as full to-day as it was in the days of Laennec and Bright of opportunities for enduring contributions to science and to humanity.

This spirit Bright carried with him throughout his career. He could not have been called a brilliant man. He made at first no great impression on those about him. But brilliancy is often ephemeral; very often brilliancy spells instability. Bright showed a steadfastness of purpose and an equanimity that are rarer and more precious than mere brilliancy. He was a simple, straightforward, kindly man, who met life with charity and tolerance and serenity; a conscientious, painstaking physician; a patient, careful, modest, scrupulous, time-taking observer. He became a wise and a learned man, and the fruits of his labours assure him a well merited and honourable immortality.

Bright was buried in Kensal Green. There is a tablet dedicated to his memory in St. James's Church in Piccadilly. The inscription ends with these words:

"HE CONTRIBUTED TO MEDICAL SCIENCE MANY DISCOVERIES
AND WORKS OF GREAT VALUE
AND DIED WHILE IN THE FULL PRACTICE OF HIS PROFESSION
AFTER A LIFE OF WARM AFFECTION
UNSULLIED PURITY AND GREAT USEFULNESS."

An Address

ON THE

CLINICAL AND THERAPEUTICAL ASPECTS OF INFLUENZA—FROM 1889 TO 1927:

THE VALUE OF SALICIN IN TREATMENT.*

BY

E. B. TURNER, F.R.C.S.,
LONDON.

THE first cases of influenza began to appear in the United Kingdom, after many years of immunity, in 1889. The last extensive outbreaks had been in the years 1827 and 1841. In 1837 that great physician and scholar Sir Thomas Watson, writing on the subject of this disease, saw far into the future when he surmised that it might be caused by what he described as a "portable germ." In 1841 there was a very severe epidemic, and during the fifties and sixties of the last century the term "influenza" was applied to almost every case of catarrh with fever. In 1889 the disease gradually came westward from China, Russia, and other Eastern countries. By some persons it was supposed that the terrible floods in China of that year, when over two hundred thousand people were drowned, may have had something to do with its origin.

In England we heard of influenza, but until the autumn of 1889 no cases came under observation, although it was rampant in France and other European countries. In November of that year I saw my first case—a young man who had come straight from Marseilles. In those days Marseilles was looked upon as the home and place of origin of enteric, typhus, and "other ill defined fevers"; and when I saw him his symptoms simulated those of enteric fever in the early stages, the only typical one missing being the characteristic rash. I treated him as if he had enteric, more especially as he came from Marseilles, and was much surprised when the whole illness cleared up about the tenth day. I saw many such cases afterwards and was able to recognize them as influenza.

In this first epidemic the prominent symptoms were: pain, especially referred to the back of the eyes, the limbs, and the back; there was a "foxy" appearance of the eyes, and the tongue, though not very coated, had somewhat the appearance of a boiled fig, and there was a curious sort of "tang" when you touched the skin, which was almost unmistakable. The temperature and pulse varied in each particular case, but neither ran exceedingly high. Some cases were of a gastric type, accompanied with vomiting. Complications which affected the patients in this outbreak of influenza were principally of a neurotic character, affecting the nervous

system in various ways. In other cases bronchitis and bronchopneumonia did most mischief. After convalescence there were many sequelae, chiefly neuroses of various kinds, which sometimes lasted for a good many months, in addition to which frequently some mischief, which may have been latent for a considerable time, took on renewed activity.

The epidemic recurred in 1890, and in each year up till 1895, in which year the last cases I saw came straight from Paris. From that year onwards the attacks were sporadic, the true cases of influenza being in the minority, while almost every attack of catarrh with fever was, either by the medical attendant or the patient himself, styled "influenza"—a blessed word like Mesopotamia—it covered a multitude of ills. This state of affairs continued, the true cases occurring in varying numbers in each year, and the cases which accompanied them and which I have ventured to describe as "pseudo-influenza" being fairly numerous. In 1900 the epidemic was exceedingly widespread, the cases being very numerous, but not of a particularly severe type. In these early epidemics, bacteriology being in its infancy, we have no records of any particular organism being concerned in the production of the disease.

In July, 1918, there was a fairly severe epidemic of true influenza, in character very like those of 1889 and 1890, but of a more severe type. In all probability a different microbic infection was responsible for it. The complications which were then noticed were bronchitis and bronchopneumonia rather than those affecting the nervous system as in the previous epidemics.

