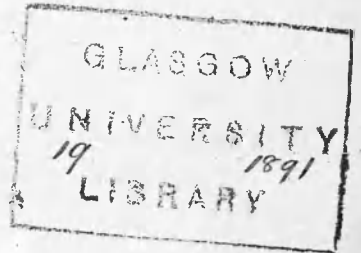


Thesis for M. D.



By

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Influenza: The Epidemics of 1890 (and  
1891 compared.

October, 1891

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# Influenza; the Epidemics of 1890 + 1891 Compared.

When the reports of the Epidemic of Influenza in Russia, travelling from East to West, reached our shores in the latter end of 1889, it was natural for one recently qualified to turn to the Lectures on Practice of Medicine for the purpose of comparing the description of Influenza contained therein with the Press reports of the approaching epidemic. If the reports in the daily and Medical papers were correct, the threatened Epidemic differed considerably from what we may regard as the orthodox type.

These Lectures were not the less interesting to us on account of the following incident related therein, and requiring no notes to impress it strongly on our minds. During a serious Epidemic of Influenza our nation happened to be at war. Every sailor of the British fleet was prostrated and unable to "do his duty", as Nelson would express it. The hostile fleet was in sight, and could have captured our fleet without firing a gun. They did not - because they were in exactly the same state. A subject that might have been of such importance in the history of our nation is no unworthy matter for treatment at the present time.

Whatever may be the proper designation of such an Epidemic, in passing through France, our French friends

christened it "La Grippe", and with this alias or its English equivalent, it reached the English shore.

The differences between the older forms of the Epidemic and this new departure were still more evident when we were brought face to face with our first cases of it.

It was in Widnes, a Chemical manufacturing town on the Mersey, about twelve miles from Liverpool, that I saw the first case of this so-called Russian Influenza. This was about the middle of January 1890, and from this date up till the beginning of March, I saw upwards of one thousand cases in Widnes.

At this latter date I went to Blackburn, and found that the Epidemic had set in there in earnest and was fast approaching high water mark. From this date till 1<sup>st</sup> April, I saw in Blackburn on an average thirty fresh cases a day, and ~~for~~ for ten days in April about ten fresh cases daily. After this date only isolated cases occurred.

There was less time for taking notes of the cases than I would have liked.

This year I saw the first case of Influenza on 10<sup>th</sup> May, and from this date till the beginning of June, when the worst of the disease was past and only odd cases appeared, I saw about twelve hundred cases of the Epidemic in Widnes. In June I went to sea as ship's Surgeon, and the cases I met with there I shall refer to later on.

The notes taken on last year's Epidemic remained as taken till this year's Epidemic set in, when I thought it would

be more interesting and useful to compare the two Epidemics - as there was in many points considerable difference between them, and as my experience of the disease did not in many particulars correspond with the descriptions appearing in the Medical papers - and finally I decided on putting it in this form. These points of difference I shall mention in my remarks as they occur under the different headings, and perhaps later on I may put them in briefer form.

### Ætiology.

That it is an infectious disease I do not for a moment doubt; that it is contagious I consider quite likely, but it is more likely that the contagium, whether conveyed by the touch, or by close and perhaps prolonged proximity to the patient, enters the body after the manner of an infection.

Last year the Epidemic travelled pretty much in a direction from East to West, moving somewhat Northwards, and in a wave tolerably uniform. It was nearly a month from the time it got established in Widnes till the first cases appeared in Blackburn, and about five weeks from the centre of the wave reached Widnes till it reached Blackburn, which is about forty miles North-West of Widnes. It then appeared in Ireland, and afterwards crossed over to America. This year the direction was not nearly so uniform. If I remember rightly, it appeared in Chicago long before it visited our shores, and when it came here the first place it took serious hold was in Sheffield. It then appeared

in Birmingham and other Midland towns, and about three or four weeks later it appeared in London, about the same time as the first cases appeared in Widnes. It appears this year to have chosen certain centres for attack, and from these centres the infection was carried in a milder form into rural districts, and in a more concentrated form - if I may so express it - on to other centres. If easterly winds helped to carry the infection through the atmosphere last year, it is likely that the currents of commerce this year materially aided in carrying the disease. I am of opinion that the atmosphere was the great medium by which the infection was carried, particularly last year, that certain other circumstances serve to modify the course and attack, and that this year the element of human intercourse came more into play as a factor in carrying the disease, thus affecting its direction and bringing in the question of contagion. The consideration of the period of incubation throws little light on this question, but from the mode of travel, the numbers affected, and the results of microscopic investigation in other diseases, the epidemic is in all probability caused by a germ or micro-organism, although it has not as yet been isolated.

Let us now look at a typical case of last year, and then at a case under similar circumstances this year, the patient being a young working man.

1890. On entering the room you see the patient in bed,

his hand, or a piece of linen moistened with vinegar or some such thing, on his ~~head~~ forehead. His face is flushed, the eyes and eyelids slightly reddened, the vessels of the forehead full and throbbing, a heavy, listless expression about the eyes, the lips dry, the skin hot and dry or slightly moist, the tongue rather dry with a silvery fur coating.

He complains of pains in his head, usually more severe in the frontal region, but sometimes confined to one side of the head, and pains all through his body, in his arms and legs as well as in his body. The pains are no worse in the joints than in other parts. The pulse is hard, full and quick, about 100 - the temperature from 102° to 103.5°. The respiration is slow, full, in fact not at all disturbed.

He says he was attacked when at his work or after a meal yesterday afternoon or evening, with giddiness, not often with vomiting, that his strength was taken away and that he cannot eat anything. He often says he feels sick but cannot vomit. The urine is rather scanty and high coloured. The complete loss of appetite was a very frequent and prominent complaint. This was commonly the state of a patient when visited in from twelve to eighteen hours after the attack.

