Thesis for M.D.

submitted by

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I hereby certify, that the accompanying Thesis has been totally and entirely composed by myself.

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April 28th 1890
L R C P Lond.
Catarhhus Epidemics
With special reference to that of 1889-90
(by C. Gray Stalkhurst, M.B.)

There are few maladies which have aroused a more vivid interest in the thoughtful mind than those designated "Epidemics." From their characteristic features as to recurrence after more or less irregular periods of intermission, their widespread, their capacity for progress of invasion of a community, their mode of infection, and their disappearance from a locality when their energy seems spent, we have afforded no subject matter worthy to engage our consideration in attempting to unravel the laws which govern the outbreak of so large a proportion of the disorders flesh is heir to.

Of epidemic disease we cannot indeed find a more typical example than in "Influenza" or "Catarhhus Epidemics."

After a lapse of forty-three years since the last pandemic (a somewhat longer period of intermission than has been usually noted), we have to record an outbreak in 1889-90 of considerable extent and severity, though its virulence appears to have been of a milder character than experienced in some former outbreaks in this country.
Historical Note—

Authentic record of epidemic catarrh dates as far back as the year 1570 A.D., when a wide-spread outbreak occurred, taking its starting point at Malta in Africa, affecting Sicily, invading Spain, Italy, Germany, its course being generally east to west. Among other outbreaks are recorded the following:—in 1577, commencing in England in October after unusually cold winds, having had a westerly course from the Bosphorus to Europe;—in 1580, raging in October, course east to south to West of Norway;—in 1658, during a brutal April;—in 1674, during the Autumn—1710, in the Spring—1729, after a hot November—1732-33, with damp chilly Spring—1737-38, commencing in November—1743, in the Spring—1758, in September—1762, beginning in September—1767, raging in June—July—1775, during a hot Autumn—1782, in May (the most widely diffused epidemic on record);—1803, during the Spring (course south to north—1831, in June after equinox);—1832, in April, after damp cold weather;—1834, in January after great humidity—1847 in Boston—1889-90 in Boston. Night outbreaks are recorded in United States in 1874, on the Continent in Scotland in 1857. Also in Britain during 1850-51 and in 1855.

From these data it is seen that the periodicity

2. Ibid. W. Thorne (Post, of Physician)
of successive outbreaks is extremely irregular. The majority of these epidemics having commenced or been prevalent during the more inconstant Seasons of the Year, many occurring during the Spring or near the Fall of the Year, it is of much interest to remark a certain predisposition for their occurrence during cold, rainy weather, in England at least, though lately for A. Mitchell and Buchan have urged the theory of there being no connection with especially cold weather but rather with exceptionally warm before or during the epidemic. There appears to be no connection with climate as distant from winter, the epidemic of 1837 prevailing at the same time in England (Yorks county) as at the Cape of Good Hope (mid-summer).

Epidemics of Influenza have been observed to bear a relation to analogous disorders affecting the lower Animal. These either preceding or being concomitant with the remission of the Human Species. Thus in 1858 the Cavalry horses at Curragh were affected several weeks before men began to ill. In 1763 deer were affected first, platen horses (in January 2nd) before men (in April 13th). In 1732-33 horses were much affected (in October to Nov.) before men (late). In 1775 horses & dogs were affected in August & September.

1) "Influenza and Watery" before Sect. Inter. Suec. by Dr. A. Mitchell M.D. (investigations into epidemics between 1847-90.) Mar. 31, 90
2) Annals of Influenza, page 23
3) 2nd May
4) 2nd June
5) 2nd Sep
but men not till October. (1) In 1737 horses were affected. In 1803 horses and cattle were affected also cats. (2) In 1889-90 horses were affected in a mild degree in London about the beginning of November (Oct 12th), men not till about Dec 20th. Cats seem also to have suffered to some extent.

The disorder has had various appellations from different countries. E.g. in Russia it is known as the "Chinese fever," owing to its having first broken out in China on some occasion, as in 1831. In Germany it is called the Russian pest, in Italy the same disease. The name "Influenza" (Ital.) gives in consideration of the malady being ascribed to occult stellar influence, has by association of ideas come to represent in the popular mind a complaint which has for the most prominent features nasal and lachrymal catarrhal, running of the eyes and nose in vulgar parlance, associated with bronchial catarrh or cough — these symptoms have been by no means so constant during the late epidemics as to satisfy the ideas of vulgar tradition, so much so indeed that the "client" of "influenza" has frequently elicited the doubting response "Do you really think so, doctor?" or "then, doctor, it isn't the usual influenza!" The infrequency of lachrymal catarrhal (1). Annals of Influenza, by Dr. Herb Thompson F.R.S. page 96 (2). Idem page 213
symptoms has been remarked by various observers.

In the October, 1889, writing from St. Petersburg, states
the typical symptoms of running of the eyes and nose
were often absent than present. (1) Mrs. Ethel
Robertson, in an excellent report of the outbreak at
Morningde Asylum, notes the absence of cataract in
22 per cent of cases. (2) Dr. Duncanson, reporting on the
outbreak in Wandsworth Prison notes absence of
cataract in 50 per cent of cases affected, especially
at the commencement. (3) Mr. Dutton, reporting on
the outbreak in board H. R. Training Ship Alcoat
Edgecumbe, notes cough in 10, 2 conjunctivitis in 7 cases.
out of 85 affected. (4) Dr. Barnes of Suffolk, had
nasal cataract in 5 per cent, while Dr. Heil of
Dalston has not had any cases of nasal cataract
or conjunctivitis. (5)

The Epidemic 1889-90

The report of the earliest appearance of influenza
comes from St. Petersburg, about October 15, 89.
At Tomsk in Siberia it was also said to have
broken out about that date. The epidemic
rapidly spread over this Europe. Russia by Novem-
ber 12th it was reported from Reja and Lodows in
the Baltic provinces, from Poland, Mooscow
and the shores of the Black Sea - The Final

