THE TREATMENT OF PNEUMONIA IN A
PUBLIC SCHOOL.

H.H. Cavendish Fuller M.B., Ch.B.
Oakdale,
Malvern.
CONTENTS.

1. The Treatment of Pneumonia, general and special.
2. Series of 20 cases with Charts and comments.
There are comparatively few acute conditions which are met with in medical practice for which there is not some definite line of treatment, calculated to improve the condition of the patient, and to cut short the disease.

The common ailments of adolescence, as instanced by infectious fevers, do, it is true, show comparatively short periods of illness through which the patient has to pass, and during which he is definitely ill. In these cases there is every justification for an assurance of an improvement in a very short time, probably hours, and, in the bulk of such cases, the condition is not regarded as serious.

I think I am correct in stating that the disease most dreaded by parents, and by the authorities of a Public School, is pneumonia, and I believe that this dread arises from the knowledge that the disease has to run its course, and that the prognosis depends on the strength of the patient.

They know that there is persistent fever, associated with insomnia and perhaps delirium, that there is an incessant and painful cough with shortness of breath: they realise that these conditions constitute a strain
on the resources of the patient, and they are aware that no remission can be expected for several days. In any circumstances they are anxious and apprehensive. It is bad enough if the illness occurs at home, where their doctor is well-known to them, and in whom, from previous experience, they have confidence.

Treatment by the "expectant method" is accepted almost as part of the illness, and because they know of no other. On the other hand, the school doctor and the school medical service constitute an unknown quantity: parents judge by their experience, and until the service has been proved efficient, the medical department of a school is under veiled suspicion.

It is obvious then, that it may be difficult to carry a prolonged case of pneumonia at school through to a successful issue. In this respect, apart from the clinical advantages claimed for it, I have found the vaccine treatment of all varieties of pneumonia, as laid down by Professor W.H. Wynn of Birmingham, of the greatest value.

It is an active form of treatment, and both patient and parents feel that something definite is being done, calculated to bring about the "crisis" at any time.

In ten years work as Medical Officer to Malvern College, I have had some 50 cases of pneumonia to treat.
For the first 5 years of my appointment, all pneumonias were treated, faute de mieux, by the expectant method, and some of them were long and anxious. I do not propose to attempt to indicate any comparative mortality because I am of the opinion that I was fortunate with my early cases. I think I am correct in stating, however, that there is a definite death-rate from this disease in public Schools, but that the death-rate in vaccine treated cases is very much lower than that of cases treated by other methods.
In the accompanying charts it will be noted that the reactions to treatment vary: there may be indications of the response one hopes for, but there is no definite sign which shows whether or not a case will prove to be one of dramatic shortness, or a long one. Lobar pneumonia generally responds more quickly to vaccine treatment than broncho-pneumonia, but in this respect it is interesting to note that since the influenza epidemic of 1918 true lobar pneumonia has been comparatively rare, and most cases in this class of practice appear to be of the influenzal or broncho-pneumonic type.

While there are no contra-indications and no undesirable reactions to the vaccine, certain points must be emphasized to obtain the best results, and a large proportion of the lack of success by some observers must be attributable to their failure to adhere to these principles.

Pneumonia is an infectious condition arising from an organismal invasion, with special implication of the lungs. In a Public School what may be termed the middle stage shows the greatest number of cases, namely between 15 years and 17 years. The very small boy and the biggest boys in the school provide comparatively few cases.

If there is a seasonal incidence, the greatest number of cases occur during the winter months, and particularly during the spring. Hard dry weather with
east or north-east winds, with frost, popularly thought to be healthy, has proved, in my experience, to be more favourable to the production of such disease than wet, mild weather.

All types of boys contract the disease, and a well developed physique does not confer any immunity: chronic infection of the upper air passages, on the other hand, undoubtedly predisposes to pneumonic conditions.

Material is not always available for bacteriological examination, but specimens are found to contain the b. influenza very commonly, pneumoccus, streptococcus (Haemolytic in severe cases) and m. catarrhalis.

