

INFLUENZA IN BOSTON IN 1889-90, ESPECIALLY AS IT APPEARED AT THE BOSTON CITY HOSPITAL.¹

BETWEEN December 10, 1889 and January 15, 1890, 174 severe cases of influenza, simple or with complications, entered the Boston City Hospital.

As bearing upon this point, Dr. Gilman, resident medical officer of the hospital, has kindly informed me that the admissions for pneumonia this winter have been nearly four times as many as for the same period last year, namely :

Influenza.—Of the latter series, 77 cases, as stated above, entered during the influenza epidemic. Including then these cases as being in great part a manifestation of influenza, there were:

Among the 220 nurses and employés attached to the hospital, one-fourth were off duty during the epidemic. Their attacks were, in many cases, such as to disable them for several days, though few were admitted to the wards. Two ward-masters had pneumonia.

I also have notes of 75 cases seen outside the hospital, some of them grave, several in consultation with other physicians, all severe enough to be in bed for a few days at least. Therefore the following observations will relate to about 300 cases of influenza of more than average severity.

Dr. Sumner has given me a statement of the cases in his hospital service, tabulated by Drs. Wheaton and Lothrop, House Physicians. The same duty was carefully performed for Dr. Lyman's service and my own by Drs. Darrah and Haskell, the result being appended.

The hospital records show no admissions for influenza before December 10th, and from then until the 20th, there were but 14 cases. But from December 20th to January 6th, 18 days when the epidemic was at its height, 134 cases came in; and from the 6th to

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The number of admissions was large on the following days :

Although these dates do not mark the limits of the epidemic, they will probably serve to indicate, through the severer types, its culmination and decline.

Symptoms.—In a general way the cases have been classed as catarrhal, thoracic, gastro-abdominal and nervous. More than half the hospital cases had thoracic symptoms or complications. Nearly half, including a large proportion of women, had severe gastro-abdominal pains with vomiting, often diarrhoea and colic with iliac or general tenderness and tympany. A few cases were seen in which the passage of a calculus or an acute pelvic inflammation was strongly suggested, so intense was the pain and so sudden the attack. These symptoms were oftener noticed outside the hospital, in a more sensitive class, and in two cases menstruation came on a fortnight before the time. Two cases of pregnancy, in which there was cough and some pain, did not abort, an accident mentioned in former epidemics of influenza.

The nervous symptoms were extremely varied, from a chill to the most marked mental depression. Intense headache with vomiting, suggestive of meningitis; photophobia; mild delirium in children; slight convulsions in one case; every degree of neuralgic pain in every part of the body, often intermittent and recurring after convalescence was thought to be established; these, with febrile stupor early, and persistent insomnia later in the attack, seemed to point to the nervous system as the source of the great variety of anomalous symptoms which mark this disease.

Coryza and other catarrhal conditions were frequent but by no means universal, and often appeared later in an attack which had been ushered in by some of the phenomena mentioned above. The same is true of cough which was often absent at the outset. Fever has not been regarded as a very important element. The highest temperature noted was 105° F., in a case of no great severity.

Cough.—This symptom, especially in children, as Dr. Rotch has stated, is often spasmodic and violent night after night with marked absence of riles or other signs of bronchitis. This may develop later. But of a number of children who had influenza, many of whom I examined repeatedly on account of cough, only two presented signs of severe bronchitis. A child of thirteen months, previously subject to bronchial catarrh, had bronchitis extending to the finer tubes. Another, five years old, in a relapse, developed a broncho-pneumonia of small extent, which promptly resolved.

Expectorants.—Expectorant drugs and emetics entirely failed to relieve this spasmodic cough. Iodide of potassium, in full doses, was used many times without perceptible benefit either to children, adults or the aged.

Sedatives.—Opiates were not of their usual service, whereas the bromides, sulfonal, or chloralamid often produced sleep. Chloroform water soothed the cough. No particular benefit was observed from preparations containing hydrocyanic acid.