1891. Let us now look at an average case of this year's attack. As you enter the room you hear the patient moaning or crying out from the severe pain - as you afterwards learn. On asking where the pain is worst, he says in his head and back. He may be almost ~~delirious~~ delirious, and it often



cerebral symptoms were ever noticed. Almost invariably there was an appreciable improvement, slight in some instances & marked in others, in the mental phenomena, the drug appearing to exercise a soothing & composing effect on the vitable brain & nervous system. This improvement occasionally persisted for two or three days.

(a). The second night & succeeding nights.

In 80 per cent. of the cases the hypnotic influence of the drug appeared to be continued on the second night after its administration, the patient sleeping or resting better on this night than he was used to do. In 20 per cent. the effects appeared to have passed off before the second night. Occasionally the patient slept better on the second night than on the first. On four occasions a distinct delayed action was noticed, little or no effect being produced on the first night, & more or less prolonged sleeps occurring on the second; but the cases in which this occurred reacted in the ordinary manner on other occasions. In a few cases the patient slept better for several nights after a single dose.

II. Other Cerebral & Nervous Effects.

In one case (Female; age 28; acute mania; hallucinations of hearing; mild chorea; advanced pregnancy) the patient fell asleep in about two hours after receiving 30 grains; she slept straight on for 10 hours, & slumbered nearly the whole of the following day; the next night she slept 8 hours, & the next day she slumbered with short intervals till the evening; when awakened she complained of having lost her hearing; the deafness passed away rapidly; the choreic spasms were slightly modified while she was under the influence of the drug.

In two cases of fractured bones doses of 30 grains (omitted



but was less frequently complained of, the pain in the head and back absorbing most of the patients attention.

Respiration like last year, was very little disturbed.

So far, the severe pain in the head and back, driving the patient into a frenzy, or state of delirium like Typhus fever, is the chief feature of difference, but there are other important differences which I shall point out, especially in the Complications and Sequelae. Here I shall just mention the higher fever, and the more susceptible state of the patient to other diseases, such as Pneumonia. These I place immediately after the severe pain.

Symptoms and Course.

Sneezing was last year <sup>popularly</sup> supposed to be the first symptom of Influenza, but this was not borne out by fact, and was not revived this year. The manner of attack varies. Some are seized quite suddenly, usually with a piddiness in the head, or as the Leicestershire patient describes it, he "feels mazy". Their pain starts in the head, back, legs and arms, in fact all over the body in most cases, and usually in the order described. Many complain of these pains as being in the bones. There is no swelling or tenderness in or about the joints, though it was often the patients first complaint, "I think I have got the Rheumatics". It should be observed that this was a more frequent complaint last year, especially at the beginning of the epidemic, than this year. "I'm pains all over", or "I'm bad all over", was a very common answer to the question,

"What do you complain of?" Others again say that they felt something hanging over them for a few days - some indisposition, malaise, or perhaps slight shooting pains, or some fullness or heaviness in the head, but thought it would pass away.

In other instances the patient was taken ill all at once, and seemed to lose all his strength. As examples of this I may mention the case of a young man riding a bicycle. The attack was so sudden that he fell on the road. Another

case was that of a Chemist who got up in the morning to light the gas, and was attacked so suddenly and so severely that he could only crawl into bed with great difficulty. There were numerous cases of workmen who were seized while eating their mid-day meal, or immediately after, and had to be helped home, while others would have to be helped home at night.

This year the mode of attack was more frequently like that of a fever or an inflammation, the onset being marked by one, two, or more rigors. This often caused the patient to resort to stimulants or other means of counteracting the cold shivering fit, but very seldom with any satisfactory result to the patient.

Biddiness was very common last year, was less frequently complained of this year, especially in the worst cases, but the pain rapidly followed the rigors, then the heat followed, and in some instances profuse perspiration, with the result above stated. Perspiration was rare in children

last year, but this year it occurred in about one half of the children affected, while recovery was slower.

Vomiting was frequently one of the first symptoms, especially in children and infants, not often in adults, who more frequently complained of complete loss of appetite. The tongue was furred, at first silvery, then changing to brown, the coating getting thicker for three or four days, dry and fissured, the patient complaining of great thirst. In many cases the tongue was of a markedly typhoid character. There were fewer cases of vomiting in children this year, but more in infants.

Rash was by no means uncommon in last year's epidemic, especially among children, seldom among adults. It was very rarely seen this year - only in about 5%. It usually appeared on the first day, seldom on the second, was fading on the second, and nearly always gone by the third day. It was in many cases like Measles, in some like Scarlet Fever, more frequently like German Measles or a mixture of Scarlet Fever and Measles. In some cases it was followed by desquamation, like scarlatina.

Diarrhoea was very uncommon last year. This year there were about three times as many cases, which came on earlier and were more severe.

There was very little discharge from the eyes or nose, little cough or expectoration - in fact not much of the nature of an ordinary catarrh. If untreated, the headache

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was often obstinate, but under suitable treatment it soon  
was relieved and in two or three days the temperature fell  
to normal or nearly so. The temperature and pulse have  
already been described. The high fever was more easily  
checked last year. The patient was of course compelled to  
keep his bed, except in very mild cases, and after the  
pain and feverishness had abated, the most prominent  
complaint was weakness and loss of appetite, with a feeling  
of soreness and tenderness of the flesh as if patient had been  
beaten all over. In some cases there was paresis in the limbs.  
In moderate cases three or four days were sufficient to put  
the patient past the worst of it, but in severe cases it was  
not safe to leave the bed for a week or more. In any case  
it was extremely necessary that the patient should avoid  
any risk of catching cold during convalescence, for this  
was really the most dangerous time of the whole illness.  
While the milder cases were well in a week to ten days, the  
severe cases required a fortnight, and in the very worst cases,  
longer, to make up for the severe prostration. Even when the  
tongue began to clear and the patient's appetite was restored  
it was a considerable time before the strength returned. The  
pulse usually became slower in two or three days, in some  
cases even before the temperature fell, but it soon became  
more frequent and weaker only getting stronger with  
returning bodily vigour.