(1) Brit. Med. Journal Dec 7, 89
(2) Feb. 1, 90
(3) Feb 22, 90
(4) Feb 1, 90
(5) Jan 18, 90
(6) Jan 11, 90
course of the spread appears to have been in a
irregularly Westward & South-Westly direction.
It is reported at Berlin on Nov. 30, & throughout
Germany by Dec 18, reaching Vienna Dec. 19, &
Bucharest & Sofia Dec. 24. In a westerly direc-
tion it affected Brussels Dec. 12, Antwerp on Dec. 8,
Amsterdam & Copenhagen early in Dec. - From
Paris reports of cases occurring as early as Nov.
25th to 26th have come - It spread South
of the Pyrenees, being at Malaga on Dec 12, at
Madrid Dec. 16, Lisbon & Porto being affected a
bout Dec. 20. - Rome had a mild visitation
about Dec 13. - From Boston & New York we have
reports on Dec 17, with a very rapid spread to
Dec. 27. - Persia, Egypt & Tunis appear
to have been visited in January. Also a visit
from Mexico & Canada about Jan. 15. 90.
At Gibraltar it prevailed in February, & reports
announce its spread to various parts of India
in April 90. In London cases were reported
about Dec 24, chiefly in West End, & later in
East at first. - The evidence became more more
prevailing, reaching its acme about January
22nd to 23rd, then gradually dying out towards
the end of February. - Thus we find

At Dunedin, New Zealand, Influenza prevailed in February
Medical Journals (also at the close of the flood in January)
Daily Periodicals
Regular Journals
this outbreak has been of a pandemic nature
being very widely dispersed.
My personal cognizance of the epidemic was
obtained in London from the commencement of
the malady in December, extending through
January to the middle of February. At
which date I found the epidemic raging at
Southsea—many provincial districts suffering
only when its force was spent in town.
The first case which came under my care
was that of a man who had just recently arrived
from the Continent, to whom I was summoned
to visit on Dec. 16, 59. (I doubt here the
cause of the malady had been acquired abroad)
It is of considerable interest to note the oc-
currence of the early cases in the West-end
districts of London, and it is a possible theory
that the first cases may have acquired the
infection abroad (such birds of passage
being more likely to be the affluent of the
West End than the indigent of the East.)

General features
The sudden onset and the rapid spread of the
disease have been told borne out during the
case epidemics. A person might go to bed
guite well at 11 p.m., and awakd at 2 a.m.
with symptoms of the disease in all severity.
Again, another went out guite well at
3 p.m., returning at 9 p.m., fully affected.
In some instances individuals appear to
be strick down all of a sudden while at
work or play; this doubtless has some rise
to the German name of Blitz-eburk (lightning
-eburk), for the malady - to the French
La Gripe (probably related to the verb grapper to
Skech). The rapid spread is well defined
in its having affected the whole of European
Russia from Oct. 16th to Nov. 12th - in the
year 1833, Russia was overspread & it during
January - February. In 1847, 300,000 in-
dividuals are said to have been affected
in the day. Dr. Peacock states that in that
year 44 the population of London was affected,
and 4/2 that of Paris. In the latter epidemic
the estimated cases in London were 400,
thousands of about 10 to 13% of the population
in Berlin 30% cent are said to have suf-
fered, and in Petersburg 30 to 60% cent of
the population - 100% cent of the troops
in London are reported as having been affected by it.

The malady appears to be one chiefly affecting adult or mature age, those of tender years suffering but comparatively little. In my own experience no distinctive case occurred under 10 years of age. The mortality returns in London from influenza appear to bear out this statement as to adult predisposition (though a certain degree of reserve must obtain in drawing conclusions from such statistics). For the week ending January 18–24, we have 127 deaths recorded, of these 7 were under 1 year, 14 between 12–19 years, 9 between 20–29 years, 34 between 30–40 years, 56 between 40–60 years, 27 over 60 years of age. Hence the greatest mortality, & (probably) the greatest prevalence too, in adults between 30 and 60 years.

As for deaths ending Jan. 25, Feb. 1, 8, & 14, also bear out this idea, as seen by the appended table.

<table>
<thead>
<tr>
<th>Week Ending</th>
<th>Deaths</th>
<th>Age Distribution</th>
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<tr>
<td>Jan 4</td>
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<td>7 11 13</td>
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<td>7 3 12 8</td>
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Dr. Matthew Hay, Aberdeen, reports 11 deaths during January from Influenza, mostly between 24 and 57 years of age, 1 infant 10 days old. (1) Dr. Roberts gives his opinion in favour of adult advanced age predisposition. (2) Dr. E. S. Bannow, Suffolk, out of 200 cases had 14 under 12 years, 1 at 9 months, and the rest between 13 & 75 years. (3) Dr. Atthill, Dublin states it is severest on adults. (4) In 1776 Dr. John Baker wrote "young children not much affected. (5)
In 1782, observations by Dr. E. Gray, Armagh, and Dr. Hamilton, Dublin, show the chief liability between the ages of 20-40-60 years, so that children were but little affected. (6) In 1824, it is reported, "many children and young infants were exempt. (7) 1 Skelton in his report says "liability was chiefly under 15 years, between 30 & 40 years. (8) In 1836-37, Dr. Richard of Trimingham had out of 173 cases, 76 under 14 years, 119 between 14 & 65 years, 26 above 65 years. (9)

Though the consensus of opinion favours adult predisposition, on the other hand we have reports of children being affected — at King David's Girls School, 15. M. Frisando reports 175 cases between 11 & 16 years. (10) The outbreak on H.M. Training Ship Mount Edgcumbe affected boys between 12 & 16 years (being 85 cases in all). M. Conolly observed 248 cases in children, 48 of

(2) Pract. of Physic (7) S. J. Jan 15 90 (8) J. 1823-1824, page 298
(4) J. 1823-1824 (10) J. 1823-1824, page 298
there were under 2 years, 76 under 5 years, 94 under 15 years, with nervous digestive symptoms. [1] From these data we can but learn that tendancies are not exempt though they give us no idea as to the relative frequency between adult & child predisposition. The epidemic of 1889-90 seems to have shown a predilection for the male sex - in any case So. Berwick males numbered 3/5 of the Cases. Miss Ellis & Robertson had 73 males, and 67 females affected during the outbreak at the Morningide Asylum, the type too was severer in the males, relapses being reported of 9 males out of 13, pneumonia in 13 males out of 14 Cases to complicated, of the 18 deaths reported none of male patients. [2] Dr. Hurd of Dalston had most males affected. [3] In 1795 Dr. Ollingill reported men as being chiefly affected, this was corroborated by Dr. George Baker. [5] Dr. Roberts states the female sex slightly predisposed, in his opinion would be supported by Mr. Raymond, of Worcester's experience in 1803, he having treated 80 males x 108 females - also by Mr. Bishop of Leicester who had 4% of his cases females. [6] Dr. Dixon states the female sex is just affected a little the males. [7]

Symptoms.

