erythematous rash of the face, neck and shoulders. The mucous membrane of the soft palate and pharynx was injected and sometimes presented petechial hemorrhages. The pulse rate was increased; the respirations ranged between 20 and 30 per minute, and the temperature from 101 to 104 F. Leukopenia was the rule, and the average leukocyte count of twenty-five influenza patients was 6,500. In uncomplicated cases the average stay in the hospital was seven days.

Pneumonia was the most serious complication. It is to be suspected in patients whose temperature remains high after the sixth or seventh day. The early chest findings were obscure. Later, patchy consolidation usually could be demonstrated. In the grave cases marked cyanosis of the patient was common. A moderate leukocytosis of from 12,000 to 16,000 was usually observed. Other common complications were empyema, otitis media, sinusitis, meningismus and jaundice.

MORBID ANATOMY

The external appearance of the bodies of those who had died from influenzal pneumonia was characteristic.

The postmortem lividity was extensive, involving the head, trunk and extremities. Not infrequently a bloody, frothy fluid exuded from the nostrils and mouth.

The tracheobronchial mucosa was generally reddened, and the small blood vessels were engorged. In their lumens, mucous, mucopurulent or hemorrhagic secretion was present. The tracheobronchial lymph glands were usually engorged with blood and were edematous.

Early in the disease, the lung involvement was chiefly lobular, with hemorrhagic, catarrhal or purulent exudate containing scarcely no fibrin. The surfaces made by cutting were mottled, firm and granular, with dark red congested areas of aerated lung tissue intervening. Large quantities of bloody fluid bathed the cut surfaces. Thick purulent material commonly oozed from the small bronchi. Serous or serosanguineous fluid was frequently found in the pleural cavities. Later in the course of the disease, the amount of fibrin increased and the exudate became gray and often purulent. Plastic pleuritis was not infrequent. It was noteworthy that at two necropsies, empyema was present with the pus between the mediastinal pleura and the hilum of the lung, while the lateral surface of the lung was adherent to the chest wall by fibrinous adhesions, causing obliteration of the pleural cavity. This finding accounted for the inability to aspirate pus on thoracentesis after empyema had been diagnosed in the ward.

The liver and kidneys were usually heavier than normal and were the seat of parenchymatous and fatty changes.

TECHNIC OF BACTERIOLOGIC STUDIES

Beef infusion agar and broth were the two basic mediums used. The reaction was adjusted to neutrality to phenolphthalein before autoclaving. For cultivating *B. influenzae*,

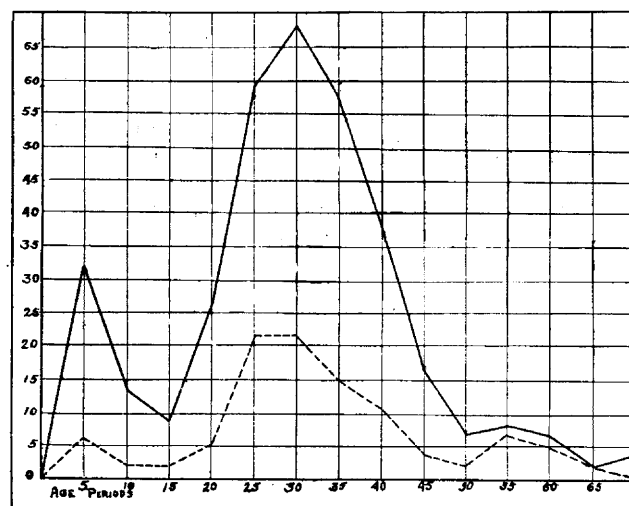


Chart 2.—The relationship of age to the number of admissions (solid line) and deaths (broken line) during the epidemic period.

the agar at 90 C. was enriched by the addition of 5 per cent. defibrinated horse blood. Plates were poured after this added blood had become a chocolate brown. These agar surfaces were inoculated from throat swabs and with the sputum of the patients studied. In the early studies, sputum was injected intraperitoneally into white mice, and plate cultures were made from the peritoneal exudate and from the heart blood of the mouse at necropsy. This was later discontinued when it became apparent that in practically all cases *B. influenzae* was demonstrable in direct cultures of the throat or sputum.