So far, I have considered the cases as taking a favourable

turn and without any complications or any bad effects following the great weakness. Now I shall consider the complications and sequelae,

and in doing so I shall compare them in the two epidemics.

Rash. Reference has already been made to this, but it would be more correct to refer to it as a complication, and I do so in this place, because it was one of the first things to attract attention. It appeared at the outbreak of last year's Epidemic, was of frequent occurrence, chiefly among school children, (about one third of the children affected had it) was rare among adults, and only a few cases of it appeared this year, more in infants or very young children, and the rash was more of a vesicular character, soon passing away.

Mothers often came with the complaint that one or more of the children was ill and they thought it was the Measles.

The rash appeared as red elevated spots, becoming paler in a short time, with the spaces between these spots irregularly red.

The rash was often the first thing noticed by the parents and did not come out first on any particular part, sometimes appearing first on the face, frequently on the hands and arms, and sometimes on the body, more frequently on the abdomen than on the chest or back. With it in a few cases there was slight sore throat. There was some redness about the eyes, but very little Coryza or Catarrhal symptoms. There was in these cases little constitutional disturbance, and the indefinite character of the rash would make one

hesitate in pronouncing it a case of Measles or Scarlatina. The most common appearance was that of an ill-defined Measle rash set on irregular patches of a Scarlet Fever rash. The rash on the face and arms, and to some extent on the chest somewhat resembled Measles, while on the body, especially the abdomen and back, it was more like Scarlet Fever. One feature about it was its short duration. Appearing on the first day, seldom on the second, in isolated spots, these became connected by a red base, began to fade or disappeared in mild cases on the second day, and only in a few cases was there much trace of the rash, beyond some desquamation, after the third day. Mothers were slow to believe that ~~it~~ the rash would be gone next day, as they regarded it as due to Measles or Scarlet Fever. The more tedious cases bore a stronger resemblance to Scarlet Fever, especially in the peeling stage. One rather remarkable case was that of a policeman. The rash was for three or four days at first like Measles, then it got like Scarlet Fever, with pretty sore throat, then extensive desquamation set in and the patient was very much prostrated. It was three weeks before he was well again, and I may add that he was a strong well-built man before he took ill. This year he had Influenza too, and a similar eruption, but the attack was less severe. There was no serious affection of the ears or eyes or kidneys following the rash. In Blackburn I saw four cases of Nephritis in children that I attributed to cold after Influenza.



Bronchitis. The gases of Widnes mixed with the ~~atmosphere~~ atmosphere and inhaled set up serious irritation of the bronchial tubes. So that Bronchitis, especially Chronic Bronchitis was a common, I may say a leading, disease in Widnes. In Blackburn also, the mill-workers suffered from Bronchitis caused by the inhalation of the dust and waste from the cotton. But the Bronchitis of Blackburn was of a less vigorous nature than that experienced in Widnes. It would be only reasonable to infer that this would be one of the leading Complications. I shall only regard a case of this kind as a Complication when it became more acute during the attack of Influenza, and it would hardly be correct to regard as a Sequela what was there previous to the attack. Cases of exacerbation and other cases arising from the weakened state of the bronchial mucous membrane will come under this heading.

This was a very serious Complication for old people. If an attack of Bronchitis set in with Influenza, there was very little chance of an aged patient recovering. The prostrating effects of Influenza made the patient unable to cough and get up the phlegm, and the circulation being weakened, some congestion of the bases of the lungs made respiration more difficult. The relief from propping up in bed was only temporary, for the patient was too weak to endure it. Unless the case was not severe, the patient seldom survived beyond two or three days. Bronchitis last year, whether acute or an exacerbation of the Chronic state was perhaps

the most fatal complication as regards the aged. It was not serious in adults, nor were there so many cases of it with them as one would have expected, considering the locality. With children it was more of a Broncho-Pneumonia, in which Pneumonia and Gastritis were more important, ~~than~~ the Bronchitis being but slight. This year the cases of Bronchitis in the aged were not so many nor so marked, and the cases in adults were much the same as last year. In infants and young children there were more cases of Bronchitis than last year, but with fewer fatal results among the aged.

I have referred to the gases of Witches causing Bronchitis, and before dealing further with the Signes of Influenza I may perhaps be pardoned for here entering on  
A Slight Digression.

Some time ago a considerable noise was caused in the world by an attack made on the Tubercular Bacillus by injecting certain gases, such as Carbonic acid gas, or Sulphuretted Hydrogen gas, or Sulphurous acid gas, or some other kind of gas. I refer not to the introduction of these or other inhalations as used at present in the Laryngitis, but to that treatment possibly of Gankel origin and magnitude, reminding one of the case in Sullivan's Travels, I think, where in curing a dog with large injections of air(?) from a pair of bellows, they unfortunately managed to kill him, the narrator leaving them endeavouring to bring the dog to life again by the same means.

In Widnes we have these gases\* for inhalation ready-made, and we get quite as much as we want of them. That they in some respects produce an anti-septic action is undoubted, for not only in my own experience of the practice in Widnes, but from the experience of many other Practitioners with whom I have been talking on this subject, the conclusion arrived at is that Phthisis Pulmonalis (and other forms of Tubercular disease) is very rare in Widnes. Occasionally, you may come across a case of Tubercular Peritonitis in a child, not often, but Tubercular disease in adults is very rare - far below the average. But if the Tubercular bacillus does not like Widnes - that "sweet-smelling Chemical town" - the inhabitants suffer more than the average from Bronchitis. The gases that are so antagonistic to the bacillus, irritate the air passages and set up Bronchitis, so that the cure or preventative is not much better than the disease. Still it is "a healthy town", as described by one of the inhabitants, for the death rate is rarely over 16 per thousand per annum, and is frequently below that rate.

