Influenza:

an Historical, Etiological, Clinical, & Therapeutical Enquiry.

being a Thesis in competition for the Degree of M. D.

by

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"In the whole history of disease there are few subjects of greater interest than those epidemics which under the familiar name of Influenza have prevailed so frequently of late years."

Sir Henry Holland: "Medical Notes & Reflections" P. 194.
Influenza.

After the lapse of nearly 50 years since its prevalence in pandemic form, Influenza has again been amongst us as a devastating power. So many are the points of interest with regard to it, that medical men everywhere have been carefully observing laboriously studying its manifestations, buoyed up by the hope of discovering some means by which it may be prevented, or some sure method of treatment with which to cope it, once its earliest symptoms have been reached.

What follows is an attempt to summarize the prevailing opinion with regard to points of practical interest about it, the writer having personally seen treated a considerable number of people suffering under the formerly mysterious "influence"; and having had opportunities of forming his own opinions with regard to some matters about which at present unanimity can hardly be said to prevail.

There are but few of those qualified to speak, I should fancy, who would now refuse to Influenza a place among the Acute Specific Diseases, even though the majority of
Living practitioners, to whom it appeared in 1889 almost as a new disease, were not at all prepared to allow it the property of infectiousness.

There are however some important differences between the disease we are now discussing and the Acute Specific Disorders:

1. The brevity (some would still have it), the absence of a stage of incubation.
2. The slight protection (if any) which it affords from subsequent attacks.
3. The prolonged period of convalescence.
4. The tendency to relapse.
5. The very marked tendency to complications.
6. The universality of its prevalence.

I proceed to discuss the disease under the four heads:—

I. History: II. Etiology.
III. Clinical History: IV. Therapeutics.

**I. History.** This we shall be able to discuss briefly.

The manner in which the melaena, which has been occupying so much public attention lately, is known, is supposed to have been introduced from Italy in the 17th century. An epidemic was raging
in North Italy at the time, ideas about astrology being less exact and scientific than in more modern times, it was considered due to the influence of the stars. In this country the name has survived, all others, even those which (though only in some respects) express a more correct view of pathology, etiology, and clinical history, e.g. "Epidemic Catarrh" or "Feber," notwithstanding the vigorous protest of many against it on the ground of its absurdity. In France, and some other continental countries, it goes by the name of "La Gripppe." Grant in his "Essay on Influenza," published in 1782, asserts that this name was derived from an insect called "la griepe" which had been remarkably common in France during the spring preceding an epidemic. The people connected the two facts, fancying that the insect had contaminated the air. In Germany, it is sometimes called "Russian Catarrh," and in Russia, "Chinese Catarrh," thus indicating the usual direction of its spread. It is stated that Jewish writers refer to it by the name of "Kurdakhi," from the origin they have assumed for it amongst the Kurds.

2. Ibid. "Epidemic Influenza." 1879. p. 3.
generally known of such recent origin the disease itself can trace of ancient lineage. It is believed to have referred to it, while epidemics described by different historians in B.C. 415, A.D. 827, 876, 976 are thought by some to have been influenza. Epidemics also occurred in 1173, 1239, 1299.

Before the 14th century the records are somewhat uncertain, but become more more reliable the nearer we approach to modern times. The malady is described in an Irish M.S. of the 15th century, but the outbreak of 1570 is the first occurring in the British Isles of which an accurate description is given. Some give a list of epidemics extending over 700 years, and it is thought that though the earlier accounts are not too reliable, yet the history of the disease may be followed into the remotest periods from which we have any information regarding epidemics. An apparent increase in frequency in recent times is observed, but this is probably due to more accurate observation and recording.

After having been absent from this country for the greater part of half a century it made its reappearance in 1876.

4. In the 15th century there were 6 epidemics:
   - 16th
   - 17th
   - 18th
   - 19th (through 1797)
its appearance here about October 1889, becoming widely diffused three months later, then dying out towards the end of February 1890. It had previously raged in nearly all the continental countries of Europe, having originated according to Heyfeldt in Bohemia in May of the former year.

In March 1891 it was imported into Hull from New York, spread rapidly in this neighbouring town, at a later date reaching London. It became extinct as an epidemic about July.

Once more it broke out:—this time in Dundee, whence it spread to Edinburgh, only reaching London in the beginning of 1892, some months later.

Thus the present generation of medical practitioners, with the increased knowledge of their time, improved instruments (e.g. the thermometers), for studying disease has had experience of these epidemics. Much has been learnt, and many new theories professed:—some waiting for their trial & inevitable effacement; others for that proof, which shall raise them from the place of uncertainty they now hold among ideas, to the firm & lofty platform of ascertained.

4. In “Report on Influenza Epidemic of 1889-90” (Local Govt. Board) by Dr. Parsons 1891, p.44.
facts,—to be a worthy addition to the sum of human knowledge.

II. Etiology:

Under this heading we shall have to discuss many of these theories, for it is in regard to this point perhaps that most of them have been advanced. Not understanding the theories of all kinds that have been upheld by some, it appears that only premise we approach any satisfactory explanation.

The fact that all the epidemics show such remark able uniformity presupposes a uniform specific cause; analogy, apart from the evidence lately accumulated, points strongly to this being a living self multiplying thing—a germ.

The ideas of the ancients as to the influence of stars and comets, (for on some occasions comets and epidemics were coincident), had soon to give place to more rational and probable speculations: nobody now stops to seriously consider Willis's theory that it was due to the effervescency of the blood from the approach of the spring season together with a stoppage or great constriction of the pores excited by the too great cold of the foregoing season.

2. Ibid. p. 13.
It has been ascribed to atmospheric conditions, the presence of irritant matters, inorganic or organic in the air, including in this contaminations produced by noxious of different kinds: meteorological conditions, to emanations from the soil, even in this the age of bacteriology, the action of pathogenic micro-organisms.

1. It cannot be dependent on **climate:**
   It occurs over the whole inhabited globe. 2. In cold countries, (Greenland, Iceland); in the tropics, (Australia, Polynesia, India); in parts of the world which enjoy a temperate climate, e.g. Europe & S. America. It is true that records from certain parts, e.g. Africa & S. America are deficient but we are not justified in taking this to indicate their immunity. Reports that we do possess prove at any rate that they do not always escape.

   The predominance of the disease in temperate latitudes is only apparent, being due to more efficient observation in these regions, as compared with tropical countries.

2. It is impossible ascribe to the influence of **season** any important causal agency. It has prevailed in the same locality in all seasons & in almost every variety of weather.

1. See p. 2
2. Krich: Vol. I p. 25
Of 125 epidemics, 50 began in the winter, (Dec. to Feb.)
35 " " spring, (Mar to May)
16 " " summer, (June to Aug.)
24 " " autumn, (Sept to Nov.)

In this table, winter shows a decided preponderance, but it is noteworthy that an epidemic once developed, runs its course through any one of the seasons of the year. In some tropical regions, the hot season seems to be the most favourable to the development of influenza. Thus of 26 epidemics in the tropics, 9 began in the hot season, 7 in the cold, 4 in the transition period.

3. What influence can we ascribe to weather? There have not been wanting those who have seen in this the efficient cause. Whitridge attributed the epidemic of 1775 to moist cold weather coming on suddenly after a lasting warm dry season, but Baker (1762) says "I never could be persuaded that it was reasonable to attribute the origin of epidemic diseases to changeable winds, or to measure their nature and character by the barometer."

It has occurred under the most varied conditions of weather. It has been frequent in summer with a high temperature and great dryness of the air; thus Braheau writing of Gibraltar in 1782 says the

2. Ibid.
epidemic, was attributed at that time to the extraordinary heat of the atmosphere. But it has also been prevalent during the intense cold of a long and protracted winter, while heavy rains or an atmosphere largely charged with moisture, have no effect either in the direction of causing, or preventing, the outbreak of an epidemic.

But again one can hardly doubt that, (as Fick declares with regard to Iceland), "states of weather have no effect on its origin, though they may affect its intensity." During cold and wet weather there is in the natural order of things a greater prevalence of bronchial catarrh, (as well as of other diseases of the respiratory organs), and this pathological condition probably provides a suitable place for the entrance of the germs.

"The evolution of influenza from bronchial catarrh" has been assumed by some, who consider the disease "a catarrh of heightened potency prevailing as an epidemic." This theory cannot be held by any who have observed how influenza occurs without any regard to the weather prevailing at the time, or how to widely marked off from the ordinary catarrh, due to the influence of weather.

It has, it is true, sometimes broken out after

2. "Gum attacks mucous membrane of respiratory passages better if congested.
   Landet, I. 90, p. 123
great meteorological changes, but has so frequently arisen under other circumstances as to deprive these observations of any value.

4. Haggé states that Influenza is a miasmatic disease, but it cannot be due to emanation from the soil or marsh, because it exists in places presenting every variety of soil. It prevails with equal intensity on marshy as on dry soils, on uneven as on porous; in valleys as on plateaus or hills; on the coast as in the interior. In fact it shows a ubiquity which belongs to no other acute infective disease. It would come more naturally under the 'miasmatic-contagious' class, being probably due to an infective substance which has also the power of multiplying outside the body.

A relation between Influenza and Malaria has been suggested. Previously malaria may have modified its clinical history to the extent of causing some of its symptoms to exhibit a distinctly intercurrent or recurrent type, but this may have been due to the more universal prevalence of malaria in former times.

Influenza and Malaria are essentially distinct, because
11. To know malarial affection spreading in the way that

(2) Spleen enlargement is only occasional in influenza.

(3) Influenza fails to show the marked amenableability to

irritation

(4) It prevails in districts where there is not possibility

of malaria poisoning.

5. Some atmospheric conditions, other than

those discussed under weather, have had to bear the stigma

attaching to alleged effluent agents in the causation

of influenza. If the real cause is indeed

something in the air, it must be one of the following:

(a) An electrical or magnetic force.

(b) A gas:—which may be produced from organic

substances by vital or chemical processes, e.g. decomposition.

(c) An inorganic molecular matter.

(d) An organic molecular matter, producing its

effects mechanically.

(e) A specific vital agent capable of reproducing

its like.

(a) Evidence of excess of electricity in the earth or

air must be adduced before we attribute to it

pathogenetic properties.

(b) Ozone was imagined by Schützel and others

to have irritating properties sufficient to account

for this disease, but are there any data in

2. See Parks: "Reynolds' System", p. 38.
support of the enormous excess necessary to produce an epidemic attaining to such world-wide dimensions?

Besides the malady is usually most prevalent in large towns, where ozone is present in hardly perceptible quantities.

(ii). In the accounts given of certain epidemics one frequently reads that a "stinking fog" preceded them. This could hardly be universal.