2. Keeton, R. W., and Cushman, A. B.: The Influenza Epidemic in Chicago, J. A. M. A. 71: 1962-1967 (Dec. 14) 1918.

Well separated giant colonies of *B. influenzae* were usually to be found on these plates, and pure cultures could easily be recovered. The identification of *B. influenzae* rested on its cultural characteristics on the brown blood agar, and its failure to grow on hemoglobin-free agar, as well as its morphologic and staining characteristics.

For pneumococcus identification and typing, the mouse method was used, freshly collected sputum being employed. Red blood plate cultures were made from the peritoneal exudate and from the heart blood of the mouse at necropsy; and single colonies of pneumococcus, picked from these plates, were grown on red blood agar slants. After about eighteen hours' incubation, a tube (5 c.c.) of infusion broth was poured over the slant and incubation continued for a period sufficient to yield adequate growth in the broth for agglutination and bile solubility tests.

In the ward surveys for hemolytic streptococci, this technic was employed:

Beef infusion agar (0.3 per cent. acid to phenolphthalein) was prepared and stored in from 300 to 500 c.c. amounts. On melting and cooling the agar below 45 C., sterile defibrinated horse blood was added in amounts sufficient to make up 5 per cent. of the volume of the agar. Thorough mixing and pouring into petri dishes (10 cm. in diameter) followed.

Throat cultures of all patients in the ward were made on the day of study. In taking the culture, a small cotton swab was touched first to the posterior pharyngeal wall in order to produce gagging. This caused the tonsils to protrude toward the midline and placed a slight tension on the capsule, which tended to press material from the crypts. The surfaces of both tonsils thus protruding were quickly brushed and the swab withdrawn without touching other parts. These swabs were carried to the laboratory in sterile test tubes and were used at once to inoculate the blood agar plate surfaces.

The swab was touched lightly to the agar surface at two points, one near each extremity of a given diameter of the plate. The swab stick was turned between the fingers through one revolution so as to bring all points of the swab in contact with the agar. The inoculum was spread by means of an inoculating wire slightly curved at the end. After passing the wire several times over the points of inoculation, multiple streaks and cross streaks were made, avoiding further contact with the points of primary inoculation. With a little experience this method furnished well seeded plates, presenting colonies widely enough separated to render plate reading easy.

Careful preparation of mediums, and a rigid technic for throat swabbing and for seeding the plates are prime requisites which cannot be emphasized too strongly in any method of direct throat culture. Lack of care in any one of these particulars does much to vitiate the results obtained. In properly prepared cultures, the recognition of hemolytic streptococci is very simple.

In these ward surveys, plate readings, supplemented by a Gram stain of typical hemolytic colonies, were employed as the means of identification of hemolytic streptococcus carriers. Colonies producing typical hemolytic zones of the Beta type of streptococcus (Smith and Brown) were picked from all cultures in which they appeared after twenty-four hours' incubation, and were stained. Cultures presenting hemolytic colonies, which on staining showed gram-positive cocci in chains, were regarded as positive for hemolytic streptococci. Further confirmatory studies were not made.

These surveys at ten day intervals were instituted to determine the prevalence of hemolytic streptococci in the wards rather than to follow the bacteriology of any particular patient. They were employed as a clinical aid in a system of ward management aimed at minimizing dangerous contact dissemination of hemo-

lytic streptococci. The methods used enabled the prompt reporting of hemolytic streptococcus carriers and their early isolation, both of which are matters of extreme importance in the management of wards caring for influenza and pneumonia patients.

STUDIES OF ACUTE INFLUENZA

A group of twenty-two patients was studied by means of throat and sputum cultures on brown blood agar, together with the inoculation of sputum into the peritoneal cavities of white mice, and subsequent cultures of the peritoneal exudate and the heart blood were made both on red and brown blood agar plates. This triple means of study enabled a determination of the occurrence of *B. influenzae*, pneumococcus and hemolytic streptococcus, which was: *B. influenzae*, twenty-two times, or 100 per cent.; pneumococcus, Type I, none; Type II, one; Type II, atypical, five; Type III, one, and Type IV, nine; total, sixteen, or 72.7 per cent.; hemolytic streptococcus, twice, or 9.1 per cent.