Having given a hint to Phthisical patients, and those afraid of taking it, where to go to get cured or avoid it, I may now be excused for giving them a hint as to where they should not go. Blackburn, I have said, suffers from Chronic Bronchitis as well as Widnes. There you have no smell of gases, but as the atmosphere is damp and favourable for weeping, it is also favourable for the growth

\* Hydrochloric acid gas, sulphuretted hydrogen gas, sulphurous acid gas and Chlorine gas etc.

of the Tubercular bacillus. There Tubercular disease is considerably in excess of the average, and I have often seen patients advanced in years, say 40, 50, or even 60 years of age, falling into acute Phthisis and dying after a very short illness. In many cases the disease had been there in a chronic or retrograde state before this time. I need not ~~add~~ add that Rheumatism is also very common in Blackburn. And this brings me back to the subject again, after what I think has not been an unprofitable digression.

Rheumatism. as a sequel in Widnes was very rare, but in Blackburn I saw it in about 2.5% of the cases. In these cases it merged into and could hardly be separated from the Influenza, I refer to last year's epidemic.

But if Rheumatism was rare in Widnes - last year I saw only two cases of it following Influenza and this year there - Quincy, considered by many as an allied affection was by no means rare. In last year's epidemic in Widnes only about 1% were affected with it as a sequel, but this year there were about 5%. In Blackburn last year about two per cent. suffered from it.

Pneumonia. This was not so serious a complication last year as this year. It was more common in infants and children, usually accompanied with more or less Bronchitis, and seeming to follow closely the gastric affection. In the aged there was frequently more or less Congestion of the bases of the lungs, more evident after

lying in bed for two or three days, but there was seldom any acute Inflammation of the lungs. In adults, Pneumonia was not common last year, nor were there many deaths from it. This year, in adults it was the most serious complication or sequela to be avoided. To see a strong, previously healthy man, when the worst symptoms of Influenza were abating, getting up and catching cold, taking Inflammation of the lungs and going down to death almost without an effort of resistance, or rather without any power to withstand the attack, was a thing hardly to be expected. When Pneumonia once got a proper hold of the patient, he seldom survived more than two or three days. When a few cases of this description occurred early in the Epidemic, it was sufficient to make the Physician enjoin the strictest care, I might almost say to Compel the patient not only to remain in-doors, but in many cases to keep his bed till the risk of catching cold and taking Inflammation of the lungs was reduced to a minimum. The death-rates from Pneumonia with and without such precautions are two different things, and it is owing to this threatened danger and the antidote, that the death-rate from this cause is this year so little above what it was last year.

While Pneumonia - more of a lobular Pneumonia - was more common in children last year and Lobar Pneumonia more common in adults this year,

Pleurisy was more common as regards adults last year, and was very rare in the old and young. This year it was very seldom met with. But some cases of Influenza this year began with Pleuritic Pains, and at the onset it looked as if it would turn out a case of Pleurisy instead of a case of Influenza. I saw this in 1% of the cases. The pain complained of was of a sharp, stabbing, or shooting nature, very like what the patient complains of in Pleurisy. In six cases, three of them severe, the pain began in the stomach, with some pain in the bowels. These were like cramps or colic, and in these cases, as well as in the case of Pleuritic Pains, there was at first little constitutional disturbance. After the Pleuritic Pains there generally settled in the left lumbar region severe and obstinate pain. In a few hours, four to eight, the case had developed into one of Influenza. It gave better results to treat such a case from the first as if it were Influenza. Treating the symptoms only gave a little relief.

After the first case or two of this erratic nature, the physician would be on his guard regarding such cases. The stomach cases are not so strange, when we consider that in the case of children the disease probably began there, at least in a large number of cases.

It is perhaps better to regard the Affection of the Stomach as part and parcel of the disease,



rather than a complication, for hardly a patient escaped in this respect. There was slight Jaundice in only a few cases and these chiefly in children. The discoloration of the eyes and skin was not so marked as in a case of gastro-duodenal catarrh, and soon passed off. Spitting of Blood. was a complication peculiar to this year's outbreak, as I did not see a similar case of it last year. The amount expectorated was not large, but there was little phlegm or mucous expectoration with it. In a few cases it was in streaks, as if coming from the throat, but in most of the cases the expectoration was quite discolored with the blood, - redder than in pneumonia.

I was careful to examine for any evidence of disease of the heart, lungs or air passages to account for the Haemoptysis, but in no case was I able to trace it to disease in these organs, if we except the throat to be afterwards referred to. Nor was the cause to be ascribed to what has been called "vicarious menstruation", inasmuch as it occurred chiefly in males. It was less severe in females. Haemoptysis usually came on during the first or second day and lasted two or three days. I saw about twenty cases of it.

Inflamed sore Throat. was more common this year than last, and in many cases it came on from the first or second day. In about one half the cases, that is in about 16%, it came on about the fourth or fifth day.

and its average duration was four to five days, mild cases getting well in two or three days. With this there was nearly always more or less of a cough, of a dry irritating nature, and in about one third of the cases there were streaks of blood in the scanty expectoration. These I have not included in the cases of Haemoptysis above referred to.

Cough. A dry irritating cough followed in about 50% of the cases this year. This was very rare last year. The cough seemed to follow as a consequence of the disease, and could not be traced to any other cause. In about half of the cases it called for special treatment, and usually yielded to a sedative expectorant. It came on about the fourth or fifth day and lasted about a week. There was very little blood expectorated, only specks at the first. When the cough was troublesome, the stomach was still in an abnormal state, and this may have been one of the disturbing causes. As a rule the improvement in both went together.

I shall now make some remarks on Influenza as regards Age, Sex, Locality, and Occupation.

Age. The mode of attack differed in regard to Age, the children being chiefly attacked in the stomach, while adults were more liable to be attacked in the head and back. Perhaps the adult's stomach was not attacked so early or offered more resistance and on the first best time to pass down into the bowels instead of being vomited.