Craske says that "causal deductions from this may be relegated to the domain of fanciful, which the romantics of the profession have established in the province of etiology." 2.

(iii). Emanations from volcanic eruptions have been suggested as causes. Thus Dr. Proust advanced the theory that oleum nitricum, hydrogen thiol produced with regard to

There is no proof of its presence.

(iv). Want of ventilation in Russian churches has actually found some adherents. Surely, to state this is to refute it! - though no doubt the disease spreads more readily amongst those closely associated in a confined atmosphere.

(c). An inorganic molecular matter.

Dust from volcanoes may be carried in the air for enormous distances over land and sea. Right
The Hon. Rolfe Russell brought forward the suggestion that the dried yellow mud left by the overflowing of the Yangtze in China, blown out to sea, might have been the agent in the production of influenza.

Objection to any theory depending on dust:
1. The prodigious quantity which would be required to affect the huge area over which influenza spread.
2. The fact that epidemics often travel in a direction opposite to the prevailing winds.
3. The partiality of its incidence.

Though one would hesitate to attribute dust any importance as a direct cause yet it may (as might also the solid matters in fogs) have some indirect action by serving as a "raft" for evil organisms as suggested by Symes Thompson.


Spores of plants, or other substances, like the pollen that produces Hay Fever might conceivably bear a causal relationship to influenza. Perhaps the nature of the agent is not specified we should include here the contaminations produced by insects.

1. In a letter to "Times" quoted Symes Thompson, p. 418.
4. Spores are said to be capable of producing Pneumonia in animals. "Lancet," I, 91, 1338.
in the popular imagination, in the accounts of the older chroniclers.

Arguments in favour of the Atmospheric Hypothesis may be stated thus:—

1. The rapidity with which the disease was supposed to travel: 2. Its almost simultaneous outbreak at places distant from one another: 3. The seizure within a few hours of a large proportion of the population of a place.

Most of the accounts of this simultaneous seizure of multitudes are not quite recent; such observations have not been confirmed in late epidemics.

The rapidity of spread has probably been exaggerated, yet without doubt will be amply accounted for by the considerations urged under the head of "Infection."

If the cause really resides in the atmospheric condition it is impossible to account for its partiality. Why for instance should prisoners escape when the disease is raging in the town where the prison is situated? Why should the disease appear earlier in towns than in the surrounding villages? How can we account for the slowness of its diffusion, — for it never moves with the same velocity as the wind?

1. For instance, Scheffer (1729), "The day the disease reached Plymouth, numbers were suddenly seized; the day afterwards its fulmination in multitudes."

2. Of Gray (1792) this slanderous insinuation in the "Annals" T.T. p. 33.

Proofs of the disease may be easily accounted for if we admit that it was conveyed by infected persons, but if we suppose it was conveyed by air, the difficulty is insuperable. "Annals" T.T. p. 144.
Though the cause must not be looked for in any condition of the atmosphere apart from contamination by germs, yet it seems probable that the atmosphere may be concerned in the spread of the disease. Perhaps the germ can multiply not only in the blood of the patient, but also in the air, in this respect resembling the germ of the fever which is believed to have the power of multiplying outside the organism.

(E.) As early as the 18th century some observers had asserted for influenza a specific cause of the nature of a "miniatum," or organic morbid portion of animal or vegetable origin, carried in the air. Sir Henry Holland refers in an almost prophetic way, in his Chapter "On the Hypothesis of Infect Life as a Cause of Disease?" to the germ theory, which Sir Thos. Watson considers a more or less probable hypothesis.

These "guesses at truth," expanded and developed in the light of modern science, now I suppose almost universally hold the field. Influenza must be added to the list of the diseases caused by the ravages of the micro-organisms.

Before discussing the recent researches into the

1. B. M. T. I. 92, 250.
subject, let us allude to the relation between influenza as it affects man, the similar disease occurring in the lower animals. Horses are the most frequent sufferers, though dogs, cats, even birds are said to have suffered. This connection has been observed too often to be accounted for on the ground of coincidence alone, even allowing for the vagueness with which the term "horse-influenza" is used by veterinary surgeons. Not only is there this coincidence with regard to place and time, but there is such a similarity in the symptoms as almost amount to identity, and thus affords a strong presumption in favour of some etiological relationship, which is not yet clearly made out.

In the symptoms gathered by Theophilus Thompson regarding the epidemic of 1803 several of the writers mention the occurrence, at the time of the human visitation or slightly before of an unusual amount of sickness, frequently fatal, in the lower animals:—cows, dogs, horses, swine and horned cattle being affected. The horses suffered from a severe hard cough, difficult respiration, fever and great prostration of strength. The conjunctivae are congested.

3. Ibid.
(whence the popular name "Pink-eye"), the heart of the appetite fails. It terminated favourably by a plentiful discharge from the nostrils, but some died."

In 1833, Strugesow says, "In London concurrently with the prevalence of the disease in men, horses were affected with influenza." It appears to have given evidence of its infectiousness in that while isolated horses escaped those congregated in large stables were most affected. It cannot however be conveyed from one to another by inoculation. Mr. Caird reported in "The Lancet" some cases which would go to prove the possibility of the communication of the disease from horses to men, but sufficient evidence on this head is not forthcoming.

Before the epidemic of 1889 both in London and elsewhere in England, and also in some continental countries, an epidemic occurred amongst horses. In 1892, the neighbourhood of Normanton several coal-pits had to stop work, because of the number of horses affected.

The four following conclusions summarize our present knowledge on the subject:—

In epidemics of a similar disease in certain lower animals, especially horses.

(2) That such epidemics have on some occasions occurred in men independently of any connection with disease in the lower animals & vice versa.

(3) That having regard to the similarity of the symptoms of the disease in men & horses, there is a strong probability that the causes of both are similar, as in the case of smallpox & cowpox, though their identity is at present problematical.

(4) That there is no sufficient evidence to show that the disease can be communicated from animals to man, or from man to animals.

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The Microphytic Theory.

It would hardly be possible at this stage for a disease presenting such peculiarities as influenza not to have claimed for it an etiology dependent on the action of germs. There is reasonable prima facie evidence in favor of this explanation. That a microbe is suggested by the epidemic character & by the infectiousness of the disorder. The spread of epidemic disease from one person to another can only be explained by a
living self-multiplying germ. In the last few months the discovery of the actual morphic agent has been announced as a fact accounted for.

Remembering the difficulties of bacteriological research, it is becoming to wait for convincing evidence before jumping to the conclusion that any particular organism discovered and described is the actual efficient cause of the disease under consideration.

Many of the observers have been patiently searching for an organism in the blood or sputum of patients to which they might attribute the influenza-producing power, but many of these investigations have failed in their object.

Recently, however, Pfeiffer and Kitasato have isolated a bacillus from the sputum, and Canové has found a similar one in the blood. Klein generally confirms these results.

It is interesting now to note how near other observers, notably Bade of Bucharest, had previously come to discovering this very organism. He was able to trace wherein they failed.

Pfeiffer reports on the examination of 31 cases in which he made an autopsy.

1. Bisley p. 15.
His conclusions are as follows:
1. In all the cases a bacillus of a definite species was found in the purulent bronchial secretion.
2. This organism was found exclusively in cases of Influenza. Control examinations proved its absence in ordinary bronchial catarrh, Pneumonia, & Pneumocystis.
3. The presence of bacilli kept equal pace with the disease; with the cessation of purulent bronchial secretion, bacilli began to disappear.
4. Pfeiffer says these two years ago in Influenza epidemic.
5. Bacilli appear as very tiny rods. They stain with Leif's solution or hot Leif's reagent better than with basic aniline dyes. As a rule the two ends of the bacilli take the stain more intensely so they are difficult to distinguish from diplococci or streptococci.
6. They can be obtained in pure culture. On 1/2% sugar agar the colonies appear as extremely small droplets, clear as water, often only recognized by a break.
7. Inoculation experiments were made on apes, rabbits, guinea pigs, rats, pigeon & mice. Only in apes, rabbits were positive results obtained.
8. Pfeiffer considers this bacillus the exciting cause of Influenza.
9. Probably the infection is produced by the spore.
charged with germs. Disinfection of the sputa is therefore urgently called for.

Kölscher agrees with the above in the main, but emphasizes the difficulty of obtaining pure cultures. He has however succeeded in propagating it to the tenth generation. He notes the drop-like colonies on agar, which are so small as to easily be overlooked. A particularly remarkable point about these is that they always remain separate from each other. He has studied the micro-organisms that occur in the sputum, but the present bacillus, to extra-ordinarily characteristic in its cultures, was easy to recognize, he has never met with except in influenza patients.

Cario obtained pure cultures of an organism similar to the one described above from the blood of influenza patients during the continuance of the fever.

Klein confirms with regard to cultivation, of the bacillus found in the sputum, in broth and on agar: that in one case out of six examined in the febrile stage he found the characteristic bacillus in the blood.

Barozzi of Muleri claims he discovered the bacillus described by Pfeiffer in Dec. 1891. He did not succeed in obtaining pure cultures. He
agrees with Pfeiffer, in stating that this bacillus is always found in the sputum of influenza patients, and never in sputum from cases of other broncho-pulmonary diseases.

Bruschettini of Bologna confirms Bouchard's observations as to the constant presence in the blood of patients in the acute stage of Pfeiffer's bacillus. He obtained cultures in the blood of a patient transferred to artificial nutrient media, where it grew luxuriantly.

Cornelio Chautemps inoculated a drop of blood from a child suffering from influenza into superficial vein in a rabbit ear. The next day the blood of this rabbit contained microbes answering to the description of Bache and Pfeiffer. From the rabbit they transferred the virus to a monkey, which suffered from extremely profuse diarrhea, with pyrexia, prostration, and drowsiness; which lasted several days, the fever being followed by a subnormal temperature.

According to the authorities mentioned above:—1. The bacillus is constantly present in the sputum, though sparingly, in the blood in cases of influenza, is not to be found in cases of other broncho-pulmonary diseases.

2. It has been obtained in pure cultures
3. And having been inoculated has produced the disease in certain animals.

All this points irresistibly to the conclusion that the vera causa of the disorder under our consideration has at last been discovered. Further investigations will be required, especially with regard to the third point above, before we attain to certainty.

The difficulties encountered in this search are very considerable. There is (1) the difficulty as regards the spurious or non-spurious nature of the particular organism from those usually found in the mouth; (2) the variation of the germ; (3) the difficulty of staining it; (4) the difficulty met with in cultivating it; (5) the small size of the colonies; (6) the rapidity with which these colonies lose their vitality; (7) the insusceptibility of certain animals, e.g. mice, guinea pigs, rats, etc., on which inoculation experiments were performed.