The attack often begins with a sensation of cold, a shivering, or a rigor may occur, this is accompanied or very soon followed by intense frontal headache, aching of the eyeballs, severe pains in the back and loin, also in the muscles of the thigh and calf of the leg, there may be aching of the bones of the thigh or legs. The rigor is followed by a sensation of heat, and flushings of the body, the temperature becomes elevated (in one case while a severe rigor was on the thermometer registered 104.5°, the patient meanwhile complained of feeling intensely cold.) There is leucorrhoea in whatever position is assumed, no relief being obtainable for the aching of the body. Tachycardia is present. The seat of the worst pain varies; in some patients the head, eyeballs are chiefly complained of, in others it is the back or loin. In many cases no choice can be made between them. The eyeballs are suffused, the skin appears hyperemic, herpes labialis is frequently observed, an
A rash has been described by some affecting the face, neck, limbs or trunk. The pulse is quickened though with a soft, full beat.

In some cases vomiting of bilious matter occurs at the commencement of the illness. In one or two cases, the onset was marked by a faint or syncopeal attack, and vertigo is a not infrequent symptom. In a few cases repeated severe fits of shivering have marked the onset. Eystrosmia has been observed. Coryza, running of the eyes, hoarseness has occurred though less frequently than formerly stated. Bronchial catarrh with irritating painful cough is frequently developed, which is at first dry but later accompanied by a viscid bronchial secretion. There occurs pain in the chest, adrenals below the sternum. The skin acts freely without cases after the chilliness has passed off. The tongue in many cases has extremely foul, moist, sticky, yellowish-white coating. It is frequently relaxed. Sore throat. In a few cases early delirium was observed, especially in patients addicted to alcohol. The temperature varied between 106° to 102°.
in most cases, but occasionally reaching 104.5°. (in some fatal cases, going up to 106° to 108° before death.) A very marked and remarkable feature, one which has been observed almost universally, is the great prostration accompanying the disease from its very commencement, there being complete suspension of all voluntary energy, the vital forces being reduced to a low 20%—in some cases, dyspnoea was a troublesome symptom. Convalescence in simple cases was rapid, though in many of the severe cases it was very prolonged, especially a change of air was necessary to restore the system to its normal standard of tone.

In classifying cases there appear to me to be two distinct types of the disorder according to the prevailing symptoms, or a combination of the two giving rise to the severest form of the malady—

I. This I shall call the "Sthenic type"

It has been observed to occur chiefly in the robust, previously healthy, strong youth,
and girls between the ages of 19 & 24 years of age typically. In these we have the
onset very sudden, with chilliness or rigor occurring. Intense frontal pain, aching
of tender eyeballs also suffered. Swollen glands in the neck & back, in the muscles of
the thighs & calves. Aching of the long bones. The temperature of the body is raised, ranging
from 101° to 104.5°. Delirium may occur. The skin acts freely. Dejection in these cases is not marked at the commence-
ment but the weakness & debility are felt as the temperature subsides & convalescence sets
in. The temperature falls to normal in 2 or 3 days. The tongue is often very foul.
In this type there are no Catarhal Symptoms, congestion or cough at first, but they often
develop during convalescence. These cases are compelled by the rigidity of
the onset. They pass to the ups at once, and
with Care Convalescence soon Sets in. The
pains subsiding, & fall of temperature on 2d day, but now we have frequently
Catarhal Symptoms arising with irritation
of larynx, & cough. Early exposure will
aggravate these, with care they are checked.

Convalescence is more or less rapid.

Illustrative Cases

1. Mr. A. M., age 23 years, 115 Brook St. N.
   Visited 9 p.m., Jan. 6th. He had been to business.
   Quite well in the morning, but was taken ill at work.
   Slight shivering, severe headache, pain in the loins and calves of the legs.
   When seen he was flushed, eyeballs suffused and tender.
   Temp. 102.5°, marked unrest and unrestlessness.
   Tongue very foul, skin acting freely.
   20 coughs or coughs.
   Jan. 7th. Temp. 101°, tongue very foul. Headache is better.
   20 coughs. Little prostration.
   Jan. 8th. Temperature 98.6°. Prostration little.
   Slight lachrymal irritation. Cough with some
   moist rales on auscultation. Tongue fresh.
   Jan. 9th. Temp. 98.4°. Prostration little.
   Slight cough. Tongue cleaning.
   Convalescence has been uninterrupted & rapid.

2. Mr. Smith, age 24, 118 N. 6th St. N.
   Jan. 16th. Laid to bed all ill at 11 p.m.,
   awoke at 2 a.m. with severe shivering, headache,
   pain in loins & calves of legs. Much
Jan 17. 90. Slight fever gone. Some cough of
eyes & nose, also bronchial irritation.
Cough (dry) - tongue foul - no appetite.
Temperature 100.5° - little fluctuation.
No albuminuria. Jan 18. 90. Temperature 98.4°
Tongue cleaner, Congestion bronchial cantant
pronounced. Cough with rales.
Convalescence proceeded rapidly.

II. This variety may be called the Athenee type.
In it the catarhal symptoms are largely
developed - if begun with Croupa and fit
of sneezing which may be persistent, late
chillsness & occasionally slight rigor, though
this is not so marked as in the Athenee form.
Prostration is in early Concomitant and
so very marked, then being total incapacity
for any voluntary effort. Besides burns may
be present in the head eyes, Louis & a badly
the legs, but though almost always present in
some part or other, they are much slighter
in Severity than in the Athenee type, always so.
elicit no complaint on the part of the patient.