This outbreak subsided, but in the following November there was practically a pandemic of extremely severe influenza. Bacteriological investigation then showed that there was a quadruple infection, and the symptoms and the results were very grave and serious. The principal complication was pneumonia, with haemorrhage, and fatal cases were exceedingly numerous. In some persons the gastric type predominated, with a great deal of vomiting and stomach disturbance.

In 1919 there was another epidemic, very much like that of November, 1918. In both these epidemics various sequelae were observed, principally affecting the respiratory system and in a lesser degree the brain and nervous system. From 1919 to 1921 the incidence of the disease was again sporadic, cases appearing in the winter and spring and the number rapidly decreasing in the summer. In 1921 and 1922 there were also fairly extensive epidemics, milder in character, being more like those of 1889 and 1890, one of the principal complications on these occasions being affections of the throat and tonsils, complicated also with bronchitis and bronchopneumonia. In 1923, and each year till 1927, also there were epidemics of the disease in winter and spring.

TREATMENT.

In 1889 and the early part of 1890 the cases which came under my observation were treated on the then accepted lines—by quinine, salines, ammoniated tincture of quinine, and many other drugs and methods, none of which had much effect in checking the progress or alleviating the symptoms of the disease. Out of some 115 cases which I then saw I had about the usual average of bronchitis and pneumonia as complications, the actual number being 21.

In 1877 and 1878, on the first introduction of these drugs to England, I had assisted in many of the experiments made with salicin and the salicylates in the treatment of rheumatism, gout, malaria, and other diseases, and had learned at that time that to ensure any pronounced effect from these drugs large doses were necessary. Many authorities, when influenza first appeared, considered it, in those pre-bacteriological days, to be allied to dengue fever, and it appeared to me that perhaps very large doses of salicin might have the same beneficial effect in its treatment.

Early in 1890 I happened to contract the illness, and I at once tried this treatment on myself. I took 40 grains of salicin in one dose, and continued for twelve hours, taking 20 grains every hour. Salicin is eliminated from the system with extreme rapidity, and to keep a person thoroughly under its influence it is necessary to give large and rapidly repeated doses. At the end of twelve hours

* Presidential address to the Metropolitan Counties Branch, British Medical Association.

my temperature, which was 103.6° at the commencement of the attack, was normal, and in sixteen hours I got up, went out, and did my work; and, seeing a number of cases of influenza that day, I treated them all on the same lines, with the result that in each case I had the same success.

The following are very abbreviated notes of the first cases I treated with salicin, together with a case treated with quinine for comparison.

A. L., aged 30. Typical case of influenza. Temperature 102.5°, pulse 112. Treatment: bed, light food, effervescing solution of quinine sulphate. Third day, bronchitis. Fifth day, bronchopneumonia. Tenth day, improved; temperature 99.1°, pulse 88. Fifteenth day, convalescent.

C. L., aged 28, and J. L., aged 25, brothers of the above. Five days after commencement of their brother's illness both developed influenza in typical form. Treatment: bed, etc., salicin 40 grains at once and 20 grains every hour for twelve hours. Second day, temperature and pulse normal; convalescent; got up in afternoon. Third day went out of doors.

Emma B., aged 24—my housemaid. Typical attack of influenza. Treated with salicin as above. Second day, convalescent, and wanted to do her work as usual. Third day, working in house.

C. Du C., aged 44. Sharp attack of influenza. Temperature 103.4°, pulse 120. Treatment as above. Second day, temperature and pulse normal. Third day, conducted a wool auction in the city.

E. D., aged 22. Attack of severe influenza with vomiting and gastric disturbance. Temperature 103.6°, pulse 120. Could not retain salicin. Two doses of tincture of opium, 15 minims, were given with an interval of four hours; vomiting ceased, salicin retained. Second day, temperature 100.3°, pulse 88; salicin continued. Third day, temperature and pulse normal. Fourth day, convalescent. This was one of the very few cases in which stomach trouble delayed the action of the remedy. In the three or four similar cases which came under my observation the administration of opium quieted the sickness and allowed the treatment to proceed.

After a short time I gave up administering a first dose of 40 grains, as I found it unnecessary; and 20 grains every hour for twelve hours, and then every two hours for the next twelve; was in practically every case sufficient to put an end to the attack. The late Dr. T. J. MacLagan at this time had exactly the same results from very much the same methods of treatment.

I treated every case which came under my care during the whole of that epidemic in this way; and also all the cases of true influenza which I came across during the succeeding years; and in no single case had I any complications whatever, not one single death, or any sequela of importance.