The Question of Infection

is one of supreme importance, one which until quite recently has given rise to much discussion.
"When once we have established for Influenza a place among the infectious diseases, we assert for it a position among those diseases over which we habitually exercise a measure of control. Moreover, complete unanimity prevails at present regarding it as capable, to some extent at all events, of being transmitted from affected persons to healthy individuals.

In all the records of the different epidemics this question has come up for discussion, there have rarely been wanting at least some few to maintain that Influenza was essentially propagated by contagion. The way in which it spreads from one country to another has been observed from very early times, also the fact that the disease frequently broke out at a previously healthy place on the arrival of a person from an infected area; but the shortness of the incubation period, the fact that the earliest cases (which yet were capable of conveying infection), were often not distinguishable from ordinary catarrh, made the outbreak appear so rapid as to be unaccountable on the score of infection.

The obstacles to the solution of this problem are not the under-rated. When an epidemic is

2. Dallin called it "catarrhus a contagiosus." (Anatomy); but Watson (loc. cit.) says, "it is too sudden a simultaneous for its spread the due entrench to contagion, though it may be in some degree infectious."
rapidly widespread it is difficult to determine off-hand whether the disease is personally infectious or conveyed through the air. The complex conditions of modern civilization, the crowding together of multitudes in cities, the vastly increased facilities for human intercourse, all add to the difficulty of an enquiry. A few authors still teach that influenza is not contagious. This seems to be the prevailing opinion among French, German, and Austrian physicians. Others admit its contagiousness, but teach that this factor has little influence on the spread of the disease. Dernsch throws in all the weight of his authority against the contagious hypothesis, but his reasons are by no means conclusive.

Kayzart is, while expressing the opinion that this disease is propagated by contagion, admits that the rapid spread of the disease requires explanation. He states the following reasons why it spreads so much more rapidly than most other infectious diseases: 1. The patient is frequently able to go about his ordinary duties, and thus mix with susceptible people throughout the whole course of his illness. 2. The rapidity with which people were able to travel. He notes that the guileless who brought the disease of Cholera from London to

1. Sickel: Ch. II. p. 454 sqq.
1792 travelled the 182 miles between these two places in 27 hours. How much more should this apply now when the same journey could be accomplished in a little over 4 hours?

3. Owing to the long intervals between the various epidemics, the slight protection (if any) afforded by previous attacks, an unusually large number of persons are found the susceptible at the time of an outbreak.

4. The brevity of the latent period as compared with other diseases.

1. The disease has never appeared in this country except as the result of extension from neighbouring countries. The epidemic of 1790 which spread like a plague in France, the Low Countries was brought into England by disbanded soldiers. It was a catarrhal fever called "Dundieke Erk" or "Dundieke Aques." 2. "Quint of Dublin [1762] says that it is "plainly a disease of foreign extraction, having visited Copenhagen a month before it reached London, London a month before it reached Dublin." 3. 4. Baker doubts its infectiveness but records that it was unknown in Britain until it invaded London, was unknown in many towns until those who had

2. Ibid. p. 28.
4. " Ibid. p. 76.
been first affected, had recently arrived from
the metropolis.

It is of considerable
interest to notice that in 1889, 1891, and 1892 the East
coast was first affected—London, Hull and Dundee
being respectively, the starting places of the epidemics.

In 1891 the earliest cases in Hull were sailors
who had just landed from one of the Wilson liners,
many cases having occurred at sea, some having
been fatal. In 1892, Dundee and Edinburgh
suffered severely, but Glasgow escaped lightly.

2. It spreads along the lines of human
intercourse.

Thus in this country London
or other seaports on the E. coast first suffers,
subsequently it spreads to other large towns
on the continent, capitals, &c., as a rule were attacked
before the towns of less importance.

In 1889, London was affected as early as Colchester,
Manchester, November, while Colchester, Canter
bury, Chelmsford, Oxford, Liverpool were not
attacked till the following January. Thus
have succeeded later in the month. Some
country places escaped the epidemic till February
or even March.

Sich denies that its
spread is dependent on human intercourse.

Influenza is less common in country places, when rural districts are attacked, it is found a rule that they do not suffer until a variable time after the market or other principal town in the neighbourhood. In the account of the epidemic of 1782, prepared by a Committee of the Royal College of Physicians, it is stated that the disease appeared earlier in towns than in villages, two villages earlier than six detached houses in the neighbourhood.

Isolated cases precede an epidemic. In every case in which this question has been carefully attended to from the very first, it has been found to be the case, it appears extremely probable that it always has been so, just as in the case of many other infectious diseases. The want of evidence on this point one may put down to the failure to distinguish the first cases from those of ordinary sporadic attacks. The sudden multiplication of numbers in previous epidemics, if the accounts can be accepted as true, has certainly not been observed in later times. The argument depending on the affliction of the crews of ships at sea, requires that


all possibility of infection should be carefully eliminated. In many of the classical instances this was not done.

5. The epidemic begins gradually, increases to a maximum and then gradually dies out. This is usually the case in epidemics of the infectious diseases. A few cases occur in the district from infection from without; these in their turn, coming in contact with susceptible persons, pass the disease on to them; then, as those exposed to contagion are rendered insusceptible, the outbreaks gradually decline and finally become extinguished. "No family was affected en masse; where the disease did not first appear in some individual of it." 1


Thus Kaygar says, that none were affected at sea, but when they reached an infected port few escaped. 2 In the epidemic of 1803 facts of this kind were recorded with regard to workhouses, asylums &c. &c. 3, 4 Strick gives many interesting facts of this kind. He notes that the inmates of Charlottenburg escaped, though the disease was prevailing in the town; quoting from the 13th Report of the Commissioners of Prisons.

that in even gaps it did not occur at all. Even though it was raging in the town in which they are situated, while of those which were visited by the disease, it is frequently recorded that it was introduced by the officers or prisoners recently admitted. In the epidemic of 1891 the only public place in Porto not seriously affected was the prison. It is difficult to explain these facts apart from the theory of contagion. Several instances of infection from letters, parcels or clothes have recently been made public.

Mode of Progression.

1. In epidemic (or pandemic) character. There is no other disease which shows such a typical epidemic character as influenza. It never occurs except as an epidemic of greater or less extent (at all events in places from which information is the best), in some of its outbreaks has spread over the whole known world, though sometimes it has been confined to certain more or less narrow limits. It contrasts with every other disease by its universal diffusion. Sometimes it has been limited to the Eastern Hemisphere & sometimes to the Western, while at other times hardly a country of the globe

1. SLIGER: P.P. 92 & 93.
has been free from its ravages.

Not only is it universal as regards its superficial extent, but also as regards its personal incidence. When it prevails an unusually large proportion of the population is affected. Thus Night (Edinburgh, 1753) says that "not one out of six or seven escaped." Sir Henry Holland considers that in 1637 half the population of London were affected. 2

Peacock estimated that in 1847-8 at the very least 250,000 people were affected in the metropolis, while more probable that a quarter of the whole population suffered. At this time in Paris from one quarter to one half, in Geneva not less than a third of the population were attacked. 3

2. Its Alleged Periodicity:

Some have discovered a periodicity in the recurrence of Influenza, but for this there is absolutely no foundation. The older writers considered that it returned regularly every one hundred years. This is manifestly erroneous as in each century since the 14th several epidemics have been recorded. Fraden Torstow writes with regard to Iceland, "There is nowhere upon the existence of former times, a custom that this infectious disease breaks out every nine years, but that inexplicable periodicity has not been kept.

2. Ibid. to to "Reflections", p. 178.
4. Parkes, p. 32.
up in more recent times? Also considerable epidemic has occurred between 1848-1889 and the interval in this case is more than 40 years.

3. Is suspected endemicity.

Influenza occurs in this country only as the result of extension from abroad. Probably this may be said also with regard to the whole of Europe, and a home has been claimed for it by some in some remote part of Asia, e.g. Chinese Tartary. Epidemics usually seem to take their rise in Asia, (early Jewish writers considered central Asia the their birthplace); this has given some show of reason to the supposition.

Dr. J. M. Atkinson, Superintendent of the Government Civil Hospital, Hong Kong, in a communication to the B. M. J., refers to the "ordinary endemic influenza which is always the met with here during the winter months." But it is possible that he is referring simply to the catarhal attacks due to the weather, which are certainly endemic in this country, but have no relation to the epidemic disease. He also quotes the Medical Reports of the Chinese Customs service, which state that cases of influenza occur sporadically in Summer. Others have stated that it is endemic in countries within the cold zone, viz. Iceland, Faroe Islands or Greenland, but again

we probably have only to do with the widely diffused, catarrhal attacks of winter and spring. True epidemic influenza is not more common in Asia
and than elsewhere, occurs at the time when it is prevalent in other parts of Europe. There is not sufficient evidence at present to enable us to fix
with any certainty the birthplace of these epidemics, which have written themselves in the history of the
world.

4. Its assumed Line of March.
Influenza has been credited with a regular progress
in a more or less definite direction from East to West or South-West. This has
been the more usual direction, though there have been
notable exceptions. Sometimes the disease has
travelled in the opposite direction, sometimes
from N. to S., or from S. to N.

It has usually progressed successively from
China to Russia in Asia, Europe, hence to Germany,
Austria, France, Great Britain, & N. America,
but in 1761 it spread from S. America to Europe.
Its more frequent line of march corresponds roughly
to the direction of the greatest amount of human com
munication.

The progress of the disease from
one country to another as a rule occupies time. Though in 1880, it has been found that it spread over Europe in six weeks, it more often takes longer, e.g. six months or more. It usually prevails in a place in weeks or two months, though on some occasions it has lasted much longer.

Circumstances which modify its incidence.

1. Age: according to some authorities has little or no influence on the incidence of this disease. Others state that children are less subject to it, while in the records of certain epidemics they are said to have suffered more severely than adults. Infants appear to be almost exempt, but in 1889 Dr. Barton of St. Kewington reported a fatal case in a newborn child. I have not seen any cases in quite young children, but apart from this I have not noticed any special predisposition or immunity on account of age. Glass in 1775 remarked that children were less subject to it than adults. In 1762 Baker says that children suffered lightly. In Boston (1825) children only were attacked after 4 or 5 months later the adults suffered. It was noted last year at Berlin and Newcastle on Tyne.

that children were specially selected by the disease. More of Dublin (1889-90) states that “very young children seem to enjoy a certain immunity from influenza or to have the disease in a mild form: that often ephemeral fever followed by profuse sweating after a few days by profuse catarh.”

Buchanan of Greenock believed that in recent epidemics children were almost exempt, but this is hardly in accord with the experience of the majority.

Persons of from 20 to 40 years old are perhaps the most susceptible. Older persons are probably somewhat less susceptible but when attacked they frequently suffer very severely and often fatally.