Choked bronchial irritation with cough, affray in chest, with tenesmus below the sternum are often characteristic. The tongue is moist, spongy. The temperature varies between 99.6° and 101°. The skin has not the free action which is present in the Sthenic form. Dyspnoea was frequently a troublesome urgent symptom.

This type is best seen (though not confined to them) in persons of a less robust constitution, or women and men who are for any reason debilitated and out of tone (from overwork, previous illness, etc.). It is distinguished from ordinary bronchial catarrh, by the great prostration of the sufferer, the ache, when present, the spongy nature of the malady. The Convalescence is very slow and protracted in this form, frequently necessitating a change of air, or the powers can be rengthened.

(III) The severest cases of the espidemic are those in which we have a combination of symptoms of the Sthenic Asthenic
types, when frequently complications arise either due to the virulence of the disease or from indiscretion in treating. Illustrative Case

Dec. 16. Illness began with a rigor - followed by severe headache, pain in the loin - calvary. Racked cough of eyes, nose, and wealth was present. Temperature 102.5°. Eyes tender - suffused, pupil 100, shape. Slight breathless under the sternum, bronchial irritation. Coughing of tenacious frothy sputum. Moist rales heard over the apices and bases of the lungs. The tongue was very foul and moist. The bowels were constipated - the skin acting freely.


Dec 21. Temp. 98.6° - tongue cleaning very tardily - sponges very loose.
Dec 22. Temperature 98.4°.
Convalescence was very tardly, the strength returning but slowly; at two to three weeks later we are a typical case of Catarhæs Usurpers, Combining the Sthenic or the Asthenic varieties.
Very sudden attack. "Was not well at 6 p.m., was taken ill at the night."
Then came great prostration. Swore headache, pains in the loins, rash of legs, pain in head. No thirst. Temperature 102.6°. Congestion: neuralgic Catarh cachexia pain in chest. The symptoms continued for 5 or 6 days, the cough becoming less painful in the 3rd day with free expectoration. The temperature a little on Saturday. The prostration last slowly recovered from.
Convalescence was very protracted, which when apparently established was succeeded by a relapse, with rise of temperature, and other symptoms as in the first instance. Recovery being long protracted.
Complications and unusual symptoms. Anterior epiglottitis. Strokes labialis was present in 3 of my cases; it has been reported of occasional occurrence by other observers. Miss Robertson & Elkins report of its occurrence in 3 cases out of the 140 patients affected at the Morningside Asylum. (1) Dr. Dunlop observed it in some of the cases during the outbreak at Wardsworth Parish. (2) Ald. Bristow mentions 17 occurrences of it out of 173 cases of epidemic catarrh at King Edward's Public School. (3)

A distinct rash was not observed to occur in any of my cases, but it has been noted by several observers during the late epidemic.

We do not find a distinctive rash accorded as occurring in former epidemics, though in 1762 from Dr. Symp's account we learn of the appearance of large healing blisters on the back, breast & shoulders - also an eruption about the nose & lips is stated as not uncommon. I in some cases at the close of the disorder was seen a miliary eruption, or one likened to chickenpox. (4) Neither Miss Robertson & Elkins at Morningside Asylum, Nov 8

(1) Brit. Med. Jour: Feb. 70
(2) Same: Feb. 72. 90
(3) 2. Same
(4) Annals of Influenza 4
for Dr. Thomson
page 123
Linton at Wandsworth. Ruskin observed any rash in their large number of cases. On the other hand, Dr. Bristow reports thirty-six occurrences out of 175 cases in King Edward's Gutt School, where a distinct papular rash was present on the face, neck, occasionally on the chest back, legs, appearing early. Dr. C. A. F. Osborn, Church Street, Salop, noted a papular very itchy rash observed on the face, hands, occasionally on the feet and back. In some cases, appearing 24 to 36 hours after the onset, with slight constitutional symptoms. Dr. H. Attkinson, Surbiton, saw a nearly rash on the buttocks and cheeks in one case. Dr. J. R. Davies, Ely, Cambridgeshire, had 2 cases with a rash of desquamation, in one scarlatinoid in character, papular itchy in the other. He also notes occurrence of a rash in 17% of his cases. In the outbreak on the training ship Mount Edgcumbe, two cases showed a papular rash out of 85 boys affected with the epidemic. Dr. Gibbons, Nottingham, observed Rosacea and papular rashes in some cases - also temperance but not noted with. Dr. Brackenbury, Edgbury, did not observe any rash in his cases.

2) Ibid Jan. 25, 90
3) Ibid Jan. 25, 90
4) Ibid Feb. 15, 90
5) Ibid Mar. 1, 90
6) Ibid Oct. 12, 90
7) Ibid Jan. 22, 90
Herpes zoster, arthritis, & exanthemata rash are said to occur. Malaria are not infrequent from excessive heat sensation.

Respiratory System

Laryngeal catarrh with hoarseness was not infrequent. Bronchitis affecting the larger or smaller tubes was common. Sometimes the catarrhal condition extending to the lung tissues. Conspicuous of the lung arising with blood-streaked expectoration. Pneumonia too a sequela to the often dreaded. I had 4 cases complicated with pneumonia; Mrs. Robinson,Elkins had 10 cases out of 140 patients. In 1803 pneumonia is reported in a few cases, and especially in pregnant women; Dr. Canner states the proportion of pneumonia, pneumonia has given more than 1 in 70. Dr. Falcon reported 6 cases out of 170 in Bath. Boott (Complicated with Pneumonia (3))

Pneumonia (dry) has been found, especially associated with pneumonia. It was of frequent occurrence during 1762 and 1775. In 1836 Dr. Evans states it was four out of forty-five.