A second group comprises forty-five cases of acute influenza, which were studied only by throat and sputum cultures. These cultures were made on the brown blood agar, and no attempt was made to identify organisms other than *B. influenzae*. *B. influenzae* was isolated and identified in forty-three of these cases, or in 95.5 per cent. Of this group, cultures were made of eighteen patients in the receiving ward of the hospital, of which number, only throat cultures were made in six cases. The two patients that were negative for *B. influenzae* were in this group of six.

In the first series in which a study was made by all three methods, *B. influenzae* was found in 100 per cent. of the cases. These results are in accord with those obtained last year at Camp Pike by Opie³ and his co-workers.

The second group demonstrates that *B. influenzae* can be found in practically every case by the less elaborate methods, when cultures are made on brown blood medium. It should be emphasized that this medium appears to be more or less selective for growing the Pfeiffer bacillus.

BACILLUS INFLUENZAE IN NONINFLUENZAL PATIENTS

Cultures for *B. influenzae* were made of a group of patients, with conditions other than influenza or other respiratory diseases, examined in the receiving wards of the hospital during the height of the epidemic. Of the thirty patients of whose throats and sputums cultures were made, *B. influenzae* was isolated in twenty-one, or 70 per cent.

In a second series, twenty-six patients hospitalized before the epidemic in the tuberculosis ward, *B. influenzae* was identified in sputum and throat cultures in nine instances, or 34.6 per cent.

These studies furnish two control series. The first represents patients arriving at the hospital during the height of the epidemic, and can be regarded as a group showing the prevalence of the Pfeiffer bacillus in persons outside the hospital during the period of the epidemic. The relatively high incidence of this organism in the foregoing series is comparable to the reported findings⁴ in normal persons during the pan-

3. Opie E. L.; Freeman, A. W.; Blake, F. G.; Small, J. C., and Rivers, T. M.: Pneumonia Following Influenza, J. A. M. A. 72: 556-565 (Feb. 22) 1919.

4. Stillman, E. G., and Pritchett, I. W.: J. Exper. Med. 29: 295 (March) 1919.

demic of 1918, and may be regarded as illustrating the wide dissemination of the bacillus during epidemic periods.

The second group represents patients hospitalized before the epidemic, and may be regarded as illustrating the prevalence of Pfeiffer's bacillus during the interepidemic periods.

PNEUMONIA STUDIES

A group of thirty-two cases studied bacteriologically presents the bacteriology of the pneumonia of influenza as it occurred in cases chosen at intervals in the hospital wards throughout the course of the epidemic.

The occurrence of the various organisms was: pneumococcus, Type I, two times; Type II, one; Type II, atypical, six; Type III, five; Type IV, thirteen; total, twenty-seven, or 84.4 per cent.; hemolytic streptococci with pneumococci, one; with no pneumococci, five; total, six, or 18.7 per cent.; *B. influenzae*, twenty-four, or 75 per cent.

The types of pneumococci occurring in the mouths of normal persons were found in practically 90 per cent. of the pneumococcus pneumonia cases of this group. The parasitic types, I and II, occurred infrequently, Type I only twice, and Type II once. These findings are in accord with those reported for the pneumonia of the 1918 pandemic of influenza by various observers.

Hemolytic streptococci occurred in approximately one fifth of the cases. In those studied early, hemolytic streptococci were not found. All instances in this group in which hemolytic streptococci appeared were among patients studied within the latter half of the epidemic. *B. influenzae* was present in three fourths of these cases.

WARD SURVEYS FOR IDENTIFICATION OF HEMOLYTIC STREPTOCOCCI

The dissemination of hemolytic streptococci throughout wards in which acute respiratory diseases were treated, and the dangers attending such dissemination, have been emphasized recently.⁵ In two of the wards, throat cultures of all patients under treatment were made at intervals of about ten days. The cultural methods have been described. Since many cases of

TABLE 1.—RESULTS OF CULTURES TAKEN FOR
HEMOLYTIC STREPTOCOCCI IN WARD A

Cultures		Cultures Positive for Hemolytic Streptococci	
Date	Number	No.	Per Cent.
Jan. 24	24	4	16.7
Feb. 3	33	1	3.3
Feb. 12	4	2	50.0

pneumonia terminated fatally in less than ten days and many patients with influenza were discharged within a shorter period than this, the study furnishes few repeated cultures on individual patients during the course of their illness. The repeated ward surveys indicate the incidence of hemolytic streptococci in the wards during the period of their use for the care of influenza and pneumonia patients. The results of this study have been:

1. In Ward A, from January 18 to February 13, the total number of patients treated was 125; the total num-

ber of pneumonia patients treated in the ward was fifty-seven, and the total number of deaths in the ward was forty-one.