2. Sex. Some difference of opinion is manifested on this point. While Fagg states that the disease is more common in women than in men, Vere 1803 as many as four-fifths of the Bishop’s cases were females. In 1882 Hightwick considers that males are more susceptible.

Gray in his “Medical Communications,” referring to the Epidemic of 1782, said that there seems to be little or no difference in its incidence as regards sex, probably the majority of observers would concur in this statement, as regards our modern observations.

1. Quoted. B.M.I. 92 f. 215
2. B.M.I. 91 f. 1235
3. Vol. II. p. 278
5. B.M.I. 92 f. 246

Influenza is not so universal amongst the poorer population of our large towns, nor when it does occur is it so severe or so frequently fatal. In proportion to the population the epidemic is considerably less fatal in East London than in any other part of the metropolis, while the Western districts show the highest proportional fatality. Dr. Boultman tells me that in his experience the disease is more prevalent among the well-to-do than among the poor. This is explained by saying that the chief stress of the disease falls on the nervous system, and that those whose nervous systems are more highly developed are more predisposed to suffer. But it seems true that the poorer people with their greater liability to chill, their more frequent exposure to privation, their less physical overwork, the greater proportion of alcoholics, consumptives, & persons suffering from Chronic Bronchitis, Bright's Disease among them, would be as likely as a class, with these predisposing causes, to suffer, as would the more wealthy, with those others: viz. worry, anxiety, and mental overwork, while the greater facilities these better persons for obtaining medical attention, medicine, & nourishment.

together with their greater opportunities for self
taking care of themselves should, once the disease
has been set up, ensure a lighter attack
and a more speedy recovery.

4. Liability of Natives - Exemption of Strangers.

Ainscow states that while conditions of race have
bearing on the distribution of influenza yet the
natives of a place sometimes suffer, while strangers
are exempt. I have not heard of any such
peculiarity in the last three epidemics, am
quite at a loss for an explanation.

5. Previous Attacks.

"Does one attack of influenza protect from
another?" is a question of considerable practical
interest, which is answered by some in the
affirmative and others in the negative.

Darke says "One attack is not preservative in
future epidemics," and it is probably correct
when there is a considerable interval between the
outbreaks.

Since the first of the three last
visitations some have come to believe that though it is
not a complete protection, several people having had
it twice or even three times, yet there is a certain
amount of protection conferred by one attack.

Some consider that the first illness actually predisposes

to a second, but this is hardly tenable.

Dr. Sidney Davies' inspection has a certain amount of protection it is afforded, though this is less perhaps than in the case of other infectious diseases. Out of about 2,000 cases in the three epidemics he had only seen three persons who had been twice the subjects of the disease. Of 1,350 cases seen by Frankel only 9 had suffered previously (2% i.e. 6.5%).

As leading to the same conclusion it has been observed that in households severely attacked this year, members who had previously suffered excepted, those that certain villages greatly affected last year have escaped lightly or altogether this year or vice versa.

An opinion has been expressed that influenza is"denique modified by our northern latitude. The three most prominent points of distinction appear to be: (i) the absence of an exanthem in influenza; (ii) the rarity of complications in dengue; (iii) the fact that the latter disease attacks all ages indiscriminately. A further argument against their identity is found in the fact that influenza in its course invaded some districts in which dengue had only recently prevailed.

1. B.M.J. Jq. 192, p. 246
2. Protection not complete as usual in specific fivers. "Influenza" by Sydenham J. 1890. p. 105.
3. Ibid. p. 288.
4. B.M.T. Jq. 192.
5. "Influenza" by Sydenham J. 1890. p. 105.
6. B.M.T. Jq. 1921.
Clinical History.

After exposure to infection, the source of which of course cannot be invariably traced, for a certain time no symptoms are observed. This statement is contrary to the opinion of many of the older chroniclers, who believed that influenza was not propagated by contagion, or failed to observe any period of incubation. Much attention has lately been directed to discovering the duration of this latent period, and evidence is now forthcoming to show that influenza differs from the majority of the acute febrile diseases in the shortness of its incubation period. While in scarlet fever or other exanthemata as an exceptional occurrence symptoms occasionally appear within a very short while after exposure to infection, influenza as short incubation is the rule and one the exception. It is now usually stated that from 2 to 3 days, the former period being the more usual, though cases have been reported in which it could not have exceeded a few hours.

Dr. Boulting reports an interesting series of cases in the B.M.J., going to strengthen the evidence in favour of a two or three days incubation period.

The incubation is sudden. Sometimes

2. 2, 9 days "acute" (S. J.) p. 65.
6. B.M.J. 41, 1894.
however there is a prodromal feeling of malaise, lasting from 24 to 48 hours without rise of temperature; and there may be accompanying chilliness. More rarely one notes indisposition of a few days duration.

The attack may begin with a feeling of coldness and shivering, which occasionally actually amounts to a rigor. Severe giddiness is a frequent early symptom, and some recorded cases have begun suddenly with syncope. Sir A. C. Hall tells me that he has seen one or two adults in whom the disease began quite suddenly without there being any antecedent history of similar seizures. This points, I suppose, to the powerful depression the malady makes on the nervous system. In children, as in some other acute disorders, the attack sometimes begins with convulsions.

Following the shivering, intense (usually frontal) headache, which in the back region may increase very severely, give cause for complaint. The temperature rises very rapidly, and attains its maximum frequently within the first day or two. The thermometer may register 103° or 104° on the second day. Hyperpyrexia has occurred in some instances.

2. Ibid.
3. B.M.J. 1891, p. 495, 1892.
The temperature remains up for a variable time, then gradually falls reaching the normal or slight from one to three days from the onset in uncomplicated cases. The fall in temperature is preceded by profuse sweating, sometimes hypostaxis or diarrhoea, is accompanied by a remission of the severe headache to other pains, but the prostration and debility remain for long afterwards.

During the recent epidemics several cases have been noticed in which the temperature was normal or subnormal, or but very slightly elevated throughout. This seems to have occurred most in cases that would be classified as belonging to the 'Nervous Type' of the afterwards described.

It will simplify further descriptions if we classify the symptoms under the three heads which indicate the chief types of the disease. This division is objected to by many, among them M. MacKellar, who considers that there are as many types as individual affected. It is however convenient enough, and had many opportunities of testing the distinction among the cases under my own care.

2. B.M.T. T. 91, p. 123. Dr. Poultney has seen such cases, he tells me.
The chief types are: (1) The catarhal
(2) The gastric or abdominal (3) The nervous.
Some add a 4. the arthritis to include those
cases in which rheumatic symptoms are
prominent. One must premise
that there is of course no hard of fact line
between these different forms. Though in
any case the symptoms may be most readily
referred to one of these types it frequently happens
that the types run into one another, produce
mixed forms.
I am aware that
some have introduced another division, viz. the
pulmonary, but let us object that it is bringing
in a classification according to complications,
the pulmonary condition not being part of the
primary disease. That as a matter of fact as a
general rule pulmonary complications supervene in more or less markedly catarhal cases.

I. The Catarhal Type:
In former times catarh was looked upon as an
essential feature of this disease, witness the name
given to it in scientific works: "Epidemic Catarh"
(A. C. P. Nomenclature). But the outburst of
1589-90 it was some little time before medical

1. Peacock. 2. B.M.I. 1921. 3. 214.
men were prepared to accept bad influenza cases, not presenting this as a prominent symptom. In this epidemic the coryzal symptoms were not well-marked, only occurred in from a third to a half of the cases. In well-marked cases of this type the other concurrent symptoms are overshadowed by the catarh. It commences with extreme hyperaemia, leading to swelling and dryness of the mucous membrane of the nose, frontal sinus to a less extent of the conjunctivae, causing photophobia & lacrimation. The nasal secretion is at first diminished, during the stage of congestion, which causes the distressing feeling of stuffiness & loss of the sense of smell, later is much increased. At first it is thin mucous, but afterwards becomes purulent. Sneezing is frequent. Epistaxis occurs sometimes during the stage of congestion. The pain at the root of the nose over the forehead is attributed to the extension of the catarhal process to the frontal sinuses. The mucous membrane of the respiratory tract is similarly affected, causing a feeling of tightness or constriction at the chest & dyspnoea, which is often urgent & of an asthmatic character, I have seen very marked cyanosis in cases.

1. Influenza : Sy.T. p. 399.
2. This sometimes has a salutary effect in relieving the severe frontal headache. B.M.T.I. 92. p. 289.
where the auscultatory signs were absent but slightly marked. The respiration rate may be accelerated. There is a liability to suffocate attacks.

The respiratory distress in complicated as well as uncomplicated cases is sometimes like the cyanosis, out of proportion to the change that can be detected on physical examination. These symptoms become somewhat less urgent when cough expectoration is established, and this time one hears on auscultation a few rales or rhonchi.

The mucous membrane of the mouth and larynx are not infrequently implicated also. Tökői describes a punctiform redness of the mucous membrane of the palate resembling measles, which he states is characteristic of influenza.

Dryness of the throat followed by more distinct roughness is usually present. The respiratory tract is affected throughout its whole extent from the larynx, causing laryngeal, bronchial, and tracheal obstruction, to that of the smallest bronchioles. The affection may proceed from above downwards, or it may affect all these parts simultaneously.

A dry hard frequent cough, described as ‘hacking,’ is almost constantly present; it is sometimes very violent. Expectoration is at first absent.

1. Quoted by Barlow, J. 140.
Later thin, watery, while, there is much secretion of the bronchial mucous membrane, it may be abundant and mucopurulent.

Resuscitation of the respiratory sounds are dry harsh especially at the posterior inferior regions of the chest. Fine moist rales or bubbling sounds can be heard on forced inspiration. It is stated that in uncomplicated cases there is an unpaired note of actual dulness on percussion at the base of the lungs, most usually on the right side only, accompanied by tubular breathing and increased vocal resonance.

Dr. Fitzgerald has suggested that certain epidemic pneumonias, as a more appropriate name than influenza. This condition is said to clear up very rapidly without expectoration, to be explained as being due to exudation of a non-inflammatory kind such as one sees in subcutaneous urticaria. I have not satisfied myself that this is a constant condition in ordinary cases, I should hesitate to accept this very general statement, though I have seen one case which would answer to the description given.

The skin is as a rule dry, but at first, but this soon gives place to a comfortable moist condition. Sometimes there is profuse perspiration in the

3. See p. 43.
early stages, and under these circumstances the attack frequently aborts. The perspiration may be
boum-smelling, and so profuse that bedaubing mays occur.
There is no characteristic eruption, though occasionally rose-coloured blotches are present.
Erythema or urticaria has been noted. I have read
of cases in which there was a rash resembling scarlet
fever or measles, of an erythematous or papular character,
which was usually followed by desquamation, which
may begin within 48 hours of the appearance of the rash.