Pneumonia arises (1) as a self contained disease, which may be termed sporadic, and (2) as a complication from any of the infectious fevers, but especially in the course of an attack of influenza or measles.

The onset may be sudden, or there may be one or two days malaise with feelings of fatigue: there is commonly vomiting, and a rise of temperature to a considerable degree. Cough is frequent and ineffectual: pain in the chest is generally present, sometimes referred to the shoulder; the patient complains of headache, but rigors are comparatively infrequent. The skin is dry and burning, and the boy, who is obviously ill, may be anxious about himself.
One of the most important points in vaccine therapy in pneumonia is the early administration of the first dose in regard to the stage of the disease. Vaccine given in the first 24 hours of the disease is much more valuable than a dose given in the first 48 hours, and its efficacy diminishes as the disease progresses. It is therefore important to make an early diagnosis, and time must not be lost in waiting for the appearance of the classical symptoms. In the large proportion of the cases under discussion definite signs of consolidation did not make their appearance for some days after the first dose and subsequent doses had been given. A diagnosis therefore has to be made on (a) pyrexia, (b) cough, (c) dry burning skin, (d) slow pulse with increased respiratory rate (e) possibly pain in the chest or elsewhere.

At this stage there is no sputum and therefore no material for bacteriological examination. The general appearance of the boy seems to convey the diagnosis in many cases. In some cases even the signs and symptoms enumerated above are not all present. No definite abnormalities may be detected on inspection, palpation or auscultation at this stage in the chest: epistaxis may occur, indicating the influenzal nature of the attack.

The initial dose of the stock vaccine is given then on a limited group of signs and symptoms which leads one to suspect very strongly that the case is one of
pneumonia. It is important to make this first dose adequate. The preparation I use is a stock vaccine, made from a large number of first cultures from acute cases, covering a large range of types of the various organisms, and combined as follows:

1. Pneumococci, various types
2. Streptococci, various types
3. B. Influenzae
4. M. Catarrhalis, of each 400 million to 1 cc.

An injection is given as soon as a provisional diagnosis of pneumonia is made. The dose varies with the age and size of the boy, between 40 million and 60 million organisms. My experience is that although the first injection does produce some subjective improvement and lowering of the temperature, the general appearance and signs of the disease continue, and a second injection is given the following day, preferably when the temperature has reached its apex for the day and is falling. This commonly occurs in the evening, and an increased dose should then be administered. The dose is increased, and should consist of from 60 to 80 million organisms. This probably produces a greater result than the previous injection, and temperature, pulse and respirations may all be decreased. There may also be some perspiration, and the patient feels better, but generally another rise occurs, and a further injection 24 hours after the second, becomes necessary.
This dose is increased to 80 or 100 million, which latter appears to be the maximum effective dose. If this should not result in a return to normal, it may be advisable to allow 48 hours to elapse before repeating the dose, again on a falling temperature.

Even if the temperature, pulse and respiration are not reduced to an insignificant level, the general appearance and behaviour of the boy forms a marked contrast to the non-vaccine treated case. Severe cases, which ordinarily would be greatly distressed, dyspnoeic, restless, and perhaps delirious, are what may be termed 'controlled'.

There is a recognisable type of boy whose nervous system is peculiarly susceptible to toxic poisoning, and who becomes delirious comparatively easily. Such cases, when treated with a vaccine, are much quieter, less distressed, and give rise to less anxiety. So that, even if the case has not responded as far as the charted observations are concerned, there is a definite benefit from the vaccine in that his resistance to the invading organisms is sufficient to prevent their increase. It is difficult, however, to account for the variations seen when reviewing a number of cases lasting over some years: technique changes, and is modified by experience: the severity of an infection cannot be measured at the onset nor can the behaviour of an individual case be.
forecasted. It is not suggested that the treatment of pneumonic processes by stock vaccine is infallible, nor is it presumed that every case is an example of a rapid improvement and return to normal, but that as a routine treatment it is extremely valuable and does coincide with some most remarkable results.