(1) Brit. and Jour Feb 1, 90 (2) Annals of Pneumonia page 247
(3) Idem page 253
(4) Idem page 61
to the biochemical symptoms of pulmonary infec-
tion. Simple Hemoptyisis has been noted to occur, by Nelson Scott in a case in 1803 (2). Dr. Black of Nottingham reports 4 cases which set in with hemoptyisis (though he avoids to state whether previous lung of 
fection existed or not). (3) A predisposition to phthisis is said to be called into action a hastened on its evil course (as reported by Mr. Sturham in 1737. (4)) also records of 1803 tend to show that latent consumption is 
drawn into activity by the malaria (5), so also to Sturham reports in 1836-37 defected this view. Spitting of blood (Hemoptyisis) is reported in 1832.

Hemoptyisis System

The enlargement and inflammation of glandular structures has been observed, especially are the Salivary glands, the Lateral and submaxillary glands. (6) Mr. Cat. mentions swelling of the glands of the throat in 1680. (7) Sturham reports of Lunnery, Sturging of the lateral and submaxillary glands in 1737, (7) to Thos. Glass a Phthisis, mentions some cases with 
through of the tonsils, Lunnery, Sturging of the submaxillary and carotid glands in 1775. (8)

(4) idem page 277 also occurred in 1733 - page 37
(5) Annual of Lufhuynza page 37
(6) idem page 220
(7) idem page 9
(8) idem page 98
In 1893, A Pearson experimented with the effects of the barostril, maxillary, and cervical glands. M. Gautier describes the occurrence of epidemic disease. Enlargement of the spleen has been observed by French physicians, especially Dr. Pasteur, which is contrary to the opinion of Dr. Roberts, as to no spleen enlargement occurring. Epistaxis has been of not infrequent occurrence. For instance, in 21.26% of cases at King Edward's School, Dr. Fiddle had 1 case. Anemia was often observed.

Circulatory System

In a few cases, the onset is marked by a syncope or faint. Dr. Springthorpe, of Melbourne, has observed "irregular and rapid action of the heart, and occasional cardiac hyperpnea, a syncope." Dr. Haygarth, of Chester, noted in 1875, five cases in which swooning marked the commencement. Dr. Street's report of 1836-37 states that syncope was observed in some cases by Dr. Baird at Ramsgay, a intermittent pulse in the forearm. During 1803, syncope and sudden death occurred. Dr. Davenport observed several cases of syncope during the

(3) Journ. p. 189 (4) Journ. Jan 4 90
(8) Journ. p. 250
outbreak in Wandsworth Prison (1).

In Gaucher has observed the occurrence of
amoebae intestinis (2). Pericarditis is
also on record, it was discovered at first
necropsy at Morningside Asylum.

Alimentary System.

In a few cases the throat was complained of
by Springthorpe mentions the occurrence of a
deposit of mucoid false membrane, resembling
diphtheria, on the fauces (3). A few patients
had vomiting of bile at the beginning of
the attack. Abdominal pain is no
occasionally present. Constipation some-
times troublesome. Diarrhoea was
present in two cases, coming under my
observation at the commencement of the
malady. Blood in the stools has been
noticed by Dr. Tibbles of Nottingham (4), also
two cases in which this has occurred an
infected by Mrs. Robertson Alkermes (5) observed also in 1788.

Nephritis is recorded of two cases in
Morningside Asylum. Acute nephritis is
said to occur – occasionally albumin
uria was noted (6). Haematuria has occurred.

(2) London Med. Jour. Afl 12 90
(3) "Nervous Substratum of Dyspepsia"
(6) Lancet Feb 190
(7) Annals of Influenza, page 60
Reproductive System

Debilitio - Atrophia penis - Amenorrhoea - Periurethral abscess - said to have arisen. Periurethral abscesses were said to be highly liable to recur. Some were to have died of it in 1803 (D. Donville). Puerperal fevers too were frequent, as a consequence in 1782 and 1803. Pregnant women were said to be very much affected by it, especially in 1803 (D. Scott). Also in 1782 corroborated by D. Gray and Archibald Sibbald.

During the recent epidemic I have met with no evidence, either through personal experience or from the opinions of others, to support the views of a marked liability in pregnant periurethral abscess, but on the other hand any impression of opinion is rather in favour of an opposite view.

Nervous System

Extreme nervous prostration is a common feature. Verrigo is marked in many cases. Delirium was occasionally present, it occurred in two cases under my observation but no severe fever to account for it. Dr. Newton.

In every occurrence of transient early delirium in 2 cases in handwritten Russian.

Hysterical occurred occasionally, especially with fatal cases of pneuma, 3 cases occurred at Sheen Hyde Asylum with a temperature from 106° to 108° before death.

Browne has been observed in a few cases at King Edward's School the symptom was present in 5.08 per cent of the cases. In 1837 in Dr. Gower's account a recorded a case of comatose condition arising during the course of the epidemic malady.

In 1830-37 Dobbie's in his report records the occurrence of meningitis, temporary leucemia, abscess of ear, delirium of agitation.

Dr. Gower has found suppurating otitis mastoidea in meningitis, and M. Peneol a case of ascending meningitis after leukaemia.

Mr. W. J. Churchhouse Long Buckby has described a case of ophthalmic delirium arising after influenza. Cataplexy followed influenza in one case (Dobie's) documented Galen.

Intense delirium of Reussel is now not uncommon. Subacute muscular delirium is reported from Sheen Hyde Asylum.