Sykes Thompson says that the rash most fre-
quently makes its appearance in those cases in which
it does occur, on the second or third day, may last
from one to four days. It may affect the face
and neck may extend to the chest, spreading over the
trunk to the inner aspect of limbs, especially the
legs. Rashes may be caused in consequence of the
drug administered. I have never seen
any abnormal condition of the skin, except
Herpes. This I have observed in many cases
on the face (lip regidum). I once saw an
extensive eruption on the scalp above the brow
with none elsewhere; and another patient exhibited the
characteristic vesicles under the chin as well as
round the mouth.

Among other symptoms referable to the different systems we have:

**Alimentary System:** Tongue usually moist covered with a white, creamy film; more rarely it may be dry in the morning. It is sometimes however persistently dry and brown.

I have treated cases of simple influenza, mostly in old people, where this condition persisted for several days.

Sir A. Holland observed a peculiar vividness of the tip of the tongue even though it was coated elsewhere.

Appetite is completely lost during the acute stage, but gradually returns with the fall of the temperature to normal. Thirst is considerable.

**Constipation** is the general rule, though we may find in catarrhal forms as well as others, especially at the appearance, some diarrhea.

**Hematopoietic System:** Spleen sometimes enlarged. Willoughby says this is a constant symptom in acute enteric fever.

Noble describes changes in the blood. He states (in this Remzi agrees), that the quantity of the hæmoglobin in the red blood corpuscles is much diminished. He also describes parasitic mounds, similar to those he had seen in aqueous purulent amebic in the red corpuscles as many as two or even four.

being present in a single corpuscle. The affected corpuscles become spherical & paler in colour. The number of the red corpuscles is only slightly reduced.

**Circulatory System:** The heart is intensely affected, & sudden death from cardiac syncope has occurred. The left ventricle is almost constantly dilated. The pulse is frequently irregular, & the rate is considerably diminished. It may fall as low as 60 or even 40 per minute. This may last for a long time during convalescence. The walls of the blood vessels are altered, giving a liability to hemorrhages from nose, lungs, stomach, bowel, or uterus. Haematuria, hemorrhage, and retina may occur. Potamodyne, ecchymoses may be found on surface of lungs, under mucous membrane of stomach &c., & in the cerebrospinal system.

**Urinary System:** Frequent micturition is sometimes observed. Urine in some cases is copious & dark; more frequently it is diminished in quantity & deposits urates copiously on standing. Sometimes there is slight albuminuria. Vesical catarrh or even cystitis has been present.

The Catarrhes are sometimes reduced.

3. Parker. F. 44.
Nervous System: Great prostration and nervous depression, out of proportion to the duration or severity of the fever, are constant accompaniments of all forms of Influenza. The pains are neuralgic or muscular. Insomnia, not in relation to the fever, is very distressing. They may occur even in the absence of fever.

II. The Gastric or Abdominal Type:
consisting of cases whose most marked symptoms relate to the abdominal organs. Preliminary malaise is more common in this form. Much that has already been said applies here also. Following or accompanying the shivering there is a rise of temperature, there is great nausea. Vomiting occurs early, colicky pains, flatulence, diarrhea suprernce. Blood may occur in the stools. The diarrhea may occur at the beginning of the attack, or is then a symptom of the form we are now discussing: or may occur later, the so-called 'critical discharge.' In the absence of any of the three types. Symptoms of catarh of the respiratory passages may be altogether absent or may occur, usually only slightly, subsequently. Headache, pains in the limbs, loss of appetite are

present in this form also. A sense of weight in the epigastrium; a feeling of fulness with pain and tenderness in the right hypochondrium, are often complained of. The conjunctiva and general skin surfaces may show distinct icteric discoloration.

Two cases of this kind, in the same house, the husband being attacked a day or two after the wife, were under my care.

Such cases have frequently been mistaken in the early stages for enteric fever. The case of N. P. bears this out, but here the general bronchitic condition and the early changes at the apices introduced further difficulties in diagnosis.

The gastric type is sometimes complicated by rheumatic symptoms: the pains becoming articular instead of muscular or neuralgic. The joints may swell. These cases sometimes exhibit a marked tendency to remit and then to recur, the pains in the head elsewhere becoming less marked during the day and increasing in severity towards night.

In the epidemic of 1877-8 deaths returned as due to 'rheumatism' were considerably above the average. Peacock believes that many of these were really cases of influence of this description.

1. See p. 444.
III. Nervous Type.

So striking are the indications of the serious effect of this disease on the nervous system, that some would have us believe that influenza in its very essence is a disease of the cerebro-spinal nerve centres; to express this the names 'centro-neural fever' and 'neurasthenic fever' have been proposed for it.

Others, with more show of reason contend that it is a general disease, the poison of which acts with special proximity on the nervous system. This can, it seems true, be hardly denied when one takes into consideration the great protraction of debility out of the proportion to the severity or duration of the fever which accompanies all forms of the disease. In this type there is a special development of symptoms relating to the nervous system, the complications which ensue fall with special severity here.

Elevated temperature and the other symptoms common to all the types are present. Pain is especially severe and is disproportional to the pyrexial state. They occur febrile...

1. B.M.J. I. 92. p. 244
or behind the eyes or across the forehead; rest and back
of the vertex, occiput, thence to the spine, tetramyes
being especially marked across the brow.
Tenderness on percussion along the spine had been
recorded by some observers, most marked at the level of
the medullary enlargements. Altered
crenation, unpaired power of mental concentration
(these may last for a long while; Dr. Boullier tells me
that he was unable to study for some months after he had
suffered from this disease). Loss of memory, depression
of spirits, irritability, difficulty of verbal expression,
vertigo, tetamyes auriculae, sight faults & illusions:
Polyuria. Loss of ocular accommodation, cardiac labil
+ irregularity, ceaseless sweating, loss of muscular
energy, loss of body heat (from 1° to 3° below normal)
occurred subsequently & indicate what a powerful injury
had been made on the higher nervous structures.1
Sleeplessness & delirium are frequent in the
febrile stage, & the former may remain in convalescence.
A case under my care showed most
violent delirium when recovering from a com-
plicating Pneumonia with a temperature above
over 100° 2.

I have already referred to the occurrence of convul-
sions both in children & adults in the initial

2. N. page 43a.
stages of this disease. Moretti records a case where convulsions which assumed a tetaniform character formed the prominent feature. The patient was a married woman, aged 45. The ordinary symptoms of influenza were followed in a short time by spasm of the extremities, and after this the tetanic attacks came on. They began in the muscles of the face, of the back of the neck, triceps, stiffness being well-marked. Some after the muscles of the back and of the limbs shared in the convulsion. Consciousness remained intact. The convulsions became gradually more severe and did not cease for a week after the onset. The temperature, which had been high, began to fall when the convulsions came on. The treatment was chiefly directed to the nervous condition. Convalescence was very slow. No neurotic family or personal tendency could be discovered. Moretti considers this a further proof of the fact that influenza is essentially a disease of the nerve-centres.

Monograph published a similar case previously.

Morbid Anatomy:

2. Ibid. No. 77. 91
there are no very special postmortem appearances.

There is usually some congestion of the pulmonary
trunk of the mucous membrane of the air passage,
sometimes of the mucous membrane of the stomach
intestines. Occasionally there is some pulmonary
edema, or even some fluid exudation into the
bronchial tubes. The brain, cord and meninges
may also show congestion. When complications
occur, there are of course the ordinary appearance
of the complicating condition.

**Diagnosis:** sometimes presents considerable
difficulty; yet it is of importance, if one believes in
the infectiveness of this malady, to come to a con-
cclusion at the earliest possible moment. In
many doubtful cases isolation, where practically
may be carried out.

1. From ordinary catarrah.

There can be no doubt that cases occurring ab-
the commencement of epidemics are frequent and
recognized as being of a specific nature; it is
equally probable that cases of ordinary catarrah,
depending for their causation on exposure to cold,
water or changes in the weather, occurring during
epidemic prevalence of influenza, are erroneously
considered to be cases of the latter disease. Notwithstanding the fact that most authorities state that true influenza does not occur in this country in the epidemic form, yet every year since the outbreak of 1847-8 this has been registered as a cause of death in some cases.

Dr. Parson says, "Probably the deaths ascribed to "influenza" in ordinary times (which are usually those of children or old people, persons at the two extremes of life) were those of children or old people with obscure catarhal or feverish symptoms ascribed to this conveniently vague cause." 1. The name Influenza should be restricted to the epidemic disease, the practice of glorifying ordinary "feverish colds" by thus designating them cannot be too strongly condemned.

Diagnosis between ordinary catarhal or catarhal forms of influenza maybe sometimes almost impossible. I should rely mainly on the five following points:

1. More sudden onset. 2. Higher temperature. 3. Pains including frontal headache more severe. 4. Depression, prostration more marked & persistent. 5. Greater tendency to relapses & complications. Cases of ordinary catarhal are more frequent in spring & autumn while the epidemic disease may prevail at any time of the year. Other cases subsequently occurring in

1. Report of G.B. J.
a household might help to elucidate former obscure complaints.

(2). From other specific infectious diseases confusion is of course only likely to occur in the early stages of the different diseases.

(a). Measles. During the epidemic of the spring of 1841 there was coincidently in the district of London where I was working a local outbreak of measles of considerable intensity. I frequently found it impossible to say in the first day or two which of the two diseases the patients (a child) was labouring under. The appearance of the measles rash on the third or fourth day removed all doubt.

(b). Scarletina. I never had a case that presented difficulty, but I could imagine that mild cases where the throat infection was not very marked might before the appearance of the rash give rise to trouble.

(c). Typhoid or Enteric Fever. The case of W. A. already referred to left me in doubt for sometime. The course and persistence of the fever, with the rose spots (if present) would suffice to distinguish them.

(d). Typhus Fever. The only case under my care during this period I considered a perfect example of the various type of Influenza. Prostration, high temperature, (104°), nocturnal
sleeplessness & delirium & other cerebral symptoms were present. The typical rash however appeared about the 4th day.

(2) Diphtheria, before the appearance of the membrane, might conceivably cause some difficulty.

(3) From Acute Rheumatism.

The pains in the back of limbs, though not usually articulating or accompanied by swelling of joints, sufficiently resemble the early stages of Rheumatic Fever as to have led to mistaken diagnosis.

As noted previously, the Registrar-General reports an increase of deaths from Rheumatism during the 1847-8 epidemic some of which Peacock surmises to have been Influenza. The sudden onset, the absence of effusion, the more fixed character of the pains as compared with the preliminary rheumatic pains, are points of value in establishing a diagnosis.