Analgesics and antipyretics. — Phenacetine relieved pains in some cases. So, doubtless, did the other drugs of this class. "Exalgine" was used to some extent with similar effect. Free perspiration and defervescence, however, were so common in the process of nature after a brief attack, that the effect of drugs might easily be over-estimated. I have not found any of them of much value in combating the persistent neuralgias which accompany and follow influenza. The electric battery has not given more than temporary relief. Quinine was used in many cases, but although this drug has been in enormous demand, I could see little benefit from its action, either preventive or curative.

Stimulants. — Wine and brandy, with systematic feeding, have been of much assistance to debilitated subjects, especially coughing children, in strengthening the shaken nervous system, and perhaps in warding off complications. Loathing for food often rendered nutrition troublesome.

Graves and other writers, more than forty years ago, called attention to the disproportion between the symptoms and the physical signs and post-mortem appearances in influenza, especially with reference to cough and dyspnoea, also to the ineffectiveness of the usual remedies, as leading to the conclusion that "it is an affection of the nervous system."

COMPLICATIONS.

The complications observed, antecedent and consecutive, were chronic diseases of the heart and kidneys, bronchitis, phthisis, pneumonia, pleurisy, empyema, erysipelas, alcoholism, tonsillitis, otitis, adenitis and a few minor ailments.

Cardiac Disease. — Six patients with organic disease of the heart, who had been attacked by influenza, were admitted to the hospital. Three of them also had lobar pneumonia. These three recovered. Two others died.

Bright's Disease. — Two patients only with chronic nephritis presented symptoms of influenza, which proved rapidly fatal in one.

Bronchitis. — Severe bronchitis, sometimes extending to the smaller tubes, in some cases with a chronic history, was present in 25 hospital cases. Only one died.

Many neglected cases of chronic bronchitis and asthma succumb during influenza epidemics. But outside the hospital, I have also lately seen several aged persons with influenza and bronchitis go safely through their attacks.

Phthisis. — Twenty-five phthisical patients with acute exacerbations were admitted to the hospital between the dates mentioned above. Ten were under thirty years of age; ten between thirty and forty; and five older. Twelve had also acute lobar pneumonia: of the left lower lobe in four; the right lower lobe in six; and the right upper lobe in two, both fatal. Eight have recovered from the pneumonia. Four others died, failing rapidly, and there are still four in consumption too far advanced to rally. An immediate mortality of forty per cent. is smaller than was anticipated. Rusty sputa and all the usual signs marked the progress of acute lobar consolidation. Pleuritic effusion was present in two cases.

At the Channing Home, where there were fourteen incurables, mostly consumptives, Dr. James B. Ayer informed me that influenza was not very fatal. Sev-

eral patients have had it. Two died. At the same time the matron, two nurses and the cook, all well persons, have suffered severely, the latter having pneumonia. These patients undergo no risk from outside exposure.

Pneumonia. — There were 77 cases of acute pneumonia² with a mortality of 28 or about one-third, including the phthisical cases mentioned above.

A few cases presented signs of extensive congestion at one or both bases, pain, fine râles with inspiration, red adhesive sputa; but only a portion of the lobe became impervious to air as indicated by bronchial respiration and whisper and marked dulness. These cases were usually of an asthenic type and cleared up very slowly, as indeed did most of the pneumonias.

An analysis is appended:

Age.	Cases.	Male.	Female.	Fatal.
Under 10.	1	1	0	0
10 to 20	9	6	3	0
20 to 30	27	21	6	8 = 30%
30 to 40	20	12	8	8 = 40%
40 to 50	11	10	1	5 = 45%
50 to 60	7	6	1	2
60 to 70	0	0	0	0
70 to 80	2	2	0	1
Total	77	58	19	24 = 31%

From these figures it appears that three times as many men came in with pneumonia as women, which may be accounted for by the greater exposure of the former during attacks of influenza. The rate of mortality increased with the age.