The general treatment of a case of pneumonia at school presents some features which do not occur in private practice. Boys are creatures of impulse, and cannot be relied upon to behave normally, therefore the nurses selected for such a case must be rather more than ordinarily good. Isolation is a necessity, in a quiet, well ventilated room which gets as much sun as possible. In the School Sanatorium a number of such single rooms are available and in these the cases are treated. Beds with detachable heads are used, and those fitted with an adjustable shoulder piece are useful. Antiphlogistine is always used: it is applied and left undisturbed for 24 hours. The benefit of the application may be doubted but the fact that it makes an examination of the patient impossible until it is about to be re-applied, ensures the minimum amount of movement, and on this account at least, is useful. Although open air treatment is not practised, all windows are kept wide open and the result is much the same. No restriction on the position of the patient in bed is made provided that under no circum-
stances does he sit upright. Examinations, which are only made on alternate days, when the antiphlogistine is to be changed - unless there is some special indication - are made by having the patient rolled from side to side. Physical effort is thus reduced to a minimum. Loading of the bowel must be avoided if possible, and a dose of calomel, gr. 2. is given on admission to the Sanatorium, and thereafter aperients as may be necessary. Enemeta are employed, especially if there is any reason which makes the use of an aperient undesirable; bed pans, of course, are always used in these cases.

Pyrexia is kept within limits by means of tepid sponging, the aim being to reduce the temperature by one degree, as from 104 to 103. Patients going above 104 are sponged as a routine. If there is much cyanosis and dyspnoea, oxygen administered freely, and through a nasal catheter, affords some measure of relief.

Cough is nearly always troublesome, and in cases where the pleurisy is well marked it may be incessant and painful. Cough is increased by talking, and for this reason, relatives visiting the patient, should be warned against conversation. Iodide, citrates and tincture camphorae Co. are all used at different stages of the attack, though the Mist. Ammon. Senegae is found to be most generally useful. Alcohol is not used in any
routine manner but while admitting that recent research has proved that it has no value at all as a stimulant, it seems to have a beneficial effect in some cases.

Pituitrin is valuable where the fever has persisted and the heart muscle is weak and flabby in the later stages, and is still more useful as a stimulant when the patient has collapsed coincident with a crisis.

Sleeplessness is sometimes the worst part of the illness: in some cases this is primarily due to the toxins rendering the nervous system irritable, while in others it is brought about by the cough. In the former variety bromides are useful. Sedebrol sometimes succeeds where bromides fail, and in other cases nepenthe produces sleep. Dovers powder is given with good results but I have not had good results with morphia in boys. Glyconeroin or the linctus heroinae is useful because it soothes the cough in addition to quietening the patient.

The period of convalescence arrives earlier in the vaccine treated cases, and in view of the fact that the acute stage has been curtailed, the general condition of the patient is better. The pathological changes associated with pneumonia occur in the lung, but the boy who has been treated with a vaccine is generally in good physical condition compared with the untreated cases, and is able to make quicker progress in consequence.
When signs of resolution in the lung appear, deep breathing exercises, by an open window, help the lung to expand and to resume its functions.

Vaccine treatment in no way reduces the importance of skilful nursing, and the progress of a case is influenced to a very large extent by those responsible for this service.

It would appear that a considerable proportion of cases of pneumonia arise from an unhealthy condition of the upper air passages, the nose, throat or accessory sinuses. Such foci of infection, if discovered during the illness, or in convalescence, should be investigated and appropriate methods adopted for treatment; it may be argued that such foci, if untreated, are the source of second and third attacks of pneumonia, as they may have been the source of the initial attack.

In considering the appended charts of cases of pneumonia which have occurred during the last 5 years at school, one fact should be noted. The charts date from the onset of the illness, and not from the appearance of the classical symptoms, which do not make their appearance until later; the return of the temperature, pulse and respirations to normal, indicates that the acute stage is at an end. It will be found in a number of the cases shown that the duration of the actual pneumonic process is shorter than the usual time
given for the subsidence of the acute symptoms.
DISEASE:
Broncho-
Pneumonia.

Name:

Age:

Diet:

Case Book No:

Notes of Case:

- Urine
- Acid
- 10% u.
- no Sugar.