**Prognosis:**

Uncomplicated Influenza is almost always recovered from:—some authorities even state that it is never fatal. But though this is so there is no other disease, except cholera, which has such a serious effect on the death-rate while it lasts; the
increase being due chiefly to a rise above the average of deaths from diseases affecting the respiratory organs, though in other classes of diseases there was an increase over the average. This is accounted for by the marked tendency to serious complications that even mild cases of influenza exhibit; and the tendency there is for influenza to be added to the other diseases in their course, and cause them to have an unfavourable termination.

Racock estimated that at the highest estimate the mortality in 1847-8 did not exceed 35%. The 1889-90 mortality, at 1.6 per 1000, was even lower. Parsons estimated the 1889-90 mortality at 1.6 per 1000.

1. Age. Short (1516) 3 says: "none died except children.

2. "Annals" T.T. 1 3 notes that "few except infants and consumptives were fataly affected." Arbutnot (1732-3) found it particularly fatal to old people.

This is true with regard to our modern epidemics, though recovery has been reported at the age of 82. In 1847, the greatest proportion of deaths occurred between the ages of 60 and 80, the mortality in childhood being raised 83%, in manhood 10%, and of old age 24%. Parsons however reports that in 1889-90 the deaths in London were most numerous between the ages of 20, 40, 70, and 60.

References:
1. Racock p. 45.
2. **Previous Health.** Many subjects of chronic diseases were carried off by Influenza. Those with chronic Bronchitis or Emphysema, some say also of phthisical patients, succumbed very readily. Others state that the latter were not much worse for it. It appears to be a fairly general opinion that after Influenza phthisis takes a more rapid course.

Periperal women were said in 1803 to be highly predisposed and affected.

There were cardiovascular diseases, according to Parker, had but little influence, but death frequently follows from cardiac failure in those with feeble dilated hearts.

3. **Surroundings.** Mortality is largely favoured by surrounding unsanitary conditions, e.g., defective drainage, overcrowding, impure air, deficient clothing, insufficient or unsuitable food, and exposure or exhaustion.

4. **Neglect or Mismanagement in the early stage.** Many deaths have resulted from the attempt to "fight against the disease," thus giving full opportunity to the liability to complications. In nearly every case where the patient submitted to heat, warmth, and medical treatment recovery was

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4. Especially if large cavities are dilated. Radcl. J. 57.

* I have the note of a case, complicated with Bronchitis, in a patient exhausted by chronic diarrhea, who was left for dead.
5. Complications. The most frequent and most fatal were those affecting the respiratory organs, viz. Pneumonia & Bronchitis. Cardiac failure is often responsible for the fatal issue; 1 abdominal diseases or various affections, e.g. Meningitis or Abscess of the Brain, sometimes though rarely had the same effect.

The complications & sequelae of influenza are of very different kinds. We shall classify them under the heads of the systems affected.

Alimentary System: The complications of the gastric type are mostly found under this heading.

The occurrence of stomatitis accompanied by a superficial glossitis has been reported by Kidd 1. Sore burning pain in the tongue & great thirst were complained of. These symptoms were readily relieved by chlorate of Potash. Tonsillitis & Parotitis sometimes occur, but Gastritis or enteritis (or gastro-enteritis) are amongst the commoner sequelae of this form.

2. Influenza, Dr 366, 400.
following on the catarrhal condition of the walls of the alimentary tract.

Jaundice is sometimes present, due partly to the catarrhal condition of the duodenum, or of the mucous membrane of the bile duct. In some cases there is congestion of the liver.

Hemopoietic System: Anemia is almost constantly present in convalescence. It may be recorded from but slowly.

Circulatory System: Pericarditis and pleurisy said to have occurred in the course of influenza but are rare. Arthritis, Rotori, has followed influenza even in cases where there was no previous history of cardiac disease. Syncope has frequently been observed, in some cases has proved fatal. Temporary systolic cardiac bruits have been noted by Stephen Mackenzie.

Hemorrhage from the nose, lungs, stomach, bowel or uterus point to degenerative changes in the walls of the small vessels.

I attended for a short time a case which I diagnosed as influenza, with slight jaundice. A few days later the man suffered from hemoptyx, the blood apparently coming from the nose, lungs and stomach.

Some purpuric blotted appeared under the skin.

on the extensor aspect of the forearm. The doctor
then attending him diagnosed Purpura hemorrhagiae.

The patient died, at the postmortem, at which
I was present, no evidence of internal hemorrhage
was forthcoming. The lungs showed great congestion
and small scattered patches of consolidation.

Phlegmonous lymphangitis followed by suppura-
tion. A few gangrene in the extremities has been
recorded:—sometimes due to embolism.

Respiratory System: All other complications
are thrown into the shade by the frequency of fatality
of affections of the organ of respiration.

The larynx sometimes gives evidence of acute inflam-
mation, while persons with a laryngitis of long standing
often point to influenza as the starting point of their
complaint. Dr. Boulling and others have seen
cases of perichondritis; in 1847 Poelock attended
two fatal cases of croup.2

Dr. Cazenove records a case in the Rev. Gen. de
Belin et de Thérimond (June 30, 91.) in which paralytic of the
abductors of the cords followed influenza. The
patient was a girl aged 21, who with the exception
of two or three attacks of aphonia, which rapidly
passed off, had had good health. In December
she suffered severely from influenza, and during

1. B.M.J. 191, 52.
2. B.M.J. 11, 91, 1270, 1326.
3. B.M.J. 191, 477, 90, 661, 91, 125.
4. B.M.J. 477, 90, 661, 91, 125.
5. B.M.J. 11, 91, 1270, 1326.
those previously out of health, or the very young or aged, often even in the robust, has terminated fatally.

Pneumonia may be either croupous or catarhal. Parke considers that it is as a rule catarhal when it occurs during the attack (1st to 5th day), croupous when it occurs later in convalescence.

Is the explanation of this that the catarhal form is due to irritation from the lining of the smaller ramifications of the bronchioles, direct to the alveoli, (therefore occurring during the attack), while the croupous form is due to exposure to the exciting cause or cause of Pneumonia acting in a more general way on an organism whose vitality had been depressed by the pre-existing acute disease?

Pneumonia was found to be less fatal as a complication than Bronchitis, though usually there was some amount of co-existing Bronchitis.

The physical signs cleared up more rapidly than in an ordinary case of Pneumonia.

A small number of cases with cerebral symptoms were met with in 1899-90.

Pleurisy was observed to complicate the influenza as long ago as 1510 (short). It has also occurred in most of the subsequent visitations.

1. Reports of the... Vol. 1. p. 43. 2. Peacock.
Phthisis: many consider that influenza tends to elicit any liability, they may be of phthisis. Many consumptives date their trouble from an attack of the prevailing disease, but in many cases no doubt it would become correct for them to date the discovery of their condition from this illness. A fatal result has been observed to follow more rapidly in cases originating thus:


Chronic Bronchitis & Empyema have commenced in influenza.

Integumentary System:

Herpes, Urticaria, erythema have been described.

Urinary System:

Albumen has been found in the urine, in some cases evidence of the existence of nephritis has been forthcoming.

Vesical catarrh passing on to cystitis has been recorded by

Reproductive System:

Architis.

Pelvic cellulitis: indicated by metrorrhagia, later by leucorrhoea; pain & swelling in iliac
Evidence of parametric deposit was described by Gottschalk, who also considers endometritis a common complication.

Abortion is said to be frequent, at least by the older writers, ascribed to the violence of the cough.

Nelson Scott observed its frequency in the later months, and found it to be accompanied by dreadful flooding. He fancied that the disease exerted an influence over the pregnant woman analogous to that of Varicella, thus, must from the effect of the cough, be accounts for its frequency.

I have no information as to its occurrence in these later visitations.

**Nervous System:**

Meningitis is not an altogether uncommon complication. It sometimes follows disease of the middle ear, but may occur earlier in the illness. It has been seen in this country and elsewhere, in Chicago a great increase of deaths from nervous diseases was reported chiefly under the head of meningitis and convulsions. In some continental countries epidemic cerebro-spinal meningitis has supervened on epidemic influenza.

**Abcess of the Brain.** Britstein reports

5. B.M.T. II q.l. (suppl.) p. 162
two cases, verified postmortem; the case three
other cases with cerebral symptoms possibly due
to suppuration, but no autopsy was permitted.
It might occur I suppose secondarily to sttitic
Neuralgia. If the patient has been subject
to this a recurrence is apt to take place during con-
valescence: (Fage), but it may also occur in others
for the first time.
Inflammations of the conjunctiva & cornea have been observed. The conjunctivitis may
remain for a lengthened period: & considerable
destruction of the tissue of the cornea may result
from the defeated processes set up in it.
Paralysis of External Ocular Muscles may
occur as a result of a neuritis affecting the
motor nerves. This resembles the paralysis
resulting from diphtheria, & soon passes off.
Optic Neuritis has been observed in a few
cases. Sometimes Papillitis may be seen: in others the diagnosis of retro-bulbar neuritis can
be arrived at by exclusion. D. Weeks reports a case in the New York Medical Journal.
Patient, a man, aged 24, had influenza in Jan. pp.
Severe frontal headache was a very prominent symp-
tom. Subsequently he noticed progressive

2. BMJ II 702.

deterioration of vision. The die were pale. No history of specific disease of tobacco or alcoholic excess. This is a rare complication. It affects one or both eyes, results in temporary or permanent impairment of vision or even in absolute blindness. The failure occurs from 3 to 14 days after the commencement of the disease, it is always preceded by intense frontal headache. Treatment usually has but little effect, and recovery occurs it is spontaneous and accompanied by improvement in the patient's general health.

Mr. Gurne has kindly permitted me to quote the following unpublished case, which came under his notice at the Moorfields Eye Hospital.


"Says he could see perfectly well three weeks ago. Had influenza which began two months ago lasted a month. The attack was severe, one confining him to bed for a fortnight. was accompanied by severe frontal headache and pain in the eye. Movements of eyes hurt him a good deal during the whole month. for a week after, he resumed his work: but this pain has now gone. Gentle pressure backwards does not hurt him.
Ocular movements good & painless. No history of
typhoid. Patellar reflex present. Pupils
wide & inactive, slight, unequal & slight for
correction. No perception of light in
either eye. Describes failure of vision
as having "come on at first misty," then it
kept getting darker, but there was no sudden
increase of blindness. Says that three days
ago he could see a little & could guide himself about.