It is possible that the vomiting gave relief, but even where there was no vomiting children got over it far sooner than adults and suffered far less from prostration.

Sex. With women the pain was usually more severe and remained longer in the back than in males. Not only so, but last year it was often the chief seat of the disease. This year the pain in the back was troublesome and persistent. The pain in the head was more that of a sick headache, often of a neuralgic character, and pain in the abdomen was more common than with males. The recovery from the prostration was in females, in nearly one third of the cases, very slow, and it was often weeks or even months before they regained their former strength. In those constitutionally weak or of a nervous temperament, the attack was not in any respect very violent, but it was beyond the ordinary time before improvement began to manifest itself, and then the progress was but slow, Pain in the back, soreness of the skin to the touch, and fatigue even after slight exertion, being the warning effects of the disease. In male patients, this tedious convalescence was not nearly so marked, occurring only in very debilitated persons, or in those suffering from chronic stuffy chest complaints.

Menstruation occurring during an attack of Influenza was more painful, lasted longer, and delayed convalescence.

Locality. I have already referred to the epidemic this year choosing certain centres from which to operate. Widnes was one of these centres, and my experience was that it was far more malignant in Widnes than it was in the country. Last year I could draw no hard and fast line between the cases in the town and those in the country, but this year not only were the cases, with very few exceptions, milder in the country, but they were fewer in number than last year, and the effects were soon over and convalescence rapid.

As a rule, the cases near the town were worse than those further away. Whether Locality made any difference in other parts of the country I cannot say.

Occupation was also a thing to be taken into account. In a large Silver and Copper Works about 50% of the men were laid up at one time, and the disease was of that serious character I have described as being so common this year. Next in numbers and nature of disease to suffer was a Copper works, in which about 40% suffered. Next came those employed in the works for recovery of Sulphur from the waste products, in which there is a very bad smell. Those employed in the packing of chemicals were also ready victims to the disease, which took severe hold on them. But while this was the rule in

regard to occupations, there were exceptions. One was the case of a grocer - about as bad a case as I saw. The pain made him scream out, so as to be heard outside the house. For nearly three days he was in a state bordering on mania, and the recovery was slow. Another very serious case was that of a draper's assistant, and another was that of a news-agent who suffered from Chronic Bronchitis. In these cases the patients were not so much exposed to disagreeable odours, but they were exposed to cold in the shops, and probably stuck to work for some ~~of~~ time after the disease set in. This told against the patient, Shopkeepers seldom made a good or speedy recovery. It will thus be seen that the action of these irritating and prismatic fuses actually aggravated the malady - I do not think that this is too strong an inference to draw. It will also appear that Locality and Occupation had a considerable influence on the disease. We cannot very well separate the two conditions, for it might well be asked: Would the Locality have suffered in the same measure had it not been for the works carried on there?

I went somewhat out of my way to give my experience of the action of these Wednes fuses on Tubercular disease, especially of the chest. We saw that their action was more or less inimical

to the disease. I shall now make use of that discussion to show that in the case of Influenza the reverse is the case - that it does not act as an antiseptic but as an irritant, making the disease more serious.

Influenza at Sea. In June I went as ship's surgeon, and on the first trip I had ten cases, five among the steerage and intermediate passengers, and five among the crew. The first case was on the day of sailing from Liverpool, and the last on the twelfth day out. One was complicated with diarrhoea, and another was followed by Bronchitis. They were not nearly so severe cases as those experienced in Widnes. There were no cases of it on the homeward passage. During the second outward trip there was only one case, of moderate severity.

Relapses and Subsequent Attacks. Last year it was not uncommon to find relapses in delicate females, from cold or from getting about too soon. In about 2.5%, chiefly males, the patient was taken ill about three or four weeks after the first attack, with all the original symptoms, but less severe, and lasting a shorter time. In the relapses the existing symptoms were only aggravated for they had not disappeared. Cases of second attack were more common this year



than last year. Being away part of the time, I had not the same opportunity of seeing these cases as I had last year, but I came across several cases where the symptoms and the history left no doubt that they were genuine second attacks, occurring from two to four weeks after the first attack.

Later, I came across cases of a third attack, some time after the patient had recovered from the second, where the evidence was quite as conclusive as of the second attack. This was an experience peculiar to this year. So I was not at home all the time after first attacks ceased, I cannot go so fully into these cases as I would like.

One peculiar feature of this year was the fact that a patient would come with all the symptoms of a mild attack of Influenza, get medicine, improve, come back in about a week with a renewal of it, get further treatment, and come back in a few days worse than ever. You cannot ascribe these attacks to any indiscretion on the patient's part. The symptoms and his story rather point to the fact that he has caught the infection at two or three different times and from as many sources; that he has in fact got a second or a third dose of the poison, and while he kept his feet with the first or second, the next compelled him to give in.

As a rule these combined attacks did not equal in severity the severe primary cases. This happened in about three per cent. of the cases, and more with those changing work, going from a cleaner or more protected to a less pleasant or more exposed piece of work.

### Incubation.

It is a difficult matter to settle the period of incubation. That the infection was contracted and developed instantaneously is not likely, for patients from Widnes, spending the day in Liverpool or going there on business, were suddenly seized on the street in the latter place and this at a time when the disease had not broken out in Liverpool.

As I could not get any conclusive evidence on land, I watched closely the few cases I saw at sea, but with no better results. The disease was about ten days to a fortnight later in getting to Liverpool than in reaching Widnes. When I left Widnes to go to sea, the epidemic there was almost at an end, but it was still prevalent in Liverpool, and I believe the patients on board, or most of them, had contracted the poison before leaving Liverpool.