2. Ibid. Feb. 1, 1890
3. Ibid. Feb. 22, 1890
4. Annals of Influenza page 319. 1890
5. Ibid. Feb. 12, 1890
6. Ibid. Mar. 29, 1890
7. Ibid. Feb. 1, 1890
8. Ibid. Apr. 12, 1890
9. Ibid. Page 350
It is of much interest to note the relative frequency of symptoms in the late epidemic, as tabulated by Miss Robertson & Elkins in the outbreak at Horningside Board School, Oldham, (1) by H.C. Braithwaite in that at Long Edward's School, (2)

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Horningside Yo. and R. Ed. Girls School 17.6.90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great weakness after attack</td>
<td>92.8 per cent</td>
</tr>
<tr>
<td>Frontal Headache</td>
<td>88.6</td>
</tr>
<tr>
<td>Pain in limbs</td>
<td>84.3</td>
</tr>
<tr>
<td>Giddiness</td>
<td>81.4</td>
</tr>
<tr>
<td>Loss of appetite</td>
<td>78.6</td>
</tr>
<tr>
<td>Pain in lumbar region</td>
<td>77.1</td>
</tr>
<tr>
<td>Coryza</td>
<td>77.1</td>
</tr>
<tr>
<td>Slight Bronchitis</td>
<td>77.1</td>
</tr>
<tr>
<td>Slight Enlargement of Eyes</td>
<td>71.4</td>
</tr>
<tr>
<td>Rigor</td>
<td>71.4</td>
</tr>
<tr>
<td>Nausea</td>
<td>62.9</td>
</tr>
<tr>
<td>Unpleasant dreams, &quot;wandering&quot;</td>
<td>58.6</td>
</tr>
<tr>
<td>Hatalence</td>
<td>40.0</td>
</tr>
<tr>
<td>Vomiting</td>
<td>38.6</td>
</tr>
<tr>
<td>Constipation</td>
<td>37.1</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>25.7</td>
</tr>
<tr>
<td>Chest Pains</td>
<td></td>
</tr>
<tr>
<td>Rash,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella</td>
<td>9.6</td>
</tr>
<tr>
<td>Erythema</td>
<td>5.9</td>
</tr>
<tr>
<td>Papular</td>
<td>20.339</td>
</tr>
</tbody>
</table>

(2) Idem. Feb. 32.90
Relapses and double attacks through records appear to have been infrequent. In my experience occurred but one relapse the convalescence had well set in, in two cases in which a second attack was seen through after a period of good health subsequent to the primary attack. At Broadmoor Hospital, at Lunton had 3 relapses out of 195 cases (1). In St. Pancras Asylum out of 125 cases affected by the epidemic 13 had relapses (12.3% of men, 26.9% of females). (2) In 1803 relapses were reported as frequent at Fulneck and Leeds, also at Louth parish on exposure to cold weather. (3) At F. F. Engleott has observed occurrence of double attacks in about 6 percent of the cases. (4)

Duration. Epidemic Catarrh appears to originate, flourish, and last during a period of 1 to 3 months. In London the late epidemic began about December 25, 1849, but few if any isolated cases were reported at the end of February and toward the middle of March 1850. Individual cases is how simple and uncomplicated ran their course in 2 to 5 days. The

(2) Ibid. Feb. 1, 1850
(4) Ibid. Apr. 5, 1850
severe cases lasting a fortnight with
a subsequent period of debility or pro-
terminated convalescence. In 1893 individual
cases lasted 8 to 10 days, some a fortnight.
In 1836, Streete’s report gives an acute
stage lasting 2 to 5 days; a more chronic
stage 5 to 14 days. In 1792, the duration
of prevalence in one place was not more
than 6 weeks; this probably corresponds
to the duration of the late epidemic, with
the exception of Citrus Sarsa torus, where,
owing to the large amount of Febrifugium
offered the tonsils male in the numbers
of the population, the disorder lingered a
longer period.

Diagnosis
The nature of the malady in its epidemic
form in this country appears unmistake-
able. It has however been much confounded,
chiefly on the continent though also to some extent in Britain, with
the fever called Dypnea; the best of
evidence points to the two being distinct
maladies.

Sir Richard mentions the following sources which

1. Annals of Influenza, page 24
2. J. dunn, page 305
3. J. dunn, page 156
appear to distinguish Dengue vs. paining joints, the pains shifting about, the smaller joints swelling - on 2nd or 3rd day an evanescent rash appears on the hands and feet, spreading over the whole surface (like measles, scarlatina or erythema), this goes off in 2 days, later, inflammation occurs, the fever abates on 6th to 7th day, convalescence sets in, which is interrupted by a relapse with similar symptoms as at first lasting 2 or 3 days, then convalescence sets in - a 2nd relapse may occur - joints are often still Subject.

Dr. Rocheard and Colin say Dengue is confined to the tropics (1), Dr. Roy de Kerckhov states a fulvous eruption in the back of the limbs distinguishes it (2). Surgeon Frobenius Reid considers the two maladies as closely related, he says, they have the same symptoms, but in Dengue a bright red rash appears on the 2nd or 3rd day, in place of which in Influenza we have a metastatic hyperemia of the bronchii, bronchioles, intestinal tract, the derma is late to substitute for rash (or hyperemia of the skin) being described as due to cold climate... he thinks the late epidemic is Dengue redides

(1) Brit. med. Jour. Jan 1st, 1890
(2) Edina
(3) Report of Physiology
Dr. Lemnitzer's comparison of the two maladies (in Berliner Klin. Wochenchr.) as follows:

<table>
<thead>
<tr>
<th></th>
<th>Dengue</th>
<th>Influenza</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Localisation</strong></td>
<td>hot countries</td>
<td>all latitudes</td>
</tr>
<tr>
<td><strong>Duration of Epidemic</strong></td>
<td>3 to 5 months</td>
<td>1 to 2 months</td>
</tr>
<tr>
<td><strong>Extension</strong></td>
<td>slow, from centres</td>
<td>rapid, over large track at a time</td>
</tr>
<tr>
<td><strong>Commencement</strong></td>
<td>always sudden</td>
<td>almost always sudden</td>
</tr>
<tr>
<td><strong>Fever</strong></td>
<td>always very high</td>
<td>not always very high</td>
</tr>
<tr>
<td><strong>Nervous System</strong></td>
<td>latitude; pain in limbs</td>
<td>the same</td>
</tr>
<tr>
<td><strong>Larynx &amp; Trachea</strong></td>
<td>seldom affected</td>
<td>always affected</td>
</tr>
<tr>
<td><strong>Dyspnoea</strong></td>
<td>never</td>
<td>frequent</td>
</tr>
<tr>
<td><strong>Staphy Symptons</strong></td>
<td>always; violent, persistent</td>
<td>may be absent</td>
</tr>
<tr>
<td><strong>Scarature</strong></td>
<td>always, beginning in face &amp; throat, follows by dyspepsia</td>
<td>seldom, irregular</td>
</tr>
<tr>
<td><strong>Headache</strong></td>
<td>feeling of pressure &amp; vomiting</td>
<td>shaggy, internal neuralgia</td>
</tr>
<tr>
<td><strong>Complications</strong></td>
<td>rarely; heart, liver or kidney may be affected</td>
<td>frequent, chiefly Boroche's pneumonia</td>
</tr>
<tr>
<td><strong>Recovery</strong></td>
<td>very slow</td>
<td>usually quick</td>
</tr>
<tr>
<td><strong>Prognosis</strong></td>
<td>always favorable</td>
<td>occasionally bad</td>
</tr>
<tr>
<td><strong>Young animals affected</strong></td>
<td>ages 0-50</td>
<td>horses</td>
</tr>
</tbody>
</table>