There has been no pain since just before his
vision began to fail. So anesthetic of cornea.
Fundus: Ant. shows papillae retinitis in both.
In right, the discs pale, edges blurred, retina generally
pale, vessels edematous & deficient in transparency;
veins large & somewhat tortuous. One or two
hemorrhages above & the outer side of disc, very
small ones below it. In the left fundus
there are no hemorrhages; disc not quite pale.
Arteries of fair size in both.

June 7, 90. RV = \frac{6}{24} \quad LV = \frac{6}{24}.
Pupils react to convergence to light. Both
discs pale & flattened. Veins large & slightly
tortuous: arteries small. No hemorrhages.
Colours recognized somewhat imperfectly. No
pain at back of eyes either spontaneously or pressure.
Nov. 29, 90. V = \( \frac{6}{10} \) (ester) in each eye.

Fundus: Both discs pale: lamina cribrosa seen in both: veins slightly tortuous; arteries small. No lives along vessels: no hemorrhages. Yellow spot region healthy. Colour vision greatly improving.

Otitis Media: The ear frequently suffer—probably by extension of the catarhal process from the pharynx along the Eustachian tubes. The formation of matter is preceded by pain in the ears, great pain in the ear and head is complained of. There is tenderness on pressure beneath, in front of, behind the auricle. Deafness.

The membrana tympani becomes perforated, gives vent to a quantity of thick yellow pus, but little relief is given by perforation either natural or artificial. One or both ears may be affected.

This form of otitis is said the peculiar in that the membrane is perforated by a number of small holes, that the discharge is more serious than pus, and purulent than in ordinary cases of otitis.

Chorea has followed influenza. I have read of a fatal case in a patient who had previously had rheumatic fever. The choreic movements were

1. Pocock, also influenza. T.J., 320: + see Ansean 1733. St. J., 33
2. Learn T. 90, 370.
3. Pt. Bouling
so violent as to necessitate the administration of chloroform.

Dr. Neale saw an unusual case of epilepsy, in which there were only three convulsive seizures, in a girl aged 25, who had been quite healthy, till the time when she suffered from influenza.

Various forms of insanity have occurred not altogether infrequently during convalescence. The frequency is very common in the course of the disease, and opens the way to melancholia, mania, 

M. Jacques Bertillon declared that during the epidemic in 1889 the number of suicides in Paris was increased 20%. One could not but remark the frequency with which, in the daily papers in the reports on inquiries held on suicide, it is stated that they had recently suffered from this depressing disease.

Dr. Savage saw 34 cases of insanity following influenza:—33 of the patients being men, 12 women. In 23 there was melancholia, in 18 mania, often for one another, in four General Paralysis of the Insane. Three-quarters of the patients recovered but three died.

He rarely observed these conditions in healthy

individuals. They were mostly suffering from some form of degeneration, from syphilis or alcoholism, or cause of a neurotic stock.

In Chicago, the Lunacy Reports showed a marked increase in the number of cases of insanity following the epidemic.

Although in an interesting paper on "Pest gruppel Psychoses," under which designation he includes neurasthenia, hypochondriasis, melancholia, "Delirium of Mania," & General Paralysis, considers that ideageneracy is of more importance as a predisposing cause than a neurotic hereditary tendency. He states that the prognosis is on the whole favourable, except in cases of General Paralytic.

Locomotory System:

Gray (1782) found that influenza caused attacks of gout in those subject to it.

"Pains which had been troublesome sometimes towards the termination of the complaint, increased in severity, rheumatic affections of an obstinate & painful character supervened." 4.

1. B.M.T. II 91 (Supplement) p. 161
4. Baer's "Influenga," p. 22. 5
Convalescence demands some detailed attention. It was early observed that "such as recovered were long vitiating," and this observation has been in the main true of nearly every subsequent epidemic. The duration of convalescence from influenza is one of the most noticeable features with regard to it, though in some cases strength is rapidly regained. All the phenomena of this period point to a severe impression produced on the nervous system.

The temperature is usually in all but the slightest cases subnormal. The thermometer may not register more than 95°. The pulse is often diminished in frequency, being sometimes as slow as 40 per minute, and greatly reduced in tension. It may then marked irregularity. Prostration and muscular weakness are common, while mental effort is often impossible for a considerable period. All these indicate of diminished vitality point to the fact that the power of repair is deficient, and this accounts both for the duration of convalescence, and for the tendency there is during this period for complications to supervene unless great care is taken to avoid any influences likely to be harmful.

1. Amato (1557), "Amato," T. F. R. J.
2. B.M.T. 1921, 601.
3. Perkin: Lancet, 190; Pollock: Edin. See also Burnet, Jenner, Cardiac Actin. B.M.T. 1921, 712.
Convalescence is not infrequently interrupted by relapses. They may occur from the 5th to 12th day after its commencement: they are said to be more common in gastric cases. They show symptoms similar to the original disease, but in 1869-70 it was found that they were more prolonged than the original attack, so that the tendency to pulmonary complications was increased. Gray (1782) however noted that they were lighter than the former attack. I have seen cases in which the relapse consisted of elevated temperature and pains lasting only a few hours. As many as three or four relapses have occurred in a single case.

IV. Therapeutics.

In considering the question of remedies used in combating this disease, we must of course begin with Prophylaxis. Various drugs have been enticed by one or another as certain preventives:—probably every one of them has been found wanting.

Taking into consideration the fact, which may now almost be described as well-ascertained, that influenza is spread, in some degree, by infection, it is advisable to prescribe to carry out as far as practicable some degree of isolation of the sick & disinfection of rooms, clothing, spu6a, etc. Some insist on the same precautions as for a case of scarlet fever.

Isolation should be commenced early and continued for about a week after the fall of the temperature, or in cases where the cough has been troublesome, until this has ceased completely. It should be carried out most conscientiously if there are in the house people of advanced age, or damaged constitutions to whom even a slight attack would be a serious matter.

On the evening of the 3rd day of normal temperature, some prescribe an antiseptic bath for

2. See p. 11.
complete change of clothing and bedding.

Owing to the want of definiteness of the earlier cases in an epidemic, & to the disease appearing to spread in some degree through the air without relation to infection, we can hardly hope to attain to the same measure of success in presenting this disease as in the case of others of the acute infectious disorders.

Sidney has of late strenuously advocated the inclusion of influenza among the diseases compulsorily notifiable under the Infectious Diseases Notification Act, but the difficulties in the way seem to serious that so far he has but few supporters.

It is objected: (1) that a large proportion of cases though infectious are difficult to recognize: (2) that many cases of ordinary catarrh would in epidemic times be notified as influenza: (3) that the rapidity of diffusion owing to the shortness of the incubation period adds to the difficulty: (4) that the expense incurred would be considerable: (5) that as isolation accommodation could not be provided for the immense numbers attacked no corresponding advantage would be gained. On the other hand it is urged that notification & prompt isolation would prevent the disease assuming epidemic proportions, but this is by no means certain.

1. B.M.I. 91, p. 190
3. B.M.I. 92, pp. 247, 288
Goldschmidt adduced evidence to prove that vaccination had a prophylactic influence as regards influenza; but its value seems open to question. Large quantities of Eucalyptus oil have been sold to the public, who had acquired the notion that it was a certain prophylactic. It appears probable that before the oil could have any action on the germs it would be necessary that it should be present in traces in such quantities as to make it irremovable.

Bicarbonate of Soda, or with more probability Quinine, Arsenic or Brucine have had their upholders. Brucine met with a patient who for two years had taken Quinine regularly, but became a subject of the disease. Quinine & Arsenic have been given in combination to dozens of people by one medical man as a preventive, none of these have suffered. The same gentleman cites the case of a child taking Arsenic for a disease of the skin. Though all the three members of the family of miners were affected, he alone escaped.

These two drugs probably get not in any specific anti-malarial way, but simply as germicides. It is of greater importance to recommend all persons to avoid anything likely to depress their vitality. They should live a healthy life.

regular life with plenty of out-door exercise, if the conditions are favourable, and avoid coddling, muffling up, secrecy of all kinds.

**Surgical.**

The indications for treatment are briefly to support the patient, prevent the case assuming a grave character through complications. All-favouring measures must be avoided: it is interesting to note that in the past, even at the time when the use of the lance was considered essential in the treatment of most diseases, the majority of practitioners concurred in considering blood letting advisable in ordinary cases. The lancet may be said of purging, though emetics and depressors, diaphoretics were recommended comparatively recently by not a few. Many are of opinion that as the natural tendency of the cure, those who took no medicine, or only a placebos, did as well as others, but there seems to be little doubt that many of the urgent symptoms are capable of alleviation, and that the liability to complications and the duration of the period of convalescence may be respectively lessened by appropriate treatment. Some have discovered specific — which in the hands of others have failed; vitriol at

1. &c. (1650) "Blading and purging did hurt." Annals T. T. p. 3. of Gaz (1786)
2. B.M.I. 97. 1290.
3. Among these: Ammonia, Cresotes, Carbolic Acid, Eucalyptus, Camphor, Ipecacuan, Pumilia, &c. &c.
least doubtful whether such a specific exists or is even required.

The patient should have perfect rest in bed and be warmly covered. Free perspiration is desirable, which should be promoted by warm baths and the administration of saline diaphoretics, e.g. Nitric Acid, Bichromate of Potash, and Acetate of Mercurius. Warm baths or fomentations are useful, but Turkish baths should give much relief from ordinary colds.

It is sometimes desirable to reduce the temperature, and this is of considerable importance, as the pain largely disappears with the lowering of the temperature.

Quinine is useful for this purpose and may be given in large doses (3 to 20 grs), or in smaller doses more frequently (e.g. 3/4 to 2 grs. 3 or 4 a day). Antifebrin has been given to reduce the temperature, though some believe that it always does harm, so has antifebrin, but Dr. Squire states that the latter is a very dangerous drug, far more depressing than the former.

But 17 fatal cases are said to have occurred in Vienna through overdoses of antifebrin, which should not be given to young children or the weakly.

Acetate has been recommended by Dr. Squire.

Salicylic acid and its compounds. Salicylate of Soda or of Quinine have sometimes yielded excellent results, reducing the temperature, removing a considerable extent of pain. Dr. Callaghan finds that salicylate of Quinine has more effect on the temperature and pain in the head than any other drug.

An apparent specific effect, which is increased by combination with salicylate of Soda has been claimed for Potas. Siccat. The temperature is reduced and pain relieved. A stimulating treatment must be commenced on the fall of the temperature such drugs as Aurinum, Senega and procuring being prescribed.

Dr. Rawbath, who advocates this method of treatment, allows in convalescence plenty of alcohol, and claims that by these measures convalescence is reduced to a minimum.

Dr. Robertson of Newcastle prescribed Bengal fluids and rapid amelioration of the distressing symptoms. He regards this drug as a pulmonary antiseptic, stays that within an hour it can be detected in the patient's breath. The head and back pain rapidly disappear, the fever subsides in about six hours, not to return if the use of the drug is kept up for two or three days after the disappearance.