Date of admission:
Feb. 12, 1923

Result:

Day of Dis
Pulse
Resp.

Date:
12
13
14
15
16
17
18
Case 1.

February 12th 1923.
A mild case of broncho-pneumonia, without distress or dyspnoea. Remission on the 3rd day, and rise again on the 4th day.
A small dose of vaccine (40 million) coincided with a return to normal.
### Disease
- **Diagnosis**: Lobar Pneumonia

### Notes of Case
- **Urine**: Acid
- **10:30**: Trace of album, no sugar

### Case Book No.

### Date of Admission
- **July 5, 1923**

### Temperature Chart
- **Temperature (Fahrenheit)**:
  - 97° to 107°

### Time
- **AM**: 10, 12, 10
- **PM**: 10, 12, 10

### Bowels
- 10, 12, 10

### Urine
- 5E, 0, 0

### Temperature Chart Details
- **Temperature (Fahrenheit)**:
  - 98°

### Diet

### Case Book No.

### Case Book No.

### Date of Dis.
- **1**: 10 pl.
- **2**: 20 pl.
- **3**: 30 pl.
- **4**: 40 pl.
- **5**: 50 pl.
- **6**: 60 pl.
- **7**: 70 pl.
- **8**: 80 pl.

### Pulse
- **1**: 100 pl.
- **2**: 120 pl.
- **3**: 140 pl.
- **4**: 160 pl.
- **5**: 180 pl.
- **6**: 200 pl.
- **7**: 220 pl.

### Resp.
- **1**: 10 resp.
- **2**: 20 resp.
- **3**: 30 resp.
- **4**: 40 resp.
- **5**: 50 resp.
- **6**: 60 resp.
- **7**: 70 resp.

### Result
- **Entered at Stationers Hall**: 5
- **Printed and Published by Wodgerspoon & Co.**: 5
- **Gould's Clinical Chart**: 5
Case 2.

Lobar pneumonia. Sudden onset, with pain on the left side, in the axillary line at the base of the lung. Dullness on percussion with prolongation of the expiration appeared on the 3rd day of illness. A dose of vaccine, 10 million, was given, and the following day 40 million were given. The boy was normal on the 6th day of illness or 4th day of pneumonia.
4 Hour Chart.

Disease:
Bronchitis
Pneumonia

Name: H. O. H.
Age: 16 yrs.
Diet:

Notes of Case:

Tennis.
said
hiss
sugar

Date of admission:
July 11, 1923

Result:

Entered at Stationers Hall.
Printed and Published by Waderson & C., 121, Gate Street, Kingsway, W.C.2.
Goulds Clinical Chart.
A case where the temperature, pulse and respiration remained comparatively low. A diagnosis of bronchopneumonia was made on the 3rd day when small areas of dullness, with some increase of vocal resonance appeared. Small doses of vaccine were given, and resolution was complete on the 11th day by lysis. This boy was later under treatment for pulmonary tuberculosis.
DISEASE: Broncho-Pneumonia

Name: C.S
Age: 14 1/2 yrs.
Diet: 
Case Book No.
Notes of Case:

- Urine: acid
- 10.30
- No albumin

Temperature (Centigrade):

Date of admission: Oct. 23, 1923
Result:

Entered at Stationers Hall
Printed and Published by Wells, Son & Co., Aldersgate Street, Kingsway, W.C.2.
Case 4.

This is the only case shown which was not treated by vaccine, and unfortunately, for purposes of comparison, it was a very mild attack.
Admitted on February 14th with bronchial catarrh. He complained of pain in the left side of his chest on the 4th day of illness, and some fine crepitations were audible at the base of the lung. Small doses of vaccine, 10 million, 40 million and 40 million were given on the 4th, 5th and 6th days of his illness, and he was normal on the 7th day. His convalescence was rapid.
DISEASE: Lobar Pneumonia
Name: T. R. T.
Age: 17 yrs.
Diet: 
Case Book No.

Notes of Case:

Kanie
All. 1025
All. Sugar 3 wid.

Date of admission: 26.3.1924

Entered at Stationers Hall. Printed and Published by Wedderburn & Co., 11, Aldersgate Street, Kingsway, W.C.
Case 6.