It was possible for others to contract the disease on board, as I did not consider that absolute isolation would do much good. I have reason to believe

that the epidemic in Liverpool was less virulent than in Widnes. The worst cases at sea were only of moderate severity. If the infection was caught on shore, then how long before sailing? I cannot tell. There were no cases on the return journey, and only one case during the second trip - on the fifth day after sailing. The absence of other cases may show that the poison is less potent at the end of the epidemic.

In 53 cases the mother took ill first, and the baby in from two to five days later. In these cases the disease was, as it were, brought into the house. Sometimes the baby was affected before the mother; but in these cases it could be traced to some of the children at school, or some other member of the family at work, where large numbers came together. In these cases it was more difficult still to trace the infection. One thing seemed probable; - the period of incubation was shorter in the case of infants and children than in adults. If I were asked to express an opinion as to the period of incubation, I would say it is most likely from four to ten days, and that it is about two or three days less in children; the most likely period in adults being from five to seven days, and in children, from two to five days.

The disease did not attack me, either last year or this year. Perhaps like other fevers, some are less susceptible to it than others. I am of opinion that fewer households were attacked this year than last year; but when it got into a house this year, very few, if any, inmates escaped it, so that a house was like a small hospital, and the physician at one visit saw several patients. I do not know that the season of the year made any difference in the epidemic.

I shall now refer briefly to the effects of Influenza on the different systems of the body, and first I shall refer to  
The Nervous System.

This I consider the most important of all, for here the disease works most havoc. In whatever manner it comes to affect the nervous system, or gets to the nerve centres, it undoubtedly has its chief seat in the central nervous system, affecting the spinal cord, and passing on to the nerve terminations. To call it a nerve fever would be as accurate a name as I could give it. In nearly all cases there was severe pain in the frontal region, round about the eyes, in the eyeballs, at the sides of the nose and in the frontal sinus. The conjunctivae were congested, and although I did not examine the eye

with the ophthalmoscope, the symptoms were as if inflammation had extended along the course of the optic nerve, affecting the base of the brain, in several cases causing pain in the ears, and passing down the spinal cord.

In some cases the pain was confined to one side of the head, being severest in the temple and about the eye, frequently affecting the upper part of the cheek, and passing round to the occipital region. In only a few cases was the pain severest from the occiput down the muscles of the ~~back~~ neck, like the pain caused by cold and lying with the neck twisted. In this year's epidemic the severest pain, ~~affected~~ (with other symptoms) affected the spinal cord as well as the brain and membranes, and in many respects it was not unlike Epidemic Cerebro-Spinal Meningitis. The deep-seated burning pain, in some cases worst between the shoulders, in others most severe in the lumbar region, and the great soreness of the superficial tissues to the touch showed that the affection had spread to the muscular and cutaneous nerves as well as to the cord. "My flesh is as sore as if I had been beaten" was a common way of describing the feeling. The arms and legs were often as sensitive to the touch as the back, but only after the severe pain in the back had abated,

or from one to two days later. The affection of the very sensitive nerve-endings in the skin I consider analogous to the affection of the nerve endings in the mucous membranes, and it is to the affection of these that I attribute ~~that I attribute~~ the pain affecting the stomach chiefly, the chest, the bowels, and in a few cases the bladder. I have already suggested that in some cases the poison may have been absorbed by the mucous membrane of the gastro-intestinal tract - digested as it were - thus affecting that part first.

The structure of the nervous system is such as to facilitate the passage of the affection to the centre from the periphery, as well as from the centre to the periphery. Each nerve ending is a small telegraphic station or miniature brain, and the sudden attack was like an explosion of nerve force after the period of incubation.

As in other fevers, the centres that <sup>regulate</sup> ~~affect~~ the heat of the body were affected, and the heat-producing powers were working in excess; or as our more scientific teachers would say, the Thermo-genesis was in excess of the Thermo-lysis. The temperature in many cases was not only a pyrexia but a hyper-pyrexia. During convalescence patients often felt chilly.

I have referred to the delirium in adults this year, showing how much the nervous mechanism



was disturbed. In children and young females there was marked stupor, almost Coma, in about 2% of the cases. This occurred this year, taking the place of delirium <sup>in adults,</sup> and lasted from two to three days.

In about ten per cent. of the cases this year, the patients were not able to move their legs, except with difficulty and pain. This arose in some measure from the soreness, but more from paralysis, or rather paresis. It usually passed away gradually, so that in two or three days after the severe pain had gone the patient was able to draw up his legs and move them about. The recovery was all the more rapid, as the joints were not specially affected. The affection of the nervous system usually passed away <sup>without</sup> leaving any permanent disease. This was the more satisfactory, considering that nervous diseases are usually tedious.

In old people and in middle aged delicate females the hearing was in a few cases impaired, but this rarely remained after convalescence. So far I have not met with a case permanently affecting the sight.

The loss of power in the legs was not marked last year, beyond the general weakness and nervous prostration, like the period of convalescence this year.

The effects of treatment also point to the serious blow to the nervous system, as patients, especially the worst cases, made better progress on new tonics.

The Digestive System. I have already referred to this more than once. With children this was often the part first attacked, and vomiting seemed to give relief. The poison may have been partly inhaled and then carried down with the food. Whether it was digested as it were in the stomach and entered the system in that way, or got to the nerve centres in another way, is a question in consideration. The cause of vomiting may be local, or central, as in Tubercular Meningitis. The stomach was, as regards digestion, in a time almost paralysed, and in adults it was a week or ten days before it began to recover its tone, but in children only three or four days.

The bowels were less affected than the stomach, and were usually constipated at first. Perhaps in children the poison was partly thrown back again, and in adults it may have been weakened before getting into the bowels.

The Respiratory System. The temperature would have suggested pulmonary affection in adults, and gastric affections in children, but the breathing was practically normal. The patient often complained of pain in the chest and a tightness in breathing, but respiration was to all appearances practically undisturbed, and there was little cough or catarrh. The pain I attribute to the nervous

affection, perhaps also affecting the muscles of respiration, but this, apart from some complication, did not last long. I have already referred to Pleuritic pains, to Haemoptysis and other complications and sequelae.