This treatment was successful in all the epidemics until 1918. In the July epidemic of that year the disease was more stubborn, and occasionally the patient's temperature did not drop to normal and recovery become complete for two and a half or three days, but in all other respects it ran the same course. The following are short notes of two typical cases of severe influenza which occurred in 1918-19.

G. T., aged 27. Severe attack; temperature 103.8°, pulse 120. Given 20 grains of salicin every hour. Second day, better; but still fever (temperature 101.6°) and pain; no bronchitis or pneumonia. Third day, improved, less fever. Fourth day, temperature 99.3°, pulse 84; no complications. Fifth day, temperature and pulse normal. Sixth day, convalescent.

M. B., aged 31. Temperature 102.5°, pulse 108. Had been ill for a day before coming under observation. Salicin treatment as usual, which was commenced about eighteen hours after onset of illness. The case was stubborn, but uneventful, and the patient was convalescent on the seventh day without any complication. The delay in recovery was evidently due to the fact that the administration of salicin was delayed for eighteen hours.

In this severe epidemic, with the quadruple microbic infection, a good many cases ran a course such as in the two instances given. Many, however, when the treatment was commenced at once, recovered in three or four days. In no instance, out of 735 cases, was there any complication or fatal result.

In the very severe epidemics of November, 1918, and March, 1919, when the infection was evidently much more virulent and more varied, the cases resisted treatment for a much longer time, and I had a large number of instances in which the temperature did not drop to normal or the patient become convalescent until the fifth, sixth, or seventh day. I presume that the cause of this was the fact that at least four different kinds of bacteria were found to be present in the sufferers. But in the whole of that bad epidemic I had no complications, no bronchitis, no pneumonia, and not a single death, and I treated over 700 cases.

The epidemics which have occurred in the succeeding years have shown exactly the same results. Occasionally some of the cases have been more stubborn, and have not yielded to treatment so rapidly, but on the whole they have reacted in the same way.

The early administration of salicin in these large doses seems also to reduce materially the chances of infection. In a large hostel, in which there are 120 bed-sitting rooms arranged along corridors, where young women live who are working in different offices all over London during the day—a place which one would consider ideal for the spread of infection broadcast—there were, in the 1918 and 1919 epidemics, 17 cases of infection brought in from the outside. They were all treated with salicin from the first appearance of symptoms, and from no single one of these persons was there any spread of infection among the other inmates of the house. Exactly the same thing happened in a large hostel where between 80 and 100 university students were working for degrees. During the whole of the eight-and-thirty years I have treated influenza in this fashion I have found that, as a rule, no infection has spread from anyone who commenced taking salicin as soon as ever it was possible to give it after the onset of the illness.

I have had a good deal of experience of cases in which influenza has been contracted subsequent to an operation. In 1891, the day after an extensive excision of varicose veins, the patient developed an acute and typical influenza. I treated him in the usual way, and with the usual result. His nurse caught it from him, and with the same treatment her attack ran the same course. I have also seen influenza supervene after two operations for appendicitis, after several excisions of carcinoma, and after various other operations, both major and minor. In every case the same good result was obtained. I have also treated it where other chronic illnesses were complicated by an attack, as well as during the puerperium, when the treatment was just as effectual, and neither the mother nor infant suffered in any way from the large doses. The sooner it is possible to begin the treatment the quicker do the symptoms come to an end.

The accompanying table shows the number of hours after the onset of the first symptoms salicin was first administered, and the day on which the temperature returned to normal, and it will be seen from it that the quicker the treatment was begun the quicker convalescence supervened.

Hours.	Day on which Temperature Returned to Normal.						Total Cases.
	2nd.	3rd.	4th.	5th.	6th.	7th.	
2	11	6	4	3	1	0	25
4	8	13	25	17	7	3	74
6	18	29	38	17	10	5	117
8	3	7	10	9	6	3	38
10	1	4	8	3	1	2	19
12	0	3	4	6	7	4	24
14	1	1	3	7	3	4	19
16	0	0	2	4	6	1	13
18	1	0	0	3	0	2	6
Total ...	43	63	95	69	41	24	335

These 335 cases were taken consecutively from among the large numbers which I treated during the epidemics of 1918 and 1919.