Admitted on April 3rd, 1924 vomiting. The sickness persisted for 36 hours. Larger doses of vaccine were given in this case, which was one of very considerable severity. Haemorrhagic sputum appeared on the 3rd day and signs of consolidation on the 5th day, at the base of the right lung. Resolution occurred by crisis on the 8th day of his illness, or the 6th day of pneumonia. The breathing remained rapid for some days, but his recovery was uneventful. The condition of this patient was critical on the 5th and 6th days but the rapidity of his convalescence was remarkable.
Admitted March 22nd 1924. Vaccine, in increasing doses, was given from the first day. Some dullness appeared on the right base on the 2nd day. There was no definite improvement for 48 hours, but there was a complete return to normal on the 7th day.
Disease: Broncho-Pneumonia

Name: L. E. M.

Age: 15 yrs.

Diet: 

Case Book No.

Notes of Case:
- Urine acid.
- 10:30 a.m.: alb., u. sugar.

Date of admission: May 27, 1924

Result:

Graph showing temperature fluctuations with marked peaks and valleys, indicating fever.
Case 8.

This boy had the advantage of sleeping well all through the acute stage of his illness. Definite physical signs did not appear until the 6th day. 4 doses of vaccine were given on successive days and the temperature, pulse and respiration were approximately normal on the 7th day of his illness.
4 Hour Chart.

Name: J. M.
Age: 12 1/2 yrs.

Disease: Typhoid Fever.

Notes of Case:

Chills
Acid.
Diarrhoea.

Date of admission: May 27, 1924.

Day of Discharge:

Pulse:

Date:

Entered at Stationers Hall. Printed and Published by Woodruff & Co, 10, Chancery Lane, London, W.C. 2.
Case 9.

Lobar pneumonia, admitted May 27th 1924. Vaccine was given at the onset, when the boy was complaining of cough and pain in the left lung. The pyrexia continued until the 7th day. Physical signs of consolidation became evident at both apices, and delirium was well-marked. Condition was good after the crisis on the 7th day, there being no signs whatever of collapse.
4 Hour Chart

Disease

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Name

Age

Diet

Case Book No.

Notes of Case

Date of admission

Pulse

Resp.

Result

Entered at Stationers Hall

Case 10.

Broncho-pneumonia, of influenzal origin, marked by epistaxis and delirium. The patient did not sleep, and was incontinent of faeces at times during the height of the fever. Signs developed at the apices on the 6th day, vaccine having been given from the 2nd day. A pseudo-crisis occurred on the 7th day, followed immediately by a return to normal. Convalescence short.
DISEASE: Broncho-Pneumonia.

Name: O.E.L.
Age: 15¾ yrs.
Diet: 
Case Book No.

Notes of Case:

Urine Acid 10.30 Trace alb. 6.05 sugar.

Normal Temperature of body.

Date of admission: June 9, 1924.
Result: 

Entered at Stationers Hall. Printed and Published by Wollenspoon & Co., 134 Gata, Street, Kingsway, W.C.2.
Case 11.

Admitted June 9th 1924, influenzal broncho-pneumonia. Complained of pain in the right side of chest and cough. Initial dose of vaccine was 40 million in this case. Haemorrhagic sputum was present on the 3rd day, and epistaxis on 3rd and 4th days. Patient returned to normal on 5th day, after three injections.
# 4 Hour Chart

**Disease.**

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<th>Time</th>
<th>Bowels</th>
<th>Urine</th>
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<td>PM</td>
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- **Time:** AM 2, PM 2
- **Bowels:** AM 6, PM 6
- **Urine:** AM 1, PM 1