The chief distinctions would appear to be:
(1) **Tropical localisation of Dengue**, (2) its joint affection, (3) its relapsing character, (4) its death, (5) absence of ataxical symptoms in Dengue.

From Acute Rheumatism with which it has some points of analogy, Erythema Catarrhal may be distinguished (1) by its epidemic character, (2) no affection of joints (3) the lesions being more fixed than in Rheumatism (4) presence of catarrhal symptoms (5) the irritation accompanying it.

Etiology.
The essential cause of the malady is obscure. Many conjectures and theories having been advanced to explain the train of symptoms, its mode of onset and its propagation, from the earliest times when the disorder has ascribed to " occult stellar influence" (named "Influenza"), to the advancement of the theory of a vegetable germ borne on the wings of the wind being the "matured seed", latest in the present age of advancing science to which labours to discover the cause of many disorders to some microbial entity, the find Scientists engaged in anxious search for an invisible "covered bacterium or bacillus at whose
As may be laid the times of creating epidemic cataclysms either by the atmosphere, its development or propagation being possibly aided by some undefined atmosphere state.

Dr. Spriggs of Melbourne (in his Substantia Nervosa of Influenza) believes it is due to an alkaloidal poison secreted by a Cocosus acting on the nervous system. 

Epistome of late research — Dr. Maxmillian Jelles of Vienna found in the throat of cases of influenza numerous encapsulated cocci resembling Friedlanders pneumonia bacillus which he thinks may be related etiologically to influenza. He found them also in the urine of a case of albuminuria of which had come on suddenly. They have been observed in healthy kennels (Wiener Medizin, Blätter) (1) — Professor Klesl of Zurich found in the blood of cases examined masses of flagellate forms (1) large that show no slow movements; (2) smaller ones with very active movements of the flagella. They were sometimes hinder at others on the edge of red corpuscles. (2) — Professor

(2) Jour. Feb. 8th 90
Weichselbaum made examinations of blood and of tracheal secretions of the respiratory mucous membranes of patients, 2 of the Bordet products found on post-mortem examination. The artificially obtained arterial blood of two patients gave negative results under the microscope or by cultures. The cultures of 18 uncomplicated cases (examined on 7th day) exhibited a capsulated Coccus both by the microscope or by culture, resembling closely the Diplococcus Pneumoniæ. Experiments on animals corroborated this except that in 2/3 of them the virulence produced was weaker than that which the Diplococcus Pneumoniæ usually possesses. The Diplococcus was found in the urine of a girl who had albuminuria as a complication. He believes that influenza is due to an unknown organism which causes a favourable site for the development of the diplococcus pneumoniæ and which accounts for (or produces) complications, especially pneumoniæ. (Read before Imperial Soc. of Physic, Sec. for.) Professor Ribbent, of Bournemouth, found the Diplococcus pneumoniæ in large quantities.

in five cases of influenza. It was cultivated from the sputum, tracheal secretion, pulmonary tissue. It is known to be the cause of hemorrhagic infection as diphtheria, typhoid, etc. Prof. Reddell is of opinion that pneumonia after influenza is due to it. He concludes that there is no decisive evidence of the physiological importance of the streptococcus in relation to influenza, but that there is no proof that it does more than find a particularly favorable soil for development in influenza, the infective toxins being furnished by some other still unknown agent.

Professor Flechtmann, of Bremen, had 105 cases of pneumonia, 2 being along the lobes inferior minor. 143 he has classed as streptococcal pneumonia, 2 as a distinct variety. He made bacteriological exam. of living patients & cultivation from fatal cases. The streptococcus was found in all the pneumonia lungs. In one lung also a staphylococcus & a diplococcus different from the diplococcus Pneumonia of Treuer. In 2 cases he found a large bacillus, in addition to the streptococcus, which differed from Friedländer's bacillus. In only 2 pneumonia patients was the bacillus absent. He concludes

There is a Streptococcal Pneumonia. This 43 cases were such. He looked upon the pneumonia as the localization of the agent of influenza in the lung, because (1) he had seen no case of this pneumonia without the simultaneous occurrence of symptoms of influenza; (2) Pneumonia was frequently the first symptom of influenza. (3) he could find no reason to think the cases of Streptococcal pneumonia observed here were only of a secondary character but only accidentally coincident with the influenza. The same Streptococci which produced pneumonia were also the cause of influenza (1).

Professor Gäber examined the blood of 18 uncomplicated cases, but with negative results. The strep. gave the streptococcal pneumonia, the same as Frankel's Streptococci. Simulations gave negative results. (2) At present our knowledge does not carry beyond the region of supposition and we must admit the "Virus Morbi" yet remains "in obscurity."

Pathology. But little distinction has been observed in the clinical anatomy of influenza.