I have found no ill effects of any sort from the administration of these large doses of the drug. The oldest person to whom I gave them was 84 years of age. I have given them in cases of valvular disease of the heart and also in cases of weakness of the heart muscle, and have never found the slightest ill effect whatever. In some few cases a reddish rash has made its appearance, and in a certain number there has been an outbreak of sudamina. The buzzing in the ears which is so characteristic a result of the administration of big doses of the salicylates has generally

been conspicuous by its absence. Some individuals have complained of it, but a little stimulant or ammonia has kept it well within control.

The number of cases I have treated in this way is approximately 3,600 to 3,900. I cannot give the number with absolute accuracy, as for many years I have simply enumerated the cases without any further notes, as all behaved in exactly the same way. I have had reports in each of the epidemics from other practitioners who had tried the same method of treatment in different parts of the country with practically the same success.

In the 1890-91 epidemic the number of cases in the Twycross district near Atherstone in Warwickshire was so excessive that the doctor in attendance could not in any way manage to see them all. Some members of a family who had a place in that part of the world had been treated by me with salicin in London and had quickly recovered. At their request I sent down to Dr. Thomas large supplies of salicin, which he used freely, with the result that in a few days he got and kept the epidemic within bounds, all his cases recovering.

In a large London hospital, during the epidemic in the spring of 1927, one of the resident officers treated a good many cases of influenza which occurred among the patients with large doses of salicin, and they all were convalescent some days before other persons treated on usual lines in the same wards were recovered. Many of these individuals had very recently undergone some operation.

PREVENTION.

In the earlier epidemics people had a great belief in quinine, and especially the ammoniated tincture of quinine, which they swallowed with great freedom. For my own part I found such prophylactics quite useless, and on many occasions I had as many people to treat who had made themselves ill by swallowing quinine, which did not suit them, as I had cases of influenza.

Lately vaccines have been tried. I have used a vaccine, made from the supposed microbe of influenza, which was quite useless. As a matter of fact all the persons on whom I tried it got the illness within a few weeks. The army vaccine of the mixed bacilli is much more effectual. I have tried it on a good many persons with great success, and I have known people go through an epidemic unscathed, whereas persons in their company who had not been vaccinated have caught it.

The essentials of the treatment by salicin are: first of all to give the salicin as soon as ever there is a definite rise of temperature; keep the patient warm in bed, on light simple food; give 20 grains of salicin every hour for the first twelve hours, then 20 grains every two hours for the next twelve hours. When I first gave it I used to administer it in powder, but it is much more conveniently given in cachets. In many cases this is sufficient, but if not the dose of 20 grains may be repeated four, five, six, seven, or eight times a day, as may be necessary, and should there be any relapse repeat the treatment.

For young persons the dose must be reduced. I found that 1 grain for each year of the patient's age, with 1 grain extra "for the pot," was effectual. After the age of 18 years the full 20 grains should be given. If young children can be induced to swallow the drug the results in their cases are just as good as in those of their elders. I believe that young persons have a great tolerance of salicin. One mother, in whose family several cases of various ages occurred, gave a girl aged 12 years the full 20-grain doses instead of her own proper allowance of 13 grains. Her recovery was extremely rapid. But I have kept to the smaller dosage as it is quite successful.

It is quite useless to attempt to treat influenza with small doses of salicin. No effect whatever is produced. The large frequently repeated dose is what is required, and it must be given and pushed with confidence and without fear. I have come across quite an appreciable number of instances in which, following my advice, practitioners have attempted to treat the illness with salicin, but have been afraid of the proper dosage. One particular case comes to my memory in which a very eminent physician, of a past generation, got particulars of the details of the treatment from me and proceeded to treat

an even more distinguished surgeon who was suffering from the disease in 1891. He came to me the next day and said it had produced no good effect. On inquiry I found that he had given 10 grains only three times a day! We saw the surgeon that morning, and after taking the proper doses he recovered at once. Therefore, give and push 20-grain doses.

The more acute the case at the commencement and the higher the temperature the more quickly does it yield to this treatment and more quickly does the patient become convalescent. When the fever has dropped, before I let the patient out of bed, I very frequently give 60 drops of sal volatile three or four times a day, and afterwards, should any tonic be required, some strychnine and nitro-hydrochloric acid. Three times I have treated myself in this way, and on each occasion with the same success, in that I was not laid up more than one day in any case.

The fact that in my first cases, treated on ordinary lines, I had about the ordinary average number of complications, and that when I started this somewhat drastic treatment I had very quick recoveries and no complications, has encouraged me to persevere.