Of the four patients positive for hemolytic streptococci on the first survey, three developed no complications of influenza and left the hospital before recultures were made of the patients in the ward. They had been in the hospital four, six and seven days, respectively, before cultures were taken. The fourth patient was admitted with influenzal pneumonia nine days before the culture was made, and died of pneumonia, January 28. Cultures had been taken previously of each of the three patients identified as hemolytic strep-

TABLE 2.—RESULTS OF CULTURES TAKEN FOR
HEMOLYTIC STREPTOCOCCI IN WARD B

Cultures		Cultures Positive for Hemolytic Streptococci	
Date	Number	No.	Per Cent.
Jan. 24	64	15	23.4
Feb. 3	70	14	20.0
Feb. 12	22	12	54.2

tococcus carriers on the second and third ward surveys and had been found to be negative. They were patients that had acquired hemolytic streptococci in the hospital. Two of these patients had pneumonia on admission. Both died: the first, three days after the identification; the second, eight days after the identification. In neither patient was a diagnosis of empyema made.

The results show that the incidence of hemolytic streptococci in this ward was never high. The complications (other than pneumonia) developing among the fifty-two patients studied are in accord with this finding. They are two cases of empyema, one due to pneumococcus Type II, atypical, and the other showed *Streptococcus viridans* and staphylococci on culture. One case of otitis media occurred, the bacteriology of which was not determined.

2. In Ward B, from January 19 to February 13, the total number of patients treated was 184; the total number of pneumonia patients treated in the ward was 101, and the total number of deaths in the ward was fifty-six.

The figures in Table 2 indicate that there was a wider dissemination of hemolytic streptococci in Ward B than in Ward A. Four cases of empyema occurred in Ward B, all due to hemolytic streptococci.

Of the fifteen patients whose throats gave cultures positive for hemolytic streptococci, January 24, five had pneumonia. Three recovered without further complication. The fourth died of pneumonia, and the fifth developed a hemolytic streptococcus empyema, diagnosed, January 4, and is at present under treatment in a surgical ward. The remaining ten were patients with influenza, of which number, all recovered without complication.

Of the fourteen patients whose throats gave cultures positive for hemolytic streptococci, February 3, twelve had pneumonia, of which number, two had been positive and one negative for hemolytic streptococci on previous culture. Of the remaining nine, two developed hemolytic streptococcus empyema. One of these died, February 7; the other is convalescent. Of the remaining seven patients, one died of pneumonia. Two patients with influenza recovered without complication.

Previous cultures had been made in the twelve cases, positive, February 12. One patient had had two posi-

5. Opie, et al. (Footnote 3). Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, J. A. M. A. 70: 1146 (April 20) 1918. Levy, R. L., and Alexander, H. L.: The Predisposition of Streptococcus Carriers to the Complications of Measles, J. A. M. A. 70: 1827 (June 15) 1918.

tive and another one positive culture. Both recovered from the pneumonia without complication. Of the remaining ten patients negative on previous cultures, one recovered from uncomplicated influenza, and nine had pneumonia. One died of uncomplicated pneumonia, February 15. Two were discharged as recovered. Six are under treatment for pneumonia, and two of these have developed otitis media.

In addition to the complications mentioned, a few cases of otitis media developed among patients whose throat cultures were negative for hemolytic streptococci. The bacteriology of the cases of otitis media was not determined.

The red blood agar plates used in the ward surveys for hemolytic streptococci were also studied for *B. influenzae*. These results are of interest in showing the relative incidence of *B. influenzae* among the ward patients studied at various intervals throughout the course of the epidemic. They are not presented to give actual incidence of *B. influenzae* because the methods employed are less reliable for the isolation of this bacillus than those employed for determining actual incidence.

A summary of the studies of the cases in the two wards is given in Table 3.