(1) Brit. med. Jour. Feb. 15th 1900
(2) Lancet Feb. 22nd. 1900
patients usually die of pulmonary distothesis when we have evidence of bronchitis, inflammation, emphysema, collapse of tissue, pneumonia, phthisis, we find also appearances of catarrh of the naso-oral membranes of the nose & communicating sinuses, throat, trachea, bronchi, a respiratory tract, capillary, bronchitis, pulmonary congestion, edema &c. (2) Prof. Richet examined fatal cases which had begun with influenza, symptoms of acute inflammation of the laryngeal cavities of the nose cavities in most cases of the frontal sinus as cavities full of pus. (3)

Propagation. The remarkable manner in which the malady has attacked almost simultaneously large numbers of persons, also its rapid progress through districts, arouse a keen interest as to the essential nature of the disease. The conditions which favor its propagation to so decisive an extent as in Paris. The theories as to the diffusion of the disorder are (1) whether by contagion, infection, or (2) by atmospheric
influence, the atmosphere being the medium of propagation—have each had its advocates. The following data serve to show the diversity of opinion on the matter.

In 1826 Dr Jones, Philadelphia, wrote, "it affected a whole region in a week, a whole continent as North America in a few weeks, when no possible human intercourse could have spread the malady, being before the days of steam & railway." (1)

He thus supporting the atmospheric theory. To also Miss Robertson & Halley consider the open air as the chief means of infection. Diffusion 28% of the officially being affected & only 11% of the patients, in the latter there being but few chances of being out of doors as compared to the former. (2)

Pottinger, Leeuwen & Taube are in favor of means spread by the atmosphere.

In 1775 Dr Pottinger, London, stated new born most affected especially when out of doors. In 1836-37 Dr Stein's report has, the conclusion of opinion is in favor of contagious nature as to contageous spread from one person to another. (3) In 1837, the statement of 50,000 persons being affected in 10days in London.

(2) Ewen Feb 1, 90
(3) Ewen Feb 15, 90
(4) Annals of Influenza. Page 86
(5) Ewen p. 308
is against contagion being the chief factor at least. My first case (recorded on page 19) where the patient had but a few days since arrived from the Continent, seems to favor the idea of the virus being acquired through the atmosphere, as I only knew inmates of the house, who were in constant attendance. Communication with them remained free of the malady, thus contagion being disfavor'd in my experience the fact of one lunatic being affected in a house was not as a rule followed by others being attacked subsequently, though in communication with the patient, but where several lunatics in a house were affected the disorder appeared almost simultaneous in them all. In a report by the College of Physicians of London in 1782 it is stated, when any individual in a family was attacked, the greater part of that family, sometimes the whole, but may, soon seized with it, allThus seized were all taken ill together almost at one time, with symptoms only differing in degree. In other instances the disorder went through the family successively. In some it only attacked one or two in the family.

(1) Jenner, Pest. of Dauphine.
(2) Annual of Influenza, page 156.
Medical men have been affected very largely, but as they were mostly out of doors the virus might have been acquired by contact from those attended. As regards myself, after seeing many cases from as early as Dec. 16, 89, I was not attacked with the malady till Jan. 16, 90. This in all probability favors contagion as the virus in the air, was only in contact continually out of doors and is not likely to have escaped affection. So long, though as to contagion, it is well known attendances on other contagious diseases may after a period of incubation be followed by affection. Virchow and Wechel are in favor of spread from person to person directly. Babinet considers it partly contagious. In 1782-83 at Abbatneot Stabard in the spread contrary to the direction of the wind. Favoring the idea of contagion. In 1803 wrote: "In families, one individual was attacked a few days after more were so or until all were affected. For the disease had been affected first." In another instance of Thames in 1803 wrote: "A gentleman who

(1) Annals of Influenza Page 37
(2) Ibid. Page 222
came from a district where the malady had just broken out, to a house where some of the family had influenza. They were attacked soon after. "So also," Dolman says it is "contagious, a distinct internal character in different districts between the commencement of the outbreaks, which would not be so were it due to some cause operating generally." (1)

Dr. Scholty, Cape of Good Hope, writes: "It is fully contagious, yet the influence of contagion is largely insinuative, the emanation distributing itself rapidly through the air. Personal contagion being a subordinate factor in the diffusion of the disease. (2)

I am inclined to the belief that the disease is a contagious one that the natural mode is capable of infecting the atmosphere for a limited distance around, this being influenced by variations in the state of the atmosphere as to density (temperature) and humidity.

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(1) Annual of Influenza, page 223.
(2) Scholty, Cape of Good Hope, page 260.
Treatment.

It is of interest, here as in all other forms of disease, to note the gradual change which treatment has undergone, from the earliest records when bleeding and strong antiphlogistic measures were considered necessary. Compared to, up to the present age, when a less surgically more rational line of treatment has been adopted. (1) In 1743 bleeding was employed but with harmful effect. (2) In 1767 Dr. Helvius found bleeding very efficacious. (3) In 1836 Dr. H. found bleeding decidedly often injurious. (4) Dr. James was reported as harmful. Agreement to bed is very essential until the fever has subsided. If the loss of necessary to continue it, when certain symptoms were severe, a short diet should be kept nourishing.

At the commencement an effort was found useful by P. Bach in finding. Beyond, in simple cases, the administration of astringents and diaphoretics, little was needed. In the more severe cases further medication

(1) A. of Influenza. 1743
(2) Dr. Helvius
(3) Dr. H.
(4) Dr. James.
was essential. Drugs appeared of no avail to check the malady when it was developed however in one or two cases I found Quinine 1/10 grain doses, paral at the very commence-ment of the malady, apparently to prevent a bilious attack. In the intense achyia of back, thighs, legs I had much relief from those of Soda Salicylate 1/20-1/30 grain doses every 3 hours (I did not observe any of the depressant effects ascribed to the use of this drug) Antipyrin has no advocate for the gryptonitis though as far as I have tried it the results were unsatisfactory. Sulfonal is as hypotonicious of some value. For the headache irritation of pain in the chest nothing appeared so beneficial as Opium, and during convalescence with cough a combi-nation of Ferric Acid, Cinchona, and Chlorodyne gave excellent results. Relieving the cough, aiding dejection & giving tone to the system. Quinine in small doses was useful in some cases during convalescence. For subsequent debility of Antimonials
the preparations of iron had frequently to be resorted to. In very many cases the employment of stimulants was a necessity, especially during early convalescence. As to local treatment—Scabies—purifies of ointments, of the lungs, and chest gave relief to the patient.