Since 1891 I have been asked to see a large number of cases in which the disease has been in evidence for some days. I have found that if no complication be present salicin treatment, though commenced a great deal too late, will almost certainly prevent complications and sequelae. But if bronchitis or pneumonia be present it does not seem to do very much good, though I have thought in some cases it has been of use. In such cases it is the complications rather which require treatment.

I have had the great advantage that in all the cases I have treated with this drug the patients have been able to stay in bed and take care of themselves. I should not hesitate to give salicin even in unfavourable domestic circumstances, but there is no doubt but that well housed, well looked after persons are the best subjects for this treatment.

In a large number of households of my acquaintance a stock of cachets containing 20 grains of salicin is always kept in readiness, so that should a member of the family show symptoms of influenza during an epidemic I am able to give the remedy as soon as ever I see him. This is a tremendous advantage, as the table I have appended shows.

In my experience salicin not only cuts short the duration of the disease but also abolishes the numerous sequelae which were so marked a feature in all the epidemics. I have had hardly a single patient, whom I have treated in the acute stage with salicin, come back to me later complaining of one of the numerous ills which followed an acute attack. This was most marked in the 1889-90-91 epidemics, when for months, and even years in some cases, patients suffered from various neuroses the sequelae of a severe attack. In the later epidemics, though nerve affections were observed, there were, in addition, pulmonary and cardiac mischief of a serious nature arising from the same cause. I have seen practically no such cases.

On several occasions I have been able to watch the behaviour of cases of influenza, the results of the same infection, in a household when I have given some of the inmates salicin and the others have been treated on other lines. In every instance those who took salicin were well, out and about before the others were out of bed. In several instances the latter suffered from severe pulmonary complications, in one instance resulting in death.

I had in 1890-91 many opportunities of estimating the incubation period of the disease, and I found, in cases in which I could be sure of the time when infection took place, that the symptoms of the illness started in from sixteen to nineteen hours. In some few instances twenty-four hours elapsed, but as a rule the temperature began to rise earlier.

Were it possible it would be exceedingly interesting in the next epidemic of influenza to investigate cases treated in this way bacteriologically as well as clinically, to see what effect flooding the system with this drug has on the proliferation and increase of the microbes found present.

I found during the years in which cases of true influenza were rather fewer than a great many cases of catarrh and fever yielded very rapidly to salicin, although it was not necessary to give the big doses quite so often. I have noted carefully the clinical symptoms and appearances of all the cases that I have seen since 1889. There has, in each really bad epidemic, been a distinct difference in the effects produced on those who contracted the disease. The pain which is so characteristic of the complaint has varied in the different epidemics, sometimes being entirely referred to the back of the eyes, and in other cases being felt more in the limbs or in the head, but there has been a line of distinct resemblance running through all these outbreaks. There is evidently an acute infection, which in some of the earlier outbreaks was more inclined to affect the brain and the nerve centres, and in the latter ones the respiratory system.

It appears to me, from clinical observation only, that there is probably some minute filter-passing organism which is in the main responsible for these attacks, and that sometimes, as in the 1918 and 1919 epidemics, its virulence is augmented by the action of those other microbes which were separated and found in these cases.

Salicin seems to have a selective effect on what I may call the influenza infection pure and simple, and is not so rapidly effectual in those cases in which there is a treble or quadruple infection as well.

I have given my experience during thirty-eight years in the treatment of this disease, and it appears to me that it leaves only two alternatives. The first is that with this means of treatment, boldly and wisely pushed, it will be possible in any future epidemic of influenza to eliminate complications, save hundreds of lives, and restore patients to complete health free from fear of sequelae. The second is that from 1889 onwards, in a practice which is not local but embraces the whole of the West End of London, I have never seen a case of true influenza, and that the results which I have put before you were obtained in cases of simple catarrh with fever, which would have recovered under any form of treatment in the same way. This second alternative cannot be accepted.

A Lecture

ON

PULMONARY FIBROSIS IN CHILDREN.*

BY

HAZEL H. CHODAK GREGORY, M.D., M.R.C.P.,
PHYSICIAN IN CHARGE OF THE CHILDREN'S DEPARTMENT, ROYAL FREE
HOSPITAL; PHYSICIAN, EAST LONDON CHILDREN'S HOSPITAL.