3. B.M. 52. p. 287.
4. B.M. 52. p. 171.
of symptoms. He has seen no tendency to the development of Pneumonia in cases so treated. He usually prescribed 20 or 30 drops in a dose scattered every 2 or 3 hours, and not noticed any inconvenience from its use.

Dr. Sinclair concluding that the blood must be full of microbes administered 20 drops of pure carbolic acid three times a day. He found that cases treated in this way recovered more rapidly than others: the temperature frequently falling from 102 or 103 in 24 hours: that there was no tendency to complications. He gives Deer's powder to procure sleep and to promote perspiration: orders stimulants, encourages the patient to take food in spite of disinclination.

For the relief of pain in the head thins, antipyrin in small doses (e.g. 0.1 to 0.2 grm) is very useful. This is especially seen in cases of the nervous type.

Dr. Boulting gave antipyrin (0.2 to 0.4 grm every 4 hours) with marked relief in the headache but little in the backache: he never observed any bad symptoms to follow its use.

Antifebrin (1 grm three or four times a day) removes headache, pains in limbs.

Dejardin, Beaumety & Fraser advocate Epsalgin.

1. B.M.T. I. 92. p. 177
3. - Med. Annual, Wright, 1879
4. B.M.T. II. 91. p. 190
5. B.M.T. I. 92. p. 250
while phenacetin, alone or combined with antisyphilitic, was exhibited by many. Phenacetin acts both as an antisyphilitic and as an analgesic.  

Acton Racemosa, a drug used more commonly in America than in this country, is credited with the power of removing the pain in the limbs. Both gargles are said to relieve the headache better than anything else.  

Inhalations of Eucalyptus, Benzoino, creosote, or ammonium chloride, or even of simple steam, may give great relief to the coughed dyspepsias. Ammonium chloride is sometimes given internally.

In simple cases Nux vomica in doses every hour relieved pain and reduced temperature.

Many practitioners adopted a simple routine, which consisted in the administration of laxatives in the early stage, followed by such saline diaphoretics as Rhus toxicodendron, Sulfur, Nitric acid, with perhaps antimonial or Sclater’s or Antisyphilic. When the pains had disappeared, the temperature coming down to normal, the exhibition of such stimulating drugs as have already been mentioned with others of a tonic nature.

many cases, especially in those who are debilitated, where the pulse is slow, whereas there is little indication for food or wine.

Rhubarb, Bark, Acids, Potassium, are sometimes useful; iron or strychnine are probably the best tonics.

There is a great difference of opinion as to the use of alcohol. Some believe that in the early stages it increases the pains and distressing symptoms, and uncompromisingly denote it to use, while others prescribe it freely all through the illness. It may frequently be given with advantage during convalescence when the acute symptoms have subsided.

Cough without marked chest symptoms is best controlled by nerve sedatives, e.g. bromides or chloral. Those with slight coughs may relieve the urgent dyspnea.

When a pulmonary complication has supervened it must be treated on general principles of stimulation returned to on the earliest indication. Hexamethylenamine may relieve pain in the chest. Carbolic Acid (1/2 dose) has proved itself of value in some cases of(p.)

Digitalis, ipecacuanha or caffeine must be

given if the heart shows any signs of weakness.

In Pneumonic complication, Richard considers that digitalis should be given early, without waiting for signs of heart failure. In cardiac ataxia, morphia, promethazine, or caffeine may be given subcutaneously. Strychnine subcutaneously in doses of from 1/30 to 1/60 gr. is often useful. For nausea vomiting, Bismuth, Hydrocyanic Acid & morphine, especially in effervescence, may be ordered.

Paraaldehyde & Sulphonal as hypnotic, often have a rapid effect; calomel & chloral may be given, but the sleeplessness will frequently yield to careful feeding, it being then probably due to brain exhaustion.

Diet: During the acuteness of the disease anemia is complete; in an ordinary case something is required but milk without or without soda water. Breast is acid to increase the headache, nausea, languor. As soon as appetite returns, eggs, bosta, jellies, & easily digested foods, e.g. fish (especially oysters), & cold poultry may successively be allowed. With the fall of the temperature, the digestive powers are recovered, & the appetite continues uninterrupted.

3. Parker 3. 47.
Notes of a few cases (in addition to those described previously), which illustrate points of interest in regard to the disease or its complications.

1. T.R. - Age 8 years. Influenza. Illness began with headache and chills. On Feb. 29, Temp. 102.8°, but rose to 105.6° on the following morning. Rose rapidly at noon = 105.6°. Pulse 130. Breathing rapid, laboured; alar respiration. Face showed marked lividity. Tongue coated with a white, thick fur; bowels constipated. Resolution therapy was ordered: Magn. Sulf. 3½ grs.; also a mixture containing: Vin. Acet. 14 flor. 1 dr. ⅔ dr. + Liq. Aq. Acet. + 2 grs. of Sulph. Atripic. He gave every 6 hours till T. falls.

Mar. 2nd. Influenza: noted slight dulness at right base posteriorly in diaphragm region, with fine crepitations and occasional sibilant rales. Dry hard cough. Face rather cyanosed. Apparent respiratory distress on inspiration, dyspnoea. Abnormal physical signs. Remains of very extensive herpetic eruption over lips and chin. Complaints of pain, tenderness all over abdomen, which is somewhat distended. Lies with legs drawn up. Ordered hot fomentations to abdomen.

Mar. 3rd. At midnight on 2nd. 102°; rose to 103.6° at 10 a.m. then steadily fell till 8 p.m., when the thermometer registered less than 96°. In rectum at mid
night. T = 96.6°

Ordered Asparth., T. Dig. Ether sulph.: 2. Tenepa. At midnight on 4th, T. again less than 96.4 for next two days highest rectal T. was 97.8. For nearly a week after this T. still subnormal.

Heart became very weak, irregular, sounds were "muffled." But this gradually improved: till on the 12th there was nothing abnormal to be discovered in the lungs. The heart had recovered itself.

The points of interest appear to me the: 1. The evidence of ulceration of the abdominal organs. 2. Cyanosis. 3. The great respiratory distress. 4. Persistently subnormal T. in convalescence. 5. The unsatisfactory condition of the heart. With regard to this last point, one asks whether this was due to the morbid process or to the exhibition of antitoxin.


First seen T. 84°. Had been attending his wife for a simple attack of influenza. Saw here for last time on 1st, on which day G.B. was first attacked. On the 8th, T. 104°. R. 120. R. S. 2. slight cyanosis. Resp. distress marked. Pulses increased. moist respiration & frequent at both bases, esp. left. Rales all over chest. Front & back. Complains of pain left side. Expectoration frothy & slightly rusty. T. remained above 103° for 4 days, but P. became slower & steadier (108 on 6th day). On the 17th, T. 98.4. Had not slept much during night. Patient collapsed & apparently unconscious; pulse feeble. Injected sulph.: 3. 20 Ether sulph., Dr. afterwards delirious very tongue very dry, brown.
violent. Throughout day was restless, had the closely watched.
A bright Bt. Brown & T. Hypocean given. Had no effect, effect
on following morning he was well looking & still delirious.
Suspicious, mumbling constantly, pacing at bedclothes,
preventing food & medicine. T. now 100.4 Bt. Brown & Chlor.
given again. This quieted him considerably. 9.30 pm.
Bt. Brown & Chloral again; repeated in 4 hours. Leptal
in the morning was quite rational. Made an uninterrupted
recovery, needing sleeping draught for the two following
nights.

In this case, evidence of the serious effect produced on the nervous
system was clear. The delirium which had been mild with a
temp. at 102°, 103°, became quite suddenly violent after the fall
to normal; & its subsequent rise to 101°.

First seen May 11. Said he have been "stopping" for a fortnight previously.
Complained most of pain in front of head. Tense dilated, & larger than R.
Had been shivering. T. 102°. No abnormal physical signs in chest.
Bowels loose; motions resembled beaten egg, carded. Very delirious at
night. Tongue furry & very dry; no cough. T. remained at about
same level for 4 days, then came down reaching 101° by 6 or 7th day.
Pain in head less. Bowels as before. Complained of certain amount
of pain & tenderness in abdomen, & right subcostal fossa. A few
dull esp. on back & abdomen occurred. From 4th day slight
hacking cough. No expectoration. T. now taken twice a day
(This had previously been impossible) so it showed a difference of
3° or 4° at night above that of the morning.
May 22. Chest: anteriorly no dullness, 2° hyperresonance on percussion
over stomach (Pt is pigeon-breasted). A few sibilants below.
Clavicles on forced inspiration. All over back very slight resonant
inspiration, except shaft. Tenderness - at costal margin.
Perhaps a slight impairment of percussion note, occasionally a few
crepits. Tenderness of both femurites or resorcence. Abdomen
as before. Bowels moved daily for last few days. Perspired very
freely at night. A week later absence of rales; but
improvement of note over both apices, increased vocal resoun-
ance with tenderness & bronchial breathing.
This case seemed at first the one of influenza of the
gastric type; but in a few days came so close to resemble gastro-
enteritis that I was tempted to alter my diagnosis. Ultimately
I concluded that the patient had suffered from influenza,
that upon this the right general bronchitis came as a
complication. It was probable that the early changes
in the apices had been already established, were overlooked
at first, though the possibility remains that these changes
were set up by the lungs by the influenza, thought there is then
being of the nature of sequelae. For some days before
last week his right morning temperature showed
variations of not more than 1°, so was improved in every
way.
E. F. - Inclined middle. Cardiac Asthenia. Delirious following influenza.

She stated her age to be 55; it was probably nearer 70.

Had influenza sometime before I saw her. She appeared to be in a very poor state of health, was thin, languid, and took her food badly. The breath sounds were very feeble and central, but there were no very abnormal sounds of any kind; nor any rales.

The heart sounds were very feeble, irregular.

P. 68 per minute; beats sometimes regular, at times a series of very fast beats. Tension low. Patient at times very drowsy, at other times very restless. At night, patient sometimes stupified, refusing food and medicine.

Labour under delirium, thinks herself a ghastly girl again, so that her mother, who is dead, is attending her.

Does not recognize the people around her.

She was only under my care for a very short time. Her temperature at first was between 96.5° and 97°, but on the 10th day of treatment it reached 98.6° and never afterwards fell below 97. When I last saw her her bodily condition had greatly improved, but her mental state was as before.

She was treated with tonics; Quinine and Brandy, Digitalis, Phylshine, Paraldehyde or Bromides being given at bedtime for sleeplessness.

Now the subnormal temp.; the mental condition with the cardiac debility, are the chief points of interest.