**Notes of Case**

- **Name:**
- **Age:**
- **Diet:**
- **Case Book No.:**

**Normal Temperature of Body:**

- 98°
- 97°
- 99°

**Day of Dis.:**

- 23°
- 24°
- 25°
- 26°
- 27°

**Date of Dis.:**

- 2.4.15

**Result:**

- 2
- 4

**Enterer at Stationers Hall.**

**Printed and Published by Wodderspoon & Co., Gate Street, Kingsway, W.C. 2.**

**Goulds Clinical Co.**
Case 12.

Admitted July 20th 1924 with double acute otitis media having had influenza 5 weeks previously. The ear condition subsided, but on the 3rd day after admission the respirations increased and he complained of pain in both shoulders: the temperature decreased considerably following a larger dose of vaccine (40 million), but the physical signs were definite at the left base. On the 6th day the right apex showed signs of infection, but there was no further change until 10th day, when pericarditis with effusion became manifest. No improvement took place, the dyspnoea became more marked, and the boy died on August 4th as a result of pulmonary infarct.

It would appear that the infection in this case was so massive that no vaccine could influence it.
Disease: Broncho Pneumonia.

Name: A. Le M.
Age: 16 yrs.
Diet: 

Notes of Case:
- Urine: 1030 acid

Date of admission: July 22, 1925

Temperature chart:
- AM: 02, 04, 06, 08, 10, 12
- PM: 11, 01, 03, 05, 07, 09

Day of Dis:
- Pulse: 90, 90, 90, 90, 90, 90
- Resp.: 20, 20, 20, 20, 20, 20
- Date: 02, 03, 04, 05, 06, 07

Result:
Case 13.

This patient had had pneumonia a year previously. This illness was characterised by prolonged pyrexia, with a moderate increase of pulse and respiratory rates. There was consolidation at both apices and the right base, one developing after the other. His convalescence was normal. This boy was Champion Athlete the following year.
4 Hour Chart.

Disease.

Name:

Age:

Diet:

Case Book No.:

Notes of Case:

Date of admission:

Pulse:

Resp. Date:

Entered at Stationers Hall.

Printed and Published by Wedderspoon & Sons, Ltd., 7-12, Aldersgate Street, LONDON, E.C. 1.
**4 Hour Chart.**

**Disease:**
- Lobar Pneumonia.

**Name:**
- [Redacted]

**Age:**
- 17 yrs.

**Diet:**
- [Redacted]

**Case Book No.:**
- [Redacted]

**Notes of Case:**
- **Tachycardia:**
  - Alkaline
  - 1030
  - No. alb.

**July 26:**
- Acid
- 1030
- No. alb.

**Date of Admission:**
- July 22, 1925

**Day of Dis.:**
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**Temperature (Fahrenheit):**

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**Normal Temperature of Body:**
- 98°

**Entered at Stationers Hall.**

**Printed and Published by Wooderspoon & Co., 12 Gate Street, Kingsway W.C. 2.**

Goulds Clinical...
Case 14.

Admitted July 22nd 1925, complaining of abdominal pain which persisted for some days: pain was referred to the right iliac fossa. Pain at the base of the right lung on the 7th day, and vaccine was commenced with a small dose in case the patient was sensitised. Physical signs of commencing pneumonia were observed at the left base on the 8th day, and pleurisy was well marked. Deteriorcence by lysis on the 17th day, followed by delayed resolution. This case might be used to illustrate the indifferent results obtained if the administration of the vaccine is withheld.
<table>
<thead>
<tr>
<th>Time</th>
<th>Bowels</th>
<th>Urine</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>PM</td>
<td>AM</td>
</tr>
<tr>
<td>26</td>
<td>10</td>
<td>26</td>
</tr>
<tr>
<td>107°</td>
<td></td>
<td>107°</td>
</tr>
</tbody>
</table>

Notes of Case:
- Normal Temperature of body:
  - 98°

Date of admission:
- Day of Dis.: 24
- Pulse: 24 24 26 24 26 24 24 24 24
- Resp. Date: 30 31

Entered at Stationers Hall.
Printed and Published by Wedderson & Co, Gate Street, Kingsway w.c.2.
**4 HOUR CHART.**

**DISEASE.**
Lobar Pneumonia (L.)

**Name:** G. E. Mcl

**Age:** 15 1/2 yrs.

**Diet:**

**Case Book No.**

**Notes of Case**
Urine acid 1032
10 a.m.

17 12 25.
Trace alb.
1020.