The naso-pharyngeal mucous membrane was but little affected, and soon recovered, Lou throat, Cough etc. I have referred to as complications. The most serious effect was the weakening of the pulmonary mucous membrane, so that the power of resisting cold was very much diminished. This was akin to the effect on the gastric mucous membrane.

The Circulatory System. At the onset the Pulse was very much accelerated. It was full, throbbing, hard, regular and quick. This continued for two or three days or more according to the severity of the case. In a few cases the pulse rate fell before the temperature, but usually with the fall of temperature the rate diminished, not always in proportion to the fall of temperature. It still remained too quick, but was now small, softer and weaker. It was a good index of the great prostration to which the patient was reduced. In cases where the patient took proper care of himself at the onset, the pulse rate fell sooner and the pulse was more uniformly strong after the great pain and fever had abated.

In about a dozen cases I saw oedema in the feet and legs, hands and face, in about the same proportion. In only four of these cases did I detect any albumen in the urine, and that only a trace. These symptoms were only transitory.

After the fever had gone, the patient often felt chilly, and there was some cyanosis in the hands and feet, with marked pallor in the face. The circulatory system, after a period of excitement, shared in the general prostration. Cases of ~~irregularity~~ irregularity or functional disease, of the heart were very few, and of no serious consequence, while I did not observe a single case of Pericarditis, or affections of the heart, such as follow acute Rheumatism. The spitting of blood has been noticed and was probably due to the weakened state of the mucous membrane while the circulation was stimulated.

The Muscular System. Less complaint was made this year about pains in the bones. Most complained of pains in the limbs and body, and great soreness in the flesh after the severe pain in the head and back had abated.

In about 10% of the cases there was some stiffness, and loss of power in the legs. This I attribute partly to the nervous affection, and partly to the

muscular weakness, but it soon passed away - soon because the joints were not involved. There was some wasting and softening of the muscular tissue.

I look upon the nervous system as the centre of the disease, and consider all the effects produced - weakening of the circulation, of the muscles, and of the digestive system, as well as the pains - as flowing from, and in a great measure caused by, the state of the nervous system.

### Diagnosis.

I shall not dwell long on this subject, as what I have already stated in regard to the symptoms, and in other parts, will pretty well mark it out from all other diseases. There are some points of resemblance, as well as of difference that I may mention. I have called it an infectious disease and a fever, and therefore it would be with the fevers one would most likely make the mistake in diagnosis. On account of the pains, and because patients often thought they had got that disease, I shall first refer to

Rheumatism. The joints are not swollen, or inflamed, or painful, as in acute Rheumatism or Rheumatic fever, but the worst pain is in the

head and back. Besides, the pains in the limbs and other parts of the body are tolerably uniform and steady in the flesh, and there is too much constitutional disturbance for muscular Rheumatism. The history of the case, the suddenness of the onset, the parts of the body where the pain first began, apart from treatment, will clearly diagnose between the two cases.

Dengue. I have never seen a case of this fever. The reports reaching us before the epidemic, the experience of our first cases last year, with frequent complaints of pains in the bones, and a reference to the Lectures on this subject give some ground for the similarity. The rash somewhat like Scarlet Fever, with the pains and some slight throat symptoms are further points of resemblance to what has also been called Scarlatina Rheumatica or Break-bone Fever. But this year the chief seat of pain lay in the central nervous system and not in the bones. The absence of the sequelae of Scarlet fever, and of catarrh in measles, the character of the rash, as well as the whole circumstances of the case will distinguish between it and these fevers.

Typhus and Typhoid. In about 25% of the cases this year there was active delirium lasting about two days, and resembling that in Typhus Fever.



The pupils were usually dilated, whereas in Typhus they are contracted. When the acute stage was past the delirium was of a low muttering type, and the eyes, tongue, and lips more resembled Typhoid. But in the prostrate condition the expression was not so apathetic and listless as in Typhoid. The fever would, however, be almost gone before a case could with certainty be diagnosed as Typhoid and the question of Typhus would then cease to ~~be~~ be entertained.

Between these Epidemics and the old form of Influenza I shall not further discuss the differences, for I have not had any experience of the latter, save severe, prostrating colds.

### Prognosis.

There was not a single death from Influenza alone in all the cases I attended. With proper care both in the early stages and during convalescence the chances of a fatal result were reduced to a minimum.

Bronchitis last year was the most fatal cause in the aged. Altogether about 8.5% took it, and of these 1.8% proved fatal.

This year, Pneumonia was at the start the most alarming cause of mortality, but stricter care on the patients' part and in nursing, (warned by the physician) so as to avoid cold while improving counteracted this evil.

About ten per cent. suffered from it, and two per cent. of these proved fatal. Last year the deaths from this cause were 1.4%

The deaths from all other causes would be about 2%. But in many cases the effects of Influenza were not gone in months, and it would be rather difficult to say how many patients died (and may die) from other diseases, contracted while still suffering from the remote effects of Influenza, that would not have died had Influenza not preceded the proximate cause of death.

### General Conclusions.

It may be well to state briefly some of the conclusions derived from the foregoing. The epidemic of Influenza - if we call it by that name - of last year, re-appearing this year with the differences I have mentioned, differed considerably from the type formerly described under that name in class-rooms and in books, the chief points of difference being, in these epidemics, the presence of pains, often very severe, in the head, back, limbs and body, the almost general and serious affection of the stomach, the great amount of prostration not only accompanying but following the attacks, and the weakened state of the system, especially of the mucous membranes, exposing

the patient to serious and even fatal diseases, unless he takes the greatest possible care to avoid catching cold during convalescence, which was really the most critical stage of the disease, and the absence of catarrhal symptoms — these are points of difference between the two kinds of Influenza, or are at least positive symptoms in these epidemics. Having one attack does not protect against what we may call a second or even a third attack within a brief period from the first, nor against an attack in a subsequent epidemic.