THE study of chronic pulmonary disease in childhood resolves itself into a consideration of fibrosis of the lungs in its various forms. Two of these forms are specific infections—namely, tuberculosis and syphilis—and I do not propose to consider these to-day, except in the discussion of the diagnosis of non-specific forms and with regard to the fact that the former, tuberculosis, may be engrafted upon simple fibrosis at any stage of the disease. The fibrotic form of tuberculosis may be looked upon as rare in childhood, while syphilitic fibrosis is probably very rare indeed and can never be diagnosed with any certainty.

This leaves simple fibrosis, which has in the course of years accumulated a wonderful variety of names. It is known as cirrhosis of the lung, a name which merely expresses the consistency to which the lung tissue is reduced; as chronic interstitial pneumonia, a name suggesting that the inflammatory process is progressive, which is not often the case; and as fibroid phthisis, a name which to many minds connects it too definitely with tuberculosis, and is therefore unsatisfactory.

It is non-specific in that we cannot point to any one organism that may be responsible, and indeed simple fibrosis must be looked upon rather as a healing than a disease, and might be disregarded as mere scar tissue if it

were not for secondary results which are responsible for symptoms.

By far the commonest cause of fibrotic lung in childhood is an unresolved bronchopneumonia, in many cases complicating whooping-cough or measles. The mortality rate of bronchopneumonia is so high that we have only too many opportunities for studying its morbid histology, and, in a certain type of case especially, the mechanism of early fibrous tissue formation may be demonstrated. This is the type which may be called the "wandering pulmonary infection," in which, during a period lasting from three to six weeks or even more, areas of the lungs are affected in succession, one part resolving or partly resolving while the process spreads to another. Some of the patients recover; others succumb from toxæmia and exhaustion.

Histological examination of active bronchopneumonic tissue raises the question why organization and fibrosis do not more often occur. For here, in marked contrast to the changes in lobar pneumonia, there is extensive damage of lung tissue. The walls of bronchioles and alveoli are infiltrated with both fluid and cells, while the peribronchial and perivascular tissues suffer from a similar exudation. The cells are partly red corpuscles, partly polymorphonuclear leucocytes. Penetrating into all affected parts are swarms of bacteria.

When resolution takes place the whole of this inflammatory exudate has to be cleared away. Tryptic ferments digest the mass, and the liquefied product is removed by absorption. But this is necessarily a much slower process than in lobar pneumonia, and occasionally restoration fails. When this happens, that friendly cell the fibroblast steps in, the inflammatory products are "organized"—that is, infiltrated and pierced by numerous fibrous tissue cells, which, spreading in all directions, form a firm network to weld the spongy mass together, kill the bacteria by cutting off their food supply, and finally, following the example of scar tissue all over the body, contract and become inactive. Meanwhile the alveoli of the affected area, some of which are isolated by occlusion of the terminal bronchiole and others pressed upon by the growth of fibrous tissue, are partly or wholly collapsed.

All this would matter very little if it simply meant putting a part of one lung out of commission. The body can well adapt itself to the possession of one lung, and get from it sufficient aeration of the blood.

Unfortunately, in nearly all cases bronchiectasis supervenes to a greater or less degree. The smaller bronchioles are usually obliterated, but the bronchi, weakened by the primary disease and frequently filled with muco-pus, are easily distended by the action of contracting fibrous tissue. Large cavities are unusual; the cavities are small or medium-sized, and grouped centrally towards the root of the lung. Eventually the pleura is involved, evidently a late event, as pleurisy is rare in bronchopneumonia, and the affected part of the lung becomes closely adherent to the thoracic wall. This anchorage is an additional factor in the stretching of bronchial walls and the formation of bronchiectatic cavities.

Bacteriology.

The bacteriology of bronchopneumonia embraces a large variety of organisms, and presumably any infection may lead eventually to fibrosis, but there is evidence to show that the pure pneumococcal forms are rarely followed by this complication, and as measles, whooping-cough, and influenza commonly precede the condition it must be assumed that a streptococcus causes the original infection in the majority of cases, though Friedländer's bacillus, Pfeiffer's bacillus, and others may be the cause at times. When bronchiectasis is established numerous organisms may cause secondary infection, and some of these are putrefactive.

Pleurisy.

Pleurisy may be a primary cause of pulmonary fibrosis in children. The pleurisies of children are the acute form accompanying lobar pneumonia, tuberculous pleurisy with effusion, and rheumatic pleurisy. In the first condition, if an empyema supervenes, the collapsed lung may become fibrous, especially if the abscess is left undrained too long.

* Notes of a lecture given for the Fellowship of Medicine in January, 1927, at the Royal Free Hospital.