The parts consolidated were as follows:

Right lower lobe	31 cases
Left lower lobe	25 "
Both lower lobes	9 "
Right upper lobe	5 "
Whole left lung	2 "
Whole right lung	2 "
Right lower and middle lobes	1 case
Right lower and left upper lobes	1 "
Whole of both lungs	1 "
Total	77 cases

Of the sixteen cases in which more than one lobe was involved, six died. Alcoholism developed in a woman of forty years and a man of twenty-eight, who had solidification of both lower lobes. They died on the fourth and fifth days after admission, on the tenth and eleventh days of their respective illnesses.

A man, aged twenty-eight, syphilitic, with double basal pneumonia and pleuritic effusion, died one day after admission.

Pneumonia at both bases was also fatal to a man of fifty-nine and a woman of forty, in two days after entrance. They had been sick ten and six days, respectively, before coming to the hospital and were then almost moribund.

An old man, aged seventy-eight, whose whole left lung was hepatized, entered after a week's illness and died three days later. At the autopsy, acute pleurisy and pericarditis were also found.

Empyema and pericarditis complicated a fatal case

² Admitted between December 10th and January 15th. Reported to February 1st.

in a male, aged thirty-five, who had pneumonia of the left lower lobe.

Of five patients who had pneumonia of the right upper lobe, two died rapidly with active delirium. They were men, thirty-four and twenty-three years old, both phthisical, and died two and four days after admission, at the end of about a week of acute illness.

Five patients died who had pneumonia of one lower lobe, the left in one instance, the right in four; namely: a woman aged forty and four men aged fifty-two, forty-eight, forty-five and thirty-six. These patients were sick a week or more, except the last who had an illness of four days only, dying twelve hours after admission.

Therefore it appears that, exclusive of phthisical cases, no patient under thirty-five died of pneumonia which involved but a single lobe; and that most of the fatal cases presented grave complications. Several came in when beyond the hope of relief.

One young man, aged twenty-three, entered delirious and died the next day. His condition prevented careful examination and there was no post-mortem. His death was attributed to "influenza with pleurisy." He had been sick nine days.

This is the only case which has come to my personal knowledge, except those related above and others fatal from pneumonia outside the hospital, in which death has been due directly or indirectly to influenza.

Alcoholism.—Besides the two cases with double pneumonia which were fatal, only three other subjects of influenza developed signs of delirium³ tremens, five cases in all. One had phthisis. Three went out convalescent. The habitual or excessive use of strong drink was not traced as a cause predisposing to influenza.

Erysipelas.—Three cases with pneumonia had also facial erysipelas. In one, pus formed in the eyelids. It was evacuated before reaching the orbit.

Empyema.—Empyema followed pneumonia in six cases still under treatment. One died during the acute stage of the disease. Usually, the pus was found in the pleural sac a few days after the crisis and was indicated by delayed convalescence and a rising temperature. These cases have been treated by permanent opening and drainage.⁴ One was of so unusual a character that it warrants fuller description.

A young ward-master of perfectly healthy antecedents, had pneumonia, beginning in the left lower lobe, during an influenza. It rapidly involved the whole left lung, and his condition was serious. Before resolution had advanced, the right lower lobe showed signs of consolidation, and shortly, the middle and upper lobes underwent the same process. Every lobe was in turn involved. The condition was almost hopeless, but life was sustained by very free use of stimulants and nourishment every hour. Frequent inhalations of oxygen seemed to relieve the dyspnoea and cyanosis, and after two weeks there was a little improvement. The pulse was often flickering, and subcutaneous injections of brandy were resorted to.