**Date of admission:** Dec. 22 1925

**Result:**

<table>
<thead>
<tr>
<th>Day of Dis</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse</td>
<td>102</td>
<td>110</td>
<td>115</td>
<td>120</td>
<td>125</td>
<td>130</td>
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<tr>
<td>Resp.</td>
<td>12</td>
<td>23</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
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</table>

**Temperature (Fahrenheit):**

<table>
<thead>
<tr>
<th>Time</th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>102°</td>
<td>105°</td>
</tr>
<tr>
<td>6</td>
<td>104°</td>
<td>106°</td>
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<td>10</td>
<td>105°</td>
<td>107°</td>
</tr>
<tr>
<td>14</td>
<td>104°</td>
<td>103°</td>
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<tr>
<td>18</td>
<td>102°</td>
<td>101°</td>
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<tr>
<td>22</td>
<td>101°</td>
<td>100°</td>
</tr>
<tr>
<td>26</td>
<td>100°</td>
<td>99°</td>
</tr>
</tbody>
</table>

**Normal Temperature of body:** 98.6°
Case 15.

Admitted December 22nd 1925, complaining of cough, and pain at the base of the left lung. Five doses of vaccine were given, on successive days, followed by a classical crisis on the 7th day. This boy was very much more ill than some of the other cases, but his convalescence was rapid.
DISEASE: Pneumonia

Name: D. B.

Age: 14 yrs.

Diet:

Case Book No.:

Notes of Case:

Urine:

Units: 0

Acidity: 100

Heavy: no

Albumin: no

P. D.'s: mixed

Date of admission:

Feb. 11, 1927

Result

Day of Dis. Pulse.

1 11
2 12
3 13
4 14
5 15
6 16
7 17

Printed and Published by Wodderspoon & Co., 114, Gara Street, Kingsway, W.C. 2.
Case 16.

Admitted February 11th 1927.

This boy had recovered from influenza a few days previously, when he complained of pain in his left shoulder. When the temperature was falling from 105.2° he was given 50 million organisms in the vaccine, and 80 and 100 million on the following two nights. A false crisis occurred on the 4th day, and he settled to normal on the 5th day of his illness. His recovery was uneventful. Consolidation was not present until the 5th day.
<table>
<thead>
<tr>
<th>Time</th>
<th>Bowels</th>
<th>Urine</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>PM</td>
<td>10</td>
<td>2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature (Fahrenheit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>107°</td>
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<tr>
<td>106°</td>
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<td>99°</td>
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<tr>
<td>98°</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Normal Temperature of body</th>
</tr>
</thead>
<tbody>
<tr>
<td>98°</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Day of Dis.</th>
<th>Pulse</th>
<th>Resp.</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>2:20</td>
<td>21</td>
<td>02</td>
</tr>
<tr>
<td>23</td>
<td>1:24</td>
<td>12</td>
<td>04</td>
</tr>
<tr>
<td>24</td>
<td>2:06</td>
<td>26</td>
<td>05</td>
</tr>
</tbody>
</table>
complaining of cough and pain in the left side of chest.
No signs in the lungs except those of bronchial cat-
arrh. Vaccine was not given until the 3rd day, and
signs of consolidation were then found at the base of
the left lung. The boy was normal on the 10th day
of his illness, and his condition was unusually good.
The first dose of vaccine was delayed until the 3rd
day.
# 4 Hour Chart

**Disease:**

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<th>Time</th>
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<td>10</td>
<td>2</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>

**Temperature (Fahrenheit):**

- Normal Temperature of Body
- Daily Temperature Records

**Date of Admission:**

<table>
<thead>
<tr>
<th>Day of Dis.</th>
<th>Pulse</th>
<th>Resp.</th>
<th>Date</th>
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<tbody>
<tr>
<td></td>
<td>12</td>
<td>77</td>
<td>11</td>
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<tr>
<td></td>
<td>78</td>
<td>58</td>
<td>12</td>
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<td>23</td>
<td>90</td>
<td>13</td>
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</table>

**Result:**

Entered at Stationers Hall.
Disease: Bronchitis

Name: E. H. C.