It has been mentioned that early in the course of the epidemic the wards had under treatment more patients with influenza than with pneumonia, but that later the number of patients with pneumonia predominated. In the summary given in Table 3, all ward patients were

TABLE 3.—RESULTS OF STUDY OF CULTURES
TAKEN FOR *B. INFLUENZAE*

Date	Cultures		Cultures Positive for <i>B. Influenzae</i>	
	Number	No.	Per Cent.	
Jan. 24	76	67	88.2	
Feb. 3	103	60	58.4	
Feb. 12	26	3	12.0	

included, i. e., both influenza and pneumonia patients. The results indicate a decrease in the relative incidence of *B. influenzae* in the later periods of the epidemic when the larger part of the patients in the wards had pneumonia.

SUMMARY

About one third as many patients suffering from influenza or its complicating pneumonia were treated in this hospital during the present epidemic as were treated during the pandemic of 1918.

Of the 829 patients whose cases were analyzed, 503, or 60.7 per cent., were admitted with a diagnosis of influenza, and 326, or 39.3 per cent., with a diagnosis of pneumonia. Many of the latter were moribund on admission to the hospital. Of these 326 pneumonia patients, 205 died, a mortality rate of 62.9 per cent.

Forty-six, or 9.1 per cent., of the patients admitted with influenza developed pneumonia, and twenty-six, or 47.8 per cent., of these died.

B. influenzae was isolated by the multiple culture methods from 100 per cent. of the patients studied, and by the direct sputum and throat culture method from 95.5 per cent.

Pneumococci were found in 84.4 per cent. of the cases of pneumonia studied, and for the most part are represented by the types of pneumococci found in the mouths of normal persons. Hemolytic streptococci were found in 18.7 per cent., and *B. influenzae* in 75 per cent. of these cases of pneumonia.

One of the wards showing active dissemination of hemolytic streptococci furnished four cases of empyema, all due to hemolytic streptococci. Two cases of empyema, both due to organisms other than hemolytic streptococci, occurred in a second ward where these organisms were less prevalent.

CONCLUSION

B. influenzae has been isolated and identified in 100 per cent. of the cases of acute influenza.

In the cases of pneumonia complicating influenza, pneumococci predominate. They are chiefly of the types found in the mouths of normal persons.

Hemolytic streptococci occupy a prominent place in the complications of influenza and pneumonia.

ADDENDUM

We believe that a brief statement as to the hospital management during the epidemic will be valuable to illustrate the conditions under which these studies were conducted.

By condensing medical and surgical services, five wards were rendered available for the treatment of influenza and pneumonia patients admitted to the hospital during the period of the epidemic. These wards were opened one after another as needed. The wards were filled to capacity in the order in which they were opened. After the fifth ward had been filled, sufficient beds were becoming available in other wards to care for patients admitted subsequently.

Influenza and influenzal pneumonia patients were not treated in separate wards. Early in the epidemic period there were fewer pneumonia and more influenza patients than later when the pneumonia patients predominated among the admissions. In the latter part of the period the treatment wards became literally pneumonia treatment wards, the segregated uncomplicated influenza patients occupying much the smaller sections of the wards. The wards were supplied with sheet cubicles and otherwise equipped before receiving any patients.

These rules for the management within the wards were issued on the opening of the wards and served as a basis of the plan of ward management throughout the epidemic:

The cubicle system is to be used in all wards.

Paper bags will be provided and must be used for soiled napkins and gauze.

Hand disinfectant solutions will be provided for use by the physicians, nurses and attendants in passing from one patient to another.

Ward floors should not be dry swept, but must be scrubbed at intervals with compound solution of cresol in the water.

All physicians, nurses and attendants are required to wear gowns, caps and masks while in the ward.

Bed patients are not required to wear masks, but the mask will be strictly enforced on all patients leaving the cubicle.

Paper napkins are to be provided for bed patients, who will be instructed to cover the mouth and nose on coughing, sneezing, etc. These must be changed when soiled.

Attempt will be made to keep acute cases of influenza in the same section of the ward.

Attempt will be made to prevent the congregating of convalescents in toilets, bath rooms, etc.

The borrowing and lending of materials between the patients is to be strictly prohibited.

Pneumonia developing in the influenza wards will be treated in separate sections of the wards, and medical asepsis strictly enforced in such section.

Cases of streptococcus pneumonia must be treated apart from those of pneumococcus pneumonia.