At this time pyo-pneumo thorax of the left side was discovered after a sudden attack of unusual pain and distress. There had been little recent cough and no expectorations of pus. In the absence of all signs and

history of phthisis, it was thought that an abscess of the left lung had opened into the pleura. Tapping was resorted to every other day until the right lung had fully resolved, when the left cavity was drained through a permanent opening. At each tapping, and when the pleura was opened, several ounces of pus and air escaped. The condition was one of great prostration with a pulse of 130, and recovery seems doubtful.

Throat and Ears.—Acute follicular tonsillitis accompanied several cases. Earache, sometimes inflammatory, sometimes neuralgic, occurred often, as did very painful facial and frontal neuralgia.

Epistaxis was not frequent.

Skin.—A rash similar to that of scarlet fever, appearing for twenty-four hours on the face and neck, was seen in two patients outside the hospital.

Glands.—Enlarged and tender cervical and post-cervical glands, were seen in two cases.

Hernia.—A woman with a large ventral hernia was admitted, who stated that the bowels had not acted for six days. Vomiting had been constant for the same length of time. Now the vomitus was green and the condition was feeble. Other symptoms, fever, chills and general pains pointed to influenza, and high enemata relieved the bowels. Convalescence in two weeks.

Remarks.—In watching this epidemic I have been most struck by three things: (1) Its entire similarity to former epidemics.⁴ Even the traditional fleet has not been wanting. (2) The probability that personal contagion or infection is the chief means of spreading. (3) The deep impression of the poison upon the nervous system and in many cases the slow recovery.

The gradual and almost unobserved occurrence of many mild cases in the early part of the present epidemic, the apparently sudden later outbreak in all quarters, and the rapid decline after most of the susceptible had been attacked, may find another explanation than that of some occult, so-called "atmospheric" influence.

I think that enough stress has not been laid upon the fact that influenza cannot be proved to travel faster than the ordinary modes of conveyance, and that, like other contagious diseases, it may be propagated through personal infection, until, from a progressively increasing number of foci, in a short space of time, nearly the whole community may be affected.

There is little doubt that unrecognized cases of influenza appeared in Boston during the last week in November. I saw what now seems to me to have been a typical case, in an adult, on the 25th of that month; two others a few days later. Other physicians have related to me similar experiences.

Early in December, cases began to multiply, but the disease did not assume the proportions of an epidemic until the middle of December, or perhaps later. During the next three weeks, probably half the people in Boston had it, and then the epidemic died out for want of material, although occasional fresh cases have occurred to the present time, February 1st.

Sir Thomas Watson suggested the "germ theory" in explanation of the epidemic in 1847, and also called attention to "many undoubted evidences of spread by contagion." So do Graves, Parkes (in Reynolds's "System of Medicine"), Bristowe, and other writers. Doubt is thrown upon the source of the mysterious outbreak of influenza on vessels and fleets when far away from land. Had cases appeared in the squadron

⁴ See Andral, Watson, Graves, Parkes.

³ Viz.: Two in first service, by Dr. Withington, improving; one in second service, by myself, detailed above, and now, February 8th, doing well; three in third service, transferred to another department, of whom one, phthisical, died, one is improving, and one does not yet improve.

which sailed from Boston for Lisbon, on the 7th of December last, it would have seemed more probable that the disease was on board when the ships sailed, although not then "epidemic" in Boston, than that influenza was encountered in mid-ocean.

It is not known why contagious diseases may get a foot-hold in more distant places, while those nearer the supposed source may escape.

I may state, as bearing upon the question of contagion, that, omitting single cases, I find notes of sixty-three cases of influenza occurring in groups in families. In six instances only were two persons attacked on the same day. The average interval between cases in a household was four days; sometimes a week or more elapsed. Whole families were never stricken at once. In a family of five the only one who escaped was a convalescent child isolated for scarlet fever. An extensive distribution of the disease seemed to take place immediately after Christmas.