Age: 15 yrs

Diet

Case Book No.

Notes of Case

Date of admission: June 4, 1927

Result

Temperature (°Fahrenheit):

- 107°
- 106°
- 105°
- 104°
- 103°
- 102°
- 101°
- 100°
- 99°
- 98°
- 97°

Time

Bowel

Urine

2 6 10 2 6 10 2 6 10 2 6 10 2 6 10 2 6 10

0 1 11

Vomits 460 c.c.

Vomits 80 c.c.

Vomits 520 c.c.

Vomits 100 c.c.

Time

Pulse

Resp.

Date

1 2 3 4 5 6 7 8 9

4 5 6 7 8 9 10

4 6 8 10 12 14 16 18 20

4 6 8 10 12 14 16 18 20
Case 18.

Admitted June 4th 1927.

Characterised by remissions which might be considered to be attributable to the vaccine. Haemorrhagic sputum indicated the severity of the infection and areas of consolidation were evident in both lungs on the 5th day of the disease.

The boy was normal on the 9th day, and made an uneventful recovery.
<table>
<thead>
<tr>
<th>Time</th>
<th>AM 2</th>
<th>PM 2</th>
<th>AM 6</th>
<th>PM 6</th>
<th>AM 10</th>
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</table>

**Disease:** Broncho Pneumonia

**Name:** W. H. R.

**Age:** 15 yrs.

**Notes of Case:**
- Urine: Slight album.

**Date of admission:** June 16, 1927

**Result:**
- Entered at Stationers Hall.
Admitted June 16th 1927, complaining of cough and pain in the left side of the chest.

Temperature 104.2, pulse 116, respirations 30.

80 million dose of vaccine given, followed by 100 million the next day. Patient was normal on the 3rd day of the illness, though the physical signs of pneumonia did not appear until the 5th day, when the boy was quite comfortable. Recovery uneventful and quick.
4 Hour Chart.

Disease:

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Diet</th>
</tr>
</thead>
</table>

Notes of Case:
- Urine:
  - Acid
  - Lots of acid
- Leuko.
- Lots of sugar

Date of admission

Result

Entered at Stationers Hall

Printed and Published by Wodderspoon & Co., 12c Gate Street, Kingsway, W.C. 2

Goulds Clinical
Disease:
- Broncho
- Pneumonia
- Pericarditis

Name: G. B.

Age: 15 yrs.

Diet

Case Book No.

Notes of Case
- Urine acid
- 1020
- Trace alb (8.7.17)

Date of admission: July 1, 1927

Result

Entered at Stationers Hall.

Printed and Published by Waddesdon & C UIStoryboard Gate Street, Kingsway, W.C.2.
Case 20.

Admitted with influenza July 1st 1927.
This case illustrates the contention that boys are not to be considered ordinary patients. During the first six days the nurses found it difficult to keep him in bed. On the 7th day his temperature rose to 104.2 with increased cough and pain in the left side of the chest. Vaccine was administered on six occasions, and although the areas of consolidation reappeared in different places, the pneumonic aspect was of minor importance by the 14th day of his illness. There was no sputum. He was not so well on the 16th day, when pericardial friction sounds became audible. Slight effusion with marked dilatation followed, but he gradually improved, and was able to go home by ambulance on the 35th day of his illness, and has since made good progress.
SUMMARY.

Consideration of the foregoing suggestions and principles, and a study of the attached series of cases, has led me to conclude that:

(1) As no one case can be treated in two different ways at the same time, no logical contrasts can be made.

(2) Public Schoolboys present more difficulties, in some respects, than ordinary patients.

(3) Vaccine treatment, as practised on the lines indicated, has no adverse effect.

(4) Vaccine treatment, combined with the routine management specified:

(a) Reduces pyrexia.
(b) Conserves cardiac energy and preserves muscular tone.
(c) Assists the patient to arrive at the period of convalescence in good physical condition.
(d) Reduces the duration of convalescence.
(e) Gives confidence to the patient as well as to the relatives.

(5) The results of the treatment, as shown in all cases occurring in the School during a period of five years, are satisfactory.