The descriptions in the Medical Papers show that it was not quite the same in every part of the country, and no description that I have seen quite ~~corresponds~~ corresponded with my experience of it.

It is an epidemic disease, infectious and probably contagious, the atmosphere being in all likelihood the great medium of conveying the infection. The cause will probably be found to be a micro-organism. There is great difficulty in determining the exact period of incubation, and there is little chance of checking the disease by isolation or by disinfectants. When once it attacks a patient, he will be acting in his own interest to ~~quietly~~ quietly submit to it, take every care and have suitable remedies.

## Treatment.

Many were of opinion that the disease could be warded off, and for this purpose used quinine, Compound Syrup of the phosphates or hypophosphites or other drugs. But in the yards where quinine was used, those using it took Influenza the same as those not using it. When the epidemic was worse in Widnes where the atmosphere is partly anti-septic, it is not likely that any prophylactic treatment would be successful. Tonics, if required, may fortify the system, make the attack less serious, and may hasten convalescence. The worst cases I had last year were those of strong, well-built men who never had any illness before, and thought they would fight it off. This suggests the reverse treatment, that is, to yield to it and take proper care as soon as it comes on. So soon as a ~~patient~~ patient <sup>is</sup> attacked, the best thing he can do is, unless the case is a very mild one, to give in to it, go to his bed, keep himself warm and take some warm gruel and new milk, the physician's remedies coming in due course. By such precautions on the part of the patient, the attack is in my opinion modified, and the prostration is not so great, for the patient has taken care of his strength, and convalescence will come sooner and be more rapid. Under this

method even severe cases as a rule got on well, while under the opposite course comparatively mild cases turned out badly.

In prescribing for a patient we should take into account the history of the case, find out if there are any complications, consider the constitution of the patient, and the surrounding circumstances. A saline aperient was often useful at the onset. For the headache, antipyrin was perhaps the best remedy, and a small dose - seven to ten grains, or even less - was sufficient, the dose to be repeated in about two hours if necessary, or <sup>when</sup> of the headache returned, as it sometimes did after two or three days, but less severe, and more easily checked.

This year, in the severe cases, antipyrin, even in larger doses, had very little effect on the pain in the head and back. For this I found a combination of antipyrin and Dover's powder suit best, about 12 grains of each for an adult, repeated if required.

This shows that the pain this year was not the same, or of the same character, as last year.

Salicylate of Sodium, quinine, opium, and morphia, were tried separately but without satisfactory results. Antifebrin gave more relief, but it was not such a fine preparation to use as antipyrin.

I did not give antipyrin in large doses, for I have seen it so used in this disease as well as in pneumonia, and the patients face got livid, with a profuse sweat rash, and there were slight relapses, while the disease was rather prolonged.

As regards other drugs for Influenza, some diaphoretic was probably the best. A mixture containing Lig. Summ. acet., Spt. aeth. Nit. and Spt. Chloroform was very suitable; or Nitrate of Potash, Spt. aeth. Nit. and Squills did very well. What I found best this year was a mixture of Zinck. Camph. Co. and Spt. aeth. Nit., the Compound tincture of Camphor in large doses checking the headache. When the pains were of a Rheumatic character, Salicylate of Sodium was the best, and this with Spt. aeth. Nit. and Zinck. Camph. Co. gave good results in Pleuritic pains.

For children Lig. Bismuth and very small doses of antipyrin did very well; or Spt. aeth. Nit. Symp. of Squills and Zinck. Camph. Co. gave good results, and Zinck. Card. Co. with Zinck. Cinch. Co. during recovery.

For the pain in the stomach, morphia might be used, but better results were obtained by treating the case as one of Influenza, after one or two doses of morphia had been given.



For Convalescence, Care to avoid cold was the most important thing to attend to, and next come Tonics. Quinine did not suit so well as other remedies in the early stages, but now it was used with great benefit. Better results, however, were experienced when it was combined with Tinct. of Nuc. Vomica especially in the bad cases. A mixture of Liq. Bismuth, Tinct. Nuc. Vomicae and Tinct. Card. Co. was very suitable for delicate or irritable stomachs or before it was advisable to give quinine.

Vegetable bitters, and Syrup of the hypophosphites were also suitable. I treated some of the cases at sea with a combination of antipyrin and quinine all through the disease and found it suit very well.

Change of air did not aid Convalescence so much as one would expect, except in very tedious cases going to the sea-side well on in the Summer.

Complications required to be treated as necessarily arose, and I have nothing special to say about them. Many cases, especially delicate females, did not overcome the resulting weakness till some other complication set in, perhaps months after, and to trace these cases to their termination would make this paper too long.

Very likely we have not yet heard the last of this Russian Influenza and its results.

# Table of differences between the Epidemics of 1890 and 1891

Travelled from East to West, and North-West.	Direction irregular, and chiefly to large centres.
Same in country & town.	Worse in towns.
Pain in head and back moderate, and without delirium.	Pain in head and back severe, causing delirium, semicomatose condition or stupor in children and young females.
Rash common in children, rare in adults.	Rash very rare.
Vomiting frequent with children.	Vomiting rarer, except in the case of infants.
Pneumonia in children, with some Bronchitis, frequently followed.	Pneumonia rare in children, Bronchitis more common.
Pleurisy in adults.	Pneumonia in adults.
Bronchitis in the old.	Little Bronchitis.
Very seldom sore throat or cough, and only slight.	Sore throat and dry cough, common.
Second attacks occurred.	Second and third attacks occurred.
Bronchitis more fatal & aged	Spitting of blood.
Diarrhoea 1%	Pneumonia more fatal to adults.
Infants seldom attacked	Few guinea, sweating more profuse.
	Diarrhoea 3%
	Influenza more common in infants.
	Wm Hutchinson.