SOME REMARKS OPENING A DISCUSSION ON INFLUENZA.¹

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THIS may fairly be called an "experience meeting." I shall therefore, in opening the discussion confine myself pretty strictly to such forms, complications, and sequelæ of the influenza as have come under my personal observation in private and hospital practice. Like many another, doubtless, I regret, now that it is too late, that I have kept no full and accurate records of cases; indeed, the number of patients and consequent press of work practically rendered it impossible to do so; but all is so fresh in our minds that the lack of records is of less importance, certainly for what I conceive to be our present purpose.

It was December 10th, that I saw the first case, which was evidently of a nature different from that of a common cold, so-called. And here can be noted two facts which have a very important bearing on the way in which the disease is transmitted from place to place. I refer to the appearance of the disease in this country before its appearance in England, and to its appearance in Boston earlier than in New York. If contagion played an important part in the spread of the disease, if the poison is carried by persons, it is inconceivable that London should have escaped infection by travellers from Paris; that Boston, with practically no direct communication with Paris, should have been infected before New York. That the disease was raging in Paris for some weeks before its appearance here, is notorious. It is not easy to understand how the seeds of the malady could be carried by the atmosphere across the Atlantic before they were so carried across the English Channel. But this difficulty seems less than that which is inherent in a supposition of importation by human beings.

One of the striking peculiarities of influenza, noted in previous as well as in this epidemic, is the wide difference in the symptoms by which it manifests itself in different individuals, a variation wider than any other specific disease presents. To show this more clearly I have prepared the following classification, to

which the experience of others will doubtless make many additions or suggest improvements.

General . . .	{ Prostration		{ muscular articular neuralgic
	{ Pyrexia		
	{ Pain		
	{ Insomnia		
Cephalic . . .	{ Headache		
	{ Coryza		
	{ Pharyngitis		
	{ Otitis		
	{ Delirium		
Respiratory . . .	{ Laryngitis		{ Compli- cations { pleurisy { pneumonia
	{ Tracheitis		
	{ Bronchitis		
	{ coarse capillary }		
Abdominal . . .	{ Vomiting		
	{ Diarrhœa		
	{ Tenderness, simulating peritonitis		

Of the symptoms which I have classed as general, the most striking and the most distinctive, in all but the lighter cases, is the prostration which at once semiologically separates influenza with respiratory catarrhal symptoms from an ordinary cold. This prostration has been seen in all grades; appearing in some cases with the greatest suddenness and full intensity from the very first, in others later and as a sequel of the disease. In some persons, robust enough at the time they were stricken and escaping all important complications, the slowness of the recovery of strength is remarkable. A lady, when convalescent, but still very weak, humorously told me that her legs were like boiled macaroni. I may be mistaken, but my experience leads me to think that the earlier cases were not the most severe or prolonged, the virulence of the poison, whatever it is, seeming to increase in intensity for a time.

With regard to the pyrexia it has seemed to me that it has not stood in any definite or constant relation to the general prostration. Another point which has attracted my attention is the frequent occurrence of brief pyrexia without any discoverable local inflammation to which it could be attributed, this rise of temperature coming on during convalescence. It would seem as if the heat-controlling centres—if such there be—were left by the disease in some persons in a condition of what may be called unstable equilibrium, unable to properly resume the performance of their high functions. I suppose this may be fairly regarded as an evidence of debility.

The great variation in the seat, character, and intensity of pain has also been a striking feature, but one on which I do not propose to dwell. The cephalic symptoms I shall also pass over without further remarks. Of laryngitis I have had one very severe case with marked swelling of and hæmorrhage about the rima glottidis, sufficient to make one think that it might prove necessary to open the trachea. But recovery is now in full progress. Bronchitis, often accompanied by a cough which one can characterize as "terrible" without exaggeration, has been prominent, and has demanded large doses of morphia or codeia. The frequency with which it has involved the finer

¹ Read before the Section for Clinical Medicine, Pathology, and Hygiene of the Massachusetts Medical Society Suffolk District, January 